Foreword

Participating in research as an undergraduate student expands the students’ visions for a future beyond the baccalaureate degree. Our scholars learn that research is a process of careful inquiry leading to the discovery of new information. Through this process, our goal is for the McNair scholars not only to learn about the academic disciplines in which they are majoring, but also for them to learn the lessons of tenacity, patience, and confidence. We ask the McNair scholars to rise to the occasion, accept constructive criticism, and pursue excellence. Being a scholar is more than just producing journal articles; it also involves developing the energy to use one’s talents to the fullest in the interest of the public good.

Learning is a rewarding enterprise which is fueled by teaching and research. By far, our faculty mentors for the McNair Scholars Program are one of our strongest assets. From the design of the research activities through data collection and completion of the journal article, the McNair Scholars are actively engaged in research under the tutelage of their faculty mentors. The McNair research experience consists of four phases; starting in the first fall semester, the McNair Faculty Co-Directors lead research workshops for the scholars. Extending through the spring and summer, our scholars are linked to faculty mentors in their various disciplines to complete the journal article. The culmination of the research experience happens the following fall semester with the publication of their journal article. It is a year of transformation.

There are differences in how research is conducted across disciplines but the search for new information is common to all. Our scholars learn and develop as a community of scholars because they are involved in an interdisciplinary program. The interdisciplinary aspect of the program helps to broaden our scholars understanding and appreciation for various types of research methods and it expands their exposure to scholarly ideas across the disciplines. The McNair Scholars Program participants enhanced their education through faculty-supervised research opportunities and as a cohort, they built lasting relationships.

The articles in this journal highlight the talents and intellectual insights of our scholars. The studies range from the investigation of plants used by indigenous peoples in North and Central America to the significance of multiculturalism in Greek Letter communities to the effects of group composition on social anxiety. I would like to congratulate the scholars, and express my appreciation to the faculty mentors and program staff for the time and effort they have invested in the success of this journal and the McNair Scholars Program at California State University, Sacramento. My hope is that you will enjoy the fruits of their labor.

Chevelle Newsome, Ph.D.
Dean of Graduate Studies
McNair Director and Principal Investigator
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Sororities as Organizations: Exploring the Significance of Multicultural Principles in Greek Lettered Communities

Alexandra R. Boyd
Dr. Michele Foss-Snowden, Faculty Mentor

ABSTRACT

Most academic research on Greek Lettered Communities and Organizations (GLCOs), such as fraternities and sororities, fail to address the presence or significance of multiculturalism as a guiding principle. In non-Greek lettered organizations, however, multiculturalism is becoming increasingly important and centralized. Academic literature often explores the benefits and challenges of embracing multiculturalism in non-Greek lettered organizations and rarely addresses it with GLCOs. Employing qualitative research methods, such as in-depth interviews, this study explores the impressions of the benefits and limitations of embedding multiculturalism as a foundational organizational value for the members of one Northern California sorority.

INTRODUCTION

Greek Lettered Communities and Organizations (or GLCOs) are commonly found on many American college campuses. In this study, a GLCO is an all-inclusive term for sororities and fraternities that function as participants in the overall Greek community and as independent organizations for their members. Each GLCO represents an opportunity for college students to develop their leadership skills, cultural understanding, and relationships (Boschini and Thompson 1998); additionally, “most [members] graduate with valuable experiences in the burdens and bonds of tradition, responsibility, and especially camaraderie. Not such bad things to take away from an undergraduate education and into society” (O’Donnell 2009, A76). GLCOs can be considered a great opportunity for the personal development of many students on college campuses (O’Donnell 2009).

All of the attention given to GLCOs has not been positive, however. Many studies (Barry 2007; Cokley et al. 2001; Foubert, Garner, and Thaxter 2006; Reitman 2012) focus on the reports of hazing, sexual assault, binge drinking and other allegedly inappropriate behavior that takes place on college campuses. Reitman (2012) and Hoover (2012) report incidents of binge drinking and
mayhem, and even death, resulting from hazing. These unfortunate stories of negativity in GLCOs have overshadowed some of the benefits that GLCOs may bring to college campuses and students, but it is not the goal of this study to argue the virtues and drawbacks of GLCOs. Instead, this study accepts GLCOs for what they are (good or bad) and aims to explore cultural heterogeneity or multiculturalism in GLCOs.

A thorough examination of the historical cultivation of GLCOs reveals that homogeneity was a norm established from the very beginning of many of these organizations (James 2000; McCabe 2011; Tindall, Hernandez, and Hughey 2011). Torbenson and Parks (2009) describe the establishment of GLCOs in three waves. The first wave began with White Christian male fraternities, as they were the only demographic with the privilege of attaining a college education at the time (James 2000). The first GLCO to begin this trend was Phi Beta Kappa fraternity in 1776 at William and Mary College in Williamsburg, Virginia (Torbenson and Parks 2009). The second wave, 1885-1929, included the creation of GLCOs that were non-traditional; these groups catered to Jews, African-Americans, nonsectarian groups, religious groups, and women (Torbenson and Parks 2009). The third wave, 1975-1999, included GLCOs comprised of Asian-American men and women, LGBT individuals, and Latinos; Multicultural GLCOs were also created during this third wave (Torbenson and Parks 2009). These groups formed in part due to their demographic being excluded from the existing GLCO community as it stood (Torbenson and Parks 2009).

Over the course of these three waves, even during the times at which different kinds of people were being represented within GLCOs, many different factors reinforced the norm of homogeneity and racial/ethnic exclusivity within these organizations. For example, when the National InterFraternity Conference (NIC) was established in 1910, its purpose was to create an alliance between the White Christian fraternities (James 2000), further solidifying the norm of homogeneity in the GLCO system; soon after the NIC was formed came the founding of many other homogenous Greek councils and alliances (James 2000). Also, some of the Black and White GLCOs had exclusion clauses in their national constitutions that prohibited any persons of a different race/ethnicity from joining (James 2000). However, after a large movement to lift the exclusionary clauses, many organizations, even the ethnic-interest groups, gained members from outside of the ethnicity of focus (Hughey 2007; James 2000). While the ethnic-interest GLCOs can be considered inclusive because they exist for the purpose of supporting and serving ethnic minorities, they cannot be considered Multicultural because they were not specifically created under the philosophy of multiculturalism. The researcher decided to capitalize “Multicultural” when used as a racial/ethnic identifier toward GLCOs (i.e., historically White, Black, and Latina GLCOs). The high value placed upon cultural homogeneity (as opposed to multiculturalism) in the GLCO system is a key factor in understanding the significance of Multicultural organizations in the GLCO system.

In the third wave, Multicultural organizations began challenging the homogeneity of GLCOs. Multicultural GLCOs are different from homogenous GLCOs because of the high value placed upon all cultures working together, rather than just one. There is little research that explores Multicultural GLCOs and for that reason the present research addresses this need. Historical information about the founding of Multicultural GLCOs is rare; academic studies on the topic are virtually nonexistent. Additionally, multiple definitions of multiculturalism exist, so it is often difficult to cover all aspects of the concept. For example, some definitions of multiculturalism allow the term to describe an organization or group that has members of different cultural backgrounds due to integration (Allen 1995; Ashcraft and Allen 2003; Stevens, Plaut, and Sanchez-Burks 2008; Witherspoon and Wohlert 1996). The present study does not use this definition, and instead recognizes the difference between multiculturalism achieved through integration (referred to hereafter as implemented multiculturalism) and multiculturalism achieved by founding the organization upon the philosophy and using it as a teaching mechanism (referred to hereafter as embedded multiculturalism). The first definition of multiculturalism (implemented multiculturalism) applies to many if not most GLCOs. The latter definition of multiculturalism (embedded multiculturalism) applies only to organizations or groups that included multiculturalism among their founding principles. This latter definition creates a separate category of GLCOs: Multicultural Greek Lettered Organizations (MGLOs).

This study argues that many GLCOs (including MGLOs) function like organizations, such as businesses. Like businesses, most GLCOs have organizational elements such as a defined culture, values, mission, and hierarchy (McCabe 2011; Tindall, Hernandez, and Hughey 2011). Both types of organizations have similar hierarchies (i.e., CEOs and presidents) (Adams and Kiem 2000; Giddings 1998). Thus, ideas and theories that apply to organizations in general can surely be applied to GLCOs.

Many studies (Allen 1995; Ashcraft and Allen 2003; Stevens, Plaut, and Sanchez-Burks 2008; Witherspoon and Wohlert 1996) have focused on the importance of multiculturalism in businesses and organizations, and some studies (Boschini and Thompson 1998; Hughey 2007) have examined the existence and effects of multiculturalism in homogenous GLCOs, but none have focused on the importance or effects of multiculturalism in Multicultural sororities. The present research attempts to fill this void in the space where organizational communication and GLCO literature meet. The researcher interviewed members of a Multicultural sorority in an attempt to discover the members’ perceptions of the benefits and limitations of membership in an organization (specifically, a GLCO) that was founded upon the principle of multiculturalism.
Literature Review

Researchers with interest in GLCOs have examined both Multicultural sororities (Boschini and Thompson 1998; McCabe 2011; Wells and Dolan 2009) and homogeneous sororities in the African American (or Black) community (Hughey 2007; Tindall, Hernandez, and Hughey 2011), the Latina community (Heidenreich 2006; Helem 2004; Mejia 1994; Press 2005), and the European American (or White) community (James 2000; Torbenson and Parks 2009). Research on other culturally specific GLCOs (those that serve the Asian American or Pacific Islander communities, for example) is limited and will not be included in the present study, due to its scarcity. The existing research on culture and GLCOs focuses on various topics, from the inter-fraternal councils of both homogeneous (Heidenreich 2006; James 2000; Tindall, Hernandez, and Hughey 2011) and Multicultural organizations (McCabe 2011), to the integration of the historically White fraternities and sororities and the rise of heterogeneity and diversity in these organizations (Hughey 2007; James 2000), to the creation of Multicultural GLCOs (Torbenson and Parks 2009). Research on culture and MGLOs has been more historical and descriptive in nature, and has not fully explored the perceived benefits and possible limitations of embracing multiculturalism as a guiding philosophy (Wells and Dolan 2009). Research on MGLOs has considered how these organizations fit into the larger campus and curricular structure (Wells and Dolan 2009), but it has not considered the concept of GLCOs/MGLOs and organizational communication from the opposite direction. That is, scholars have yet to study how MGLOs operate as organizations, or how MGLOs share the same benefits and challenges of multiculturalism as faced by non-GLCOs.

There is no lack of research on multiculturalism and organizational communication. Grimes and Richard (2003) studied the impact of cultural diversity in the workplace, and organizational communication scholars such as Ashcraft and Allen (2003) have changed the face of work on organizations by suggesting that organizations are fundamentally gender- and race-based entities. However, researchers have thus far failed to examine sororities, especially Multicultural sororities, using an organizational communication lens. The following review of the literature demonstrates the need for a study that combines the previous work conducted on Multicultural sororities and multiculturalism in the organization.

Racial Exclusivity through Inter-Fraternity Councils

The National Panhellenic Council (NPC) recognizes 26 historically White sororities. The council was originally founded as a way to bring the sororities together in the spirit of getting along with each other, especially when they were at odds with those who sought to block such organizations for women (NPC Foundation). The NPC is responsible for maintaining the values and ethics of women's fraternities while challenging members to be active leaders within their organizations (NPC Foundation). The NPC is the oldest inter-fraternal council for women, but it is not the only group of its kind. Other councils include the National Pan-Hellenic Council (NPHC), which is a coordinating body for the first nine African American fraternities and sororities, the National Association of Latino Fraternal Organizations (NALFO), and the National Multicultural Greek Council (NMGC), which is an umbrella organization of 12 Multicultural and Multiethnic fraternities and sororities. These GLCO Councils are important to understand because their existence demonstrates a basic example of continued racial exclusivity within GLCOs. To better understand racial/ethnic exclusivity, it is also essential to understand the history of GLCOs within these councils.

Sororities and the Black Greeks

At the time of the founding of the earliest fraternities, most women were not allowed to receive a college education; those women who did attend college were excluded from the existing fraternal organizations (Torbenson and Parks 2009). As a result, many women across the country formed their own fraternal organizations. The oldest collegiate sororities include Alpha Delta Pi (originally called the Adelphian Society), which was founded in 1851, Pi Beta Phi (created in 1867), Gamma Phi Beta (founded in 1874), and Kappa Alpha Theta, established in 1870 (Torbenson and Parks 2009). As African Americans gained access to education, they also, like women, found themselves banned from joining the existing GLCOs; African Americans started forming their own Greek-lettered organizations in 1906 (James 2000). More popularly, the first nine African American fraternities and sororities are members of the National Pan-Hellenic Council, or NPHC; of the nine, four (Alpha Kappa Alpha, 1908, Delta Sigma Theta, 1913, Zeta Phi Beta, 1920, and Sigma Gamma Rho, 1922) are sororities (Tindall, Hernandez, and Hughey 2011). In an academic climate that was not welcoming of women, especially women of color, these organizations were founded to support the women surviving in hostile environments. While some might argue that, due to their own struggles with overcoming prejudice and bias, college women of this time should have been inclined toward inclusivity, research shows that the earliest White sororities were resistant to the idea of integrating other races/ethnicities into their sisterhoods (Boschini and Thompson 1998; Tindall, Hernandez, and Hughey 2011). As a result of the cultural demographics at colleges, segregation, and expectations of homogeny, some Black college women founded their own sororities (rather than fight for inclusion in the historically White organizations) (Torbenson and Parks 2009). Each of the early Black sororities included the importance of community engagement and societal equality in their founding principles (Tindall, Hernandez, and Hughey 2011). Researchers agree that while there are individual notions that separate one organization from another, all of the Black
sororities focus heavily on uplifting and overcoming social oppression in the Black community (Tindall, Hernandez, and Hughey 2011). Historically White sororities also typically have philanthropic objectives, but they are not specifically focused on the advancement of one race or ethnic group.

These Black GLCOs also have members who do not identify as Black or African American (Hughey 2007). Many of these organizations had racial exclusivity clauses in their original constitutions, but as laws changed to protect against such actions, the organizations were forced to change (Hughey 2007). Hughey (2007) argues that non-Blacks in Black GLCOs did not receive much backlash from their Black brothers/sisters in the fraternity/sorority, but they did receive negative attention from people within their own racial/ethnic community. Thus, even in these organizations that were created to address ethnic/racial organizational exclusion, the Black GLCOs “both enable and constrain the ability of people actively seeking to cross the color lines” (Hughey 2007, 70). Hughey (2007) provides additional evidence of the homogenous system that created a necessity for organizations founded on heterogeneity.

Chicanisma and Latina Sororities

Latina sororities have elements of both Black and White sororities in their foundations. Heidenreich (2006) studied the origins of Latina GLCOs and argues that, like the Black sororities, they were formed due to a need for inclusion in the American education system at all levels. The first Latina sorority, Lambda Theta Alpha Sorority, Inc., was founded in 1975 at Kean University in New Jersey (Torbenson and Parks 2009). According to Stuart (2008), some Latinas seek out Latina GLCOs for cultural identity. Helem (2004), Mejia (1994), and Stuart (2008) each support this idea with different accounts from Latinas in GLCOs. Many of the accounts address the difficulty of being a first generation Latina student in college; these students have parents who are often unfamiliar with the U.S. college system and they often have differing cultural values than mainstream U.S. traditions (Valdes 1996).

Heidenreich (2006) also says that, like the White sororities, these Latina organizations were formed to embrace capitalism and enterprise, even “at the expense of activism and critical social awareness” (128). Heidenreich (2006) compares modern Latina sororities to Latino Student Organizations such as United Farm Workers (UFW) and the League of United Latin American Citizens (LULAC), both of which were formed during the Chicana/o civil rights movement. Both of these organizations specifically address the needs of the middle class and those who aspire to be there. However, Heidenreich (2006) argues that Latina sororities more closely resemble White sororities than Chicana/o student organizations, as they are marked by an absence of activism and a heavier emphasis on community service. The presence of Latina sororities made the collegiate landscape more diverse, but the environment continued to be one filled with different homogenous organizations. Heterogeneity as a desirable and foundational principle in GLCOs did not appear on campus until the arrival of Multicultural fraternities and sororities.

The Rise of Multicultural Sororities and Heterogeneity

Multicultural sororities began to flourish on campuses in the early 1980s (Torbenson and Parks 2009). The first Multicultural sorority was Mu Sigma Upsilon, which originated in 1981 at Rutgers University. Shortly after, in 1986, Lambda Sigma Gamma was the first MGLO to be established in the West and the second Multicultural sorority ever established. Zeta Sigma Chi (1991) was the first Multicultural sorority to be founded in the Midwest at Northern Illinois University. Seven years later, in 1998, Theta Nu Xi was first MGLO to be founded in the South at the University of North Carolina, Chapel Hill (Torbenson and Parks 2009). Between 1981 and 2003, many other Multicultural GLOs were established all across the nation; by 2009, there were 22 sororities and 12 fraternities (Torbenson and Parks 2009).

The most significant difference between GLCOs with Multicultural memberships and MGLOs is that MGLOs are founded upon the principle of multiculturalism. MGLOs have multiculturalism embedded in their organizations, while traditional GLCOs might choose to adopt multiculturalism as a way to stay current, or perhaps politically correct. McCabe (2011) argues that the act of initiating members of color into traditionally homogenous GLCOs amounts to an affirmation of a “colorblind ideology” that can “reproduce other inequality-legitimating ideologies” (521). McCabe (2011) also argues that practicing or doing multiculturalism is different than just being multicultural. To McCabe (2011), doing multiculturalism is about challenging the homogeneity of the campus Greek system. Doing multiculturalism is accomplished by valuing differences to teach others and build relationships (McCabe 2011, 521). According to Hughey (2007), GLCOs are multicultural when they have members of diverse cultures; GLCOs practice multiculturalism when they are actively recruiting and maintaining an ethnically diverse membership and publicly declaring themselves ready to learn about different cultures.

Boschini and Thompson (1998) add that the diversity embraced by MGLOs should be emulated by other GLCOs, especially since traditional aged White students will become the minority on college and university campuses in the near future, and ideas about multiculturalism and majority status will certainly be changing. Multiculturalism is not just a principle demonstrated by MGLOs, culturally specific GLCOs can also exhibit multiculturalism (Hughey 2007). Therefore, it is important to define the difference between embedded and implemented multiculturalism in the organization.
Multiculturalism in the Organization

Organizations can be identified as corporations, groups, and/or systems that are maintained through the service of members who share passion for the organization’s goals, values, and purpose (Torbenson and Parks 2009). Organizations have cultural characteristics that are defined and maintained by the organization’s members (Monge and Poole 2008; Tindall, Hernandez, and Hughey 2011). This study argues that the organizational cultural characteristics found in businesses, churches, and educational institutions are also present in GLCOs.

Ashcraft and Allen (2003) have studied the effects and the importance of multiculturalism being present among an organization’s goals, values, and purposes. However, this study focuses on an approach that reflects accommodating differences and implementing an environment that appreciates diversity. People of color are a growing demographic that is rapidly diversifying the American workforce, causing a need to understand multiculturalism more than ever before (Stevens, Plaut, and Sanchez-Burks 2008). The growth of people of color in the workplace has also contributed to the vast growth of academic studies discussing implemented multiculturalism; there have been more than 450 articles on the topic of diversity in the workplace just since 2000 (Stevens, Plaut, and Sanchez-Burks 2008). Allen (1995) agrees that multiculturalism is becoming increasingly important, as it plays an important factor in the communication processes between individuals in the workplace and addresses cultural differences that may create different communication climates. Multiculturalism’s presence in the organization is influential, and thus deserves continued academic attention.

Researchers are not just identifying the significance of multiculturalism in the organization, but they are also proposing different ways for businesses to approach the concept. Stevens, Plaut, and Sanchez-Burks (2008) claim that organizations typically address racial and ethnic diversity with one of two approaches: the colorblind approach or the multicultural approach. The colorblind approach focuses on an individual’s accomplishments instead of that person’s racial/ethnic background, and fosters an environment of unity and equality; essentially, under the colorblind approach, everyone is seen as the same (Stevens, Plaut, and Sanchez-Burks 2008). The multicultural approach addresses the diversity of the workplace (instead of ignoring or avoiding it) to provide an inclusive work climate for all to feel comfortable. Both of these approaches are popular in corporate America (Stevens, Plaut, and Sanchez-Burks 2008), but they are both examples of implemented rather than embedded multicultural values. Many researchers (Allen 1995; Stevens, Plaut, and Sanchez-Burks 2008; Witherspoon and Wohlert 1996) have discussed methods of implementing multicultural and diversity principles into organizations, but none have explored the idea of embedding principles of multiculturalism in the organization from its founding.

This study defines embedded and implemented principles of multiculturalism as separate approaches for all organizations. Embedded multiculturalism is used as a teaching mechanism for members/employees and for the community (McCabe 2011; Witherspoon and Wohlert 1996). Embedded multiculturalism is explicitly stated and utilized by the organization as a guiding principle; it has been embraced, demonstrated, and appreciated since the organization’s founding. Implemented multiculturalism is multiculturalism that has been adopted by an organization over the course of time; in such a case, multiculturalism is appreciated, but it is not the guiding principle of the organization. An organization with implemented multiculturalism has a mission and purpose centered around something other than multiculturalism, but it still functions with an appreciation, acceptance, and/or welcoming of differences.

While many organizations continue to implement multiculturalism, new businesses have the opportunity to embed multicultural principles in the foundation of their organization. While some businesses may not have the purpose or mission of educating others on multiculturalism (Ashcraft and Allen 2003), they can still use it as a guiding principle to establish an inclusive organization for their customers/clients and members/employees (McCabe 2008). The present study focuses on the members of one MGLO in an attempt to discover the members’ perceptions of the benefits (and limitations) of embedded multiculturalism within their organization. The results of this study may be used as a framework to guide future organizational communication research, as well as the formation of future businesses, organizations, and GLCOs.

Method

This study will use in-depth interviews as a way to explore the meanings and interpretations of the benefits and challenges associated with MGLOs created by members of those organizations. The same list of questions was used in each interview; however, interviewees were allowed to skip or come back to questions at any time, and the conversation sometimes led to topics not covered by the original question list. While other methods of analysis could have revealed insight about the strengths and weaknesses of embedded multiculturalism, no other approach offers the combination of personalization, heavy details that might not be revealed in a basic survey or questionnaire, and perspective (focus on the member instead of on the organization as a whole) presented with in-depth interviews. In-depth interviews allow the researcher to explore the sensitive topic of multiculturalism with the attention to detail and honest exploration necessary for meaningful results.

The current study does not attempt to answer the question of whether Multicultural sororities are effective, nor does it attempt to argue that people should or should not join MGLOs. This study does not attempt to answer the
question of how embedded multiculturalism benefits the sorority/organization (although that question is relevant, valid, and important, and will be asked and answered in future research). Rather, this study attempts to discover what the members of the organization believe are the benefits (and challenges) of belonging to an organization guided by embedded multiculturalism. What have these members experienced through their membership in an organization with embedded multiculturalism? Through answering this question, the study will then identify the beneficial and negative experiences of the members. Groups attempting to form into organizations can use this information to see how their employees or members would feel about being a part of an organization with embedded multiculturalism, and the organizers can then make better decisions about their future choices and directions.

The diverse membership of one Multicultural sorority at a large, comprehensive university in Northern California provided the pool of prospective interviewees (see Figure 1). Using convenience sampling, the researcher contacted potential interviewees through word-of-mouth conversations with peers and colleagues. Posts to social networking websites were also used to locate participants. The goal was to interview 10 to 12 members of a Multicultural sorority. The researcher ultimately interviewed eight women (see Appendix A) ranging in age between 18 and 25 years. Each woman was assigned a pseudonym (the name that appears in association with each woman’s responses is her pseudonym).

**Figure 1**

Racial/Ethnic demographics of active members at the Northern Californian Multicultural sorority as of 2013

<table>
<thead>
<tr>
<th>Ethnic/Racial Group</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>African-American/Black</td>
<td>12</td>
</tr>
<tr>
<td>Filipina</td>
<td>1</td>
</tr>
<tr>
<td>Mexican-American/Latina/Chicana/Hispanic</td>
<td>7</td>
</tr>
<tr>
<td>Multi-ethnic/racial</td>
<td>8</td>
</tr>
<tr>
<td>Punjabi</td>
<td>1</td>
</tr>
<tr>
<td>White</td>
<td>3</td>
</tr>
<tr>
<td>TOTAL MEMBERS</td>
<td>32</td>
</tr>
</tbody>
</table>

The researcher asked members questions about the benefits and limitations of membership, and the idea of embedded versus implemented multicultural principles in Multicultural sororities (see Appendix B). While the interviewer did ask questions from the same standard list, the interviews were largely unstructured and open ended, meaning that the interviewer did not pose exactly the same questions to every respondent, because the goal of this type of interview is not to create a generalized group response (Gorden 1980). The researcher must recognize that s/he should not expect universal answers while conducting in-depth interviews, because the results only address how one group or one community or even one individual responds to the situation being investigated (Ang 1989). The results of such a study are not generalizable, nor is generalizability a desired effect from this study. Instead, this study aims to provide depth of understanding, an equally desirable outcome.

The researcher identified various themes in the responses by using analytical tools such as key-words-in-context (KWIC), word repetition, and pawing. KWIC is a method that identifies key words or phrases, with high frequency, used in the same context, whereas word repetition or word counting is a strategy for considering words that occur with high frequency even outside of the same context; pawing is a term for highlighting and marking up responses that correlate (Ryan and Bernard 2003). The researcher then categorized the themes and patterns that emerged; the discussion of these categories follows the interview responses listed below.

**Results**

After conducting the interviews, the researcher compiled a list of six themes extracted from the content of the interviews. The six key themes and ideas focused on multiculturalism and heterogeneity, and they include the following:

1. defining multiculturalism, 2. understanding multiculturalism as an embedded principle, 3. uniqueness of heterogeneity, 4. high exposure to multiculturalism, 5. the benefit of learning about others, and 6. the limitation of clashing personalities. Below is a more detailed explanation of the identified key themes.

**Defining Multiculturalism**

In questions one and two (see Appendix B) respondents were asked to define both multiculturalism and Multicultural sororities. When asked question one, each respondent described multiculturalism as a value that is both tangible and intangible. Multiculturalism was defined as the acceptance of the different or similar phenotypic qualities and backgrounds that construct an individual or a group.

Multiculturalism to me is the coming together of different backgrounds and cultures, races, religions; anything that makes you different. (Erika)

I think multiculturalism is the act of encompassing people and ideas from different parts of the world and cultures...culture doesn’t define just race and ethnicity; it’s not just defined by that. There’s different pieces of culture, whether it’s the type of music that you listen to, whether it’s if you are “able-bodied”; if you have physical or a cognitive disability. There’s so much that goes into multiculturalism so it’s really just being accepting and inclusive of all those cultures. (Kelly)
A Multicultural sorority was defined as a group of women who exhibit an appreciation for multiculturalism, as defined above, and use it as a teaching mechanism for its members and community.

I would say a Multicultural sorority is a sorority that provides an opportunity to its members to retain their own cultures, also providing them with a learning experience by exposing them to other cultures that are different to them. (Janet)

In terms of Multicultural sororities in general, just being really open minded to different cultures and everything. Just coming together in friendship. (Ava)

If they are genuinely multicultural, they strive to make sure that there are more differences among them than similarities, so they can continue to strive to accept those differences and use them as a way to grow as an individual and as a group. (Kendra)

While these definitions represent only the perspectives of the respondents, they provide the context for any future mentions of multiculturalism in this study. The respondents’ understanding and appreciation of multiculturalism further allowed the researcher to better understand the uniqueness of heterogeneity in GLCOs.

Uniqueness of Heterogeneity

Many members expressed that they received confused or surprised reactions when they told others that they were in a Multicultural sorority (questions 10 and 11, see Appendix B). Respondents explained that many people reacted in complete confusion in regards to what a Multicultural sorority is because others would assume that MGLOs were just the same as a stereotypical homogenous sorority. These reactions, in addition to understanding the history of homogeny in GLCOs, suggest that heterogeneity is unique to GLCOs; whereas it is the norm for MGLOs.

I think it is more of a surprised reaction because you don’t see it a lot. I personally have never seen an organization like [it] on campus before. I haven’t seen it in my friends’ campuses where there is an organization that legitimately is multicultural. You see girls from every single race within this organization and it’s beautiful, but because it’s underrepresented, the concept of multiculturalism, there is an element of surprise. (Kelly)

But mostly when everyone finds out they are like, “Is it a Black sorority?” and when they find out it’s a Multicultural sorority they are like, “Oh how does that work?” Like any other sorority! (Erika)

They would jump to the typical conclusions about sororities, like they party and blah blah blah. So all the reactions were negative and it did bother me, [but] it did make me proud too because actually letting them know what I do, [they would then be like] “Oh cool. I never thought about it that way.” (Ayah)

Both Erika and Ayah experienced confused responses, as their friends and family assumed that a Multicultural sorority was the same as their stereotypical concept of sororities. Perhaps the perpetuation of this stereotype plays a role in the general lack of understanding of the differences between culturally homogenous and heterogeneous (Multicultural) sororities. Future research could explore the creation and perpetuation of sorority stereotypes.

Multiculturalism as an Embedded Principle

Based on the definitions of embedded and implemented multiculturalism, when asked question 13 (see Appendix B), all eight respondents agreed that the principle of multiculturalism is embedded in their organization as opposed to implemented.

I feel that they are embedded because since I learned about this organization multiculturalism had been a part of every presentation and informational. I am well aware about social justice, diversity and multiculturalism and I could see that the women in this organization also were aware. I feel that our organization encourages and supports our sisters to educate ourselves and each other about our cultures. (Janet)

I would have to say that for the most part it is embedded into the organization. The [national founders] set out to bring women from every walk of life and background together. I think with the growth of the organization, with each new line that crosses, that is demonstrated. [Our sorority] embraces and encourages the differences of each sister. All these differences can be used as teaching tools within the organization as well as the broader community. (Erika)

Our definition of multiculturalism is a very broad one that includes not only race and ethnicity. We think of multiculturalism on a broader spectrum that includes but is not limited to background, socioeconomic status, language, cultural norms, etcetera. It’s hard to explain why I feel this way without giving out confidential information about our sorority, but from the testimonials I’ve heard from our beloved [national founders], I believe they intended to form an organization where every woman felt at home and connected to her sister, regardless of the various multicultural worlds they came from. (Kyla)

As previously mentioned, some definitions of multiculturalism can even be applied to homogenous sororities, some of which may exhibit characteristics of implemented
multiculturalism as they recruit women of all backgrounds. However, these examples of implemented multiculturalism do not include using multiculturalism as a teaching and guiding principle (James 2000). All eight respondents expressed appreciation for this kind of multiculturalism. Future research could explore a possible connection between this appreciation and a high level of prior exposure to multiculturalism experienced by members prior to their membership.

High Exposure to Multiculturalism
When asked question 15 (see Appendix B), all eight of the respondents expressed that they embraced, appreciated, and/or demonstrated multiculturalism prior to becoming a member. Four of the eight respondents explained that most of their friends were diverse during their childhood and while growing up.

Yeah I think I did [appreciate multiculturalism] because of what I was exposed to in the workplace and in other extracurricular activities so I’d already had that mentality. (Janet)

I think I did just because I grew up around a lot of cultures but I think I appreciate it more now that I am constantly surrounded by different cultures like all the time. Every sister you talk to, you learn something different. (Michaela)

My friends back home are diverse and I like that we each bring something different to the table and so that was definitely something that made me go, “This might be for me”. It was more of an extension of what I am used to at home. (Ava)

I did consider myself to embrace, demonstrate, and appreciate multicultural values, maybe not as much as I do now but I always had a diverse group of friends growing up. You know, I was always exposed to people different from myself. I think just because the area I was raised in was very diverse, but I do feel like joining [our sorority] made those values stronger. I see the bigger picture, why it’s important to our society, and it’s made me advocate for multiculturalism a lot more than I did before. (Kendra)

High exposure to multiculturalism prior to membership is evidently common among members (as per the responses). Early exposure to multiculturalism may lessen the need to educate members about multicultural philosophies. This aspect of education is important to note because, as stated earlier in this study, the workforce of the future will predominantly be made up of people of color (Witherspoon and Wohlert 1996). However, this possible correlation is beyond the scope of the present study. Future research should address this idea in an effort to better understand the significance of employees/members who have experienced high exposure to multiculturalism in organizations that exhibit embedded multiculturalism.

Inclusivity
Another major theme in the responses was the demonstration of high levels of inclusion by individual members and the organizations. Interviewees shared that they joined the organization largely because they felt accepted, despite their differences. They also considered themselves to be inclusive (accepting of others). Particularly, members of the sorority who identified as bi-racial or multiethnic said that they did not feel right choosing an organization that constricted their racial/ethnic identity.

Joining an organization that would have just been focused on one culture wouldn’t have felt right to me personally...I just wasn’t feeling it. (Michaela)

When people typically think of a Multicultural sorority, they think it is a predominantly white organization. And when I approached [a White sorority] I was actually turned away because of my size and not fitting in with the stereotypical image and from that I said I would never join a sorority and then I ended up meeting girls from [our sorority] and they made me feel welcome so I decided to go that route instead. (Kelly)

While ethnicity/race is only one aspect of an individual’s identity, it is important to note that multi-ethnic/bi-racial individuals are forced to pick one aspect of their identity in homogeneous organizations; in a heterogeneous sorority, they can identify with both or all of the cultures/ethnicities they represent. Organizations could benefit from improved understanding of the importance of not assuming the race/ethnic identity of employees, members, and customers. Being inclusive to all differences, including those outside of race and ethnicity fosters an environment for learning (Boschini and Thompson 1998; McCabe 2011).

Learning about Others
The interview responses suggest that understanding differences is important when trying to preserve embedded multiculturalism; members should be exposed to and learn from their differences on a regular basis. Six of the eight interviewees experienced the benefit of learning about others and/or the ability to challenge one’s comfort zones and become more informed, supporting the researcher’s claim that embedded multiculturalism is used as a teaching mechanism. This result causes the researcher to question if the other two respondents did not think of learning about others as a benefit or if they merely failed to mention it.

I’ve learned a lot about different cultures, how to be respectful of those cultures, and not just that but how to be sensitive to culture on a larger aspect in regards to the language I use on a daily basis, things that I say that can affect other people, the way I act and how it affects other people. I guess,
the most positive thing I am trying to say is how much I learned about myself and about others [by being in a Multicultural sorority]. (Kendra)

[The most positive aspect of being in a Multicultural sorority is] just having girls or women who support you and push you to do better and who want to benefit the community and just being open to new ideas for the most part. (Ava)

The [most] positive thing, at least to me, is an opportunity to step outside of my comfort zone. (Janet)

Many of the respondents expressed that learning about others was one of the aspects they enjoyed most about their organization as it created an environment that challenged their views and truly taught them how to work with others. Most of the respondents mentioned that multiculturalism’s largest gift is the opportunity to learn about differences among people and to learn about themselves through those differences. This theme is possibly one of the most important of the six as embedded Multicultural organizations are based upon this idea. However, the respondents also mentioned that this opportunity also presents the possibility of tension and clashing amongst individuals.

Clashing of personalities

Many of the respondents recognized that learning is not always a comfortable process, and that cultural differences often lead to tension amongst members. In fact, this theme emerged as a potential limitation of embedded multiculturalism.

I wouldn’t necessarily say [the clashing of personalities] is negative, but it’s hard because of the opinions we have to deal with. It’s like something you have to prepare yourself for now, especially since we are 31 deep. You gotta realize that there are just going to be situations where we just don’t agree, and you just gotta learn to cope with that. (Ayah)

You know, it’s hard to be in an organization with so many different women who are extremely different from yourself and trying to function as a group trying to get business handled. You bump heads a lot with people who are different from yourself emotionally and on a business level. (Kendra)

If the clashing of personalities can actually be considered a limitation, then it should only be seen as a minor limitation or a risk worth taking, as growth often results from conflict and conflict is a common occurrence in the organization (Al-Ajmi 2007; Pace 2008; Schwenk 1990). Even through conflict, the responses suggest that the members of the organization believe they are still learning and the original objectives of embedded multiculturalism are still being met.

Discussion

When exploring the perceived benefits and limitations of embedded multiculturalism in a Multicultural Sorority, three of the six themes provide indirect but relevant information. Each of these three themes (defining multiculturalism, understanding embedded multiculturalism, and high exposure to multiculturalism) provides a framework for future studies that could examine the significance of embedded multiculturalism. Such studies would need to begin by operationalizing multiculturalism. These studies should use the separate definitions for embedded and implemented multiculturalism established here, as the difference between the two appears to be a meaningful one.

The other three themes (learning about others, inclusivity, and clashing personalities) more directly answered the research question. Members expressed great appreciation for the educational experience of being in an organization practicing embedded multiculturalism, and they credited high exposure to multiculturalism with making them receptive to the experiences they would soon encounter. The clashing of personalities was mentioned as a possible limitation, but because this clashing is experienced by many organizations (Al-Ajmi 2007; Pace 2008; Schwenk 1990), the researcher questions if it can be attributed to the normal outcomes of working in groups or organizations. Is there a difference between typical organizational tension and tension created due to cultural differences? Future research could attempt to answer this question.

Limitations of the Research

One limitation of the present study is that the researcher is a member of the same Multicultural sorority as the respondents; therefore, the researcher’s personal experiences may have influenced the scope of this study. However, as Marshall (2008) argues, a researcher with a deep and personal understanding of a topic is not necessarily a disadvantage, because that personal understanding often results in a richer explanation of the results. Also, the researcher is a member of the same organization as the respondents; both parties are surely motivated to protect the reputation of the organization, therefore limiting the respondents’ openness to discuss potentially damaging information and limiting the researcher’s openness to include such information in the results of the study. However, the researcher addressed this limitation by creating pseudonyms for respondents, leaving the sorority’s name anonymous, and asking the same open-ended interview questions of each respondent. As a result, there would be no need for the researcher to demonstrate a bias in the study as there would be no personal or organizational gain for the researcher or the sorority. Finally, a larger limitation exists in the research design. As previously mentioned, the study cannot address how embedded multiculturalism actually benefits an organization; it can only address...
how these members perceived the benefits or challenges. Thus, this study can only take one step toward the ultimate goal of providing a blueprint that can be used in the creation of new organizations.

Conclusion

The course of this study provided a new perspective on the influence and significance of multiculturalism in the organization and in GLCOs. As the research on organizational communication grows, it is imperative that multiculturalism continues to be explored as well. This study explored multiculturalism in terms of race and ethnicity from the perspective of members of a Multicultural sorority; the same questions asked of members of homogenous sororities could reveal interesting results. Do members of homogenous organizations believe in the virtues of embedded multiculturalism? Would they recognize a difference between embedded and implemented multiculturalism? A comparison of the two groups (Multicultural organizations versus homogenous organizations) could validate the distinction made here between embedded and implemented multiculturalism, or it could reveal similar benefits without the necessity of the distinction. Furthermore, while this study focused only on race and ethnicity, multiculturalism is not limited to those characteristics of an individual’s identity. Other GLCOs and non-Greek organizations have members of different religions, abilities, genders, or sexual orientations, and studies focusing on those aspects could have important results.

Future research could move away from GLCOs and focus on non-Greek organizations. Studies could compare organizations with embedded and implemented multiculturalism to further explore the possible benefits of the embedded version. This study is arguably only a small part of a much larger topic with a significant value in better understanding the many complexities of the organization.

References


Mejia, Alex. 1994. “Hispanics Go Greek.” *Hispanic* 7(9): 34.


Appendix A

Respondent Demographics
The following chart depicts basic demographics of the respondents at the time of their interview.

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Self-Identified Ethnicity/Race</th>
<th>Categorized Ethnicity/Race from Figure 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ava</td>
<td>22</td>
<td>Mexican-American and White</td>
<td>Multi-ethnic/racial</td>
</tr>
<tr>
<td>Ayah</td>
<td>22</td>
<td>Punjabi</td>
<td>Punjabi</td>
</tr>
<tr>
<td>Erika</td>
<td>24</td>
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<td>African American/Black</td>
</tr>
<tr>
<td>Janet</td>
<td>21</td>
<td>Chicana</td>
<td>Mexican American/Latina/Chicana/Hispanic</td>
</tr>
<tr>
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<td>White</td>
</tr>
<tr>
<td>Kendra</td>
<td>21</td>
<td>Greek and African-American</td>
<td>Multi-ethnic/racial</td>
</tr>
<tr>
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<td>African-American/Black</td>
</tr>
<tr>
<td>Michaela</td>
<td>19</td>
<td>Greek and African-American</td>
<td>Multi-ethnic/racial</td>
</tr>
</tbody>
</table>

Appendix B

Interview Questions

Defining Multicultural sororities
1. What is multiculturalism to you?
2. What defines a Multicultural sorority?

Sorority as an organization:
3. What has been positive in regards to joining this organization?
4. What has been negative in regards to joining this organization?

Multiculturalism and the Organization:
5. How does your organization approach the philosophy of multiculturalism?
6. Please discuss your impression of how multiculturalism (in the organization, on campus, or elsewhere) has affected your organization’s success.
7. How does your organization demonstrate accommodation for your culture?

Benefits and Limitations and Expectations
8. What factors led to your decision to join this organization?
9. Are Greek Lettered Organizations/Communities prevalent within your ethnic community? Family? Friends?
10. What are the typical reactions you receive from people within your ethnic community after sharing that you are in a Multicultural sorority?
11. What are the typical reactions you receive from people outside of your ethnic community after sharing that you are in a Multicultural sorority?
12. What did you expect to experience prior to becoming an official member of your sorority? How did those expectations compare to your experience after becoming an official member?
13. How does your organization demonstrate acceptance/understanding of your culture?
14. Given the provided definitions, are the principles of multiculturalism embedded or implemented in your organization?
15. Did you consider yourself to demonstrate, embrace, and/or appreciate multicultural values prior to becoming a member?
“Como la Gente”: A Personal Testimonio of Effective Pedagogies of the Home Devalued by Mainstream Education

Elizabeth Esparza
Dr. Elvia Ramirez, Faculty Mentor

Abstract

This study analyzed Chicana/Latina parental involvement in schools via the use of testimonio. Testimonio, a feminist research method entailing first person narrative accounts, was used in this study to document my mother’s involvement in schools. Guided by Chicana feminist theorizations of home pedagogies, this study found that though Chicana/Latina parents do not engage in mainstream parental participation practices, they nonetheless inculcate in their children values that are highly conducive to educational success, such as punctuality, respect for teachers, a strong work ethic, sacrifice, and endurance. These “pedagogies of the home” have helped me successfully traverse through inequalities and barriers I have encountered as a working-class Chicana student, such as unequal access to high quality schooling, segregation, uncaring/unqualified teachers, and other structural inequalities.

Introduction

Latinos/as are the largest minority group and one of the fastest growing, accounting for more than half on the U.S. population growth between 2000 and 2010 (Liu 2011; Passel, Cohn, and Lopez 2011). By early 2014, Latinos/as in California are projected to become the “plurality” (California Department of Finance 2013) and by 2060 one in three U.S. residents will be Latino/a (U.S. Census Bureau 2012). Notwithstanding their impressive demographic growth, Latinos/as remain educationally marginalized. For example, as of 2011, only 19% of Latinos/as had obtained a college degree, compared to 42% of Whites and 26% of African Americans (Liu 2011).

Parental participation in schools might hold the key to alleviating Latinos’ educational disadvantage. A substantial body of empirical literature suggests that parents who are more involved in their children’s education have children who are more socially and academically successful (Epstein 2001; Epstein and Dauber 1991; Hill and Craft 2003; McWayne et al. 2004). In fact, some scholars contend that parent participation in a student’s education is as or more significant than family background variables, such as social class, marital status, and race or ethnicity, in determining a student’s progress and success in school (Epstein 2001). Historically, however, Latinos/as have had lower parental involvement rates (Clark 1983; Comer 1984; Delgado-Gaitan 1990; Tinkler 2002; Turney and Kao 2009). These lower participation rates have led to the misconception, supported by cultural deficit theories that Latino/a parents do not care about their children’s education (Chrispeels and Rivera 2001; Hill and Craft 2003; Jones 2003; Valdés 1996). Cultural deficit perspectives claim that Latinos/as are incompetent, not interested in their children’s education (Delgado-Gaitan 1991), and do not value education (Fuligni 2007; Goldenberg et al. 2001; Ramirez 2003; Valencia and Black 2002). These perspectives are very widespread in academia and in the larger society.

The perception of what constitutes parental participation and/or involvement in schools has been subject to debate. According to mainstream perspectives, parental involvement constitutes attending parent-teacher conferences, participating in the PTA, and volunteering at school (Crozier 2001; Klugman, Lee, and Nelson 2012) – all activities that can be seen by school personnel and parents (Englund et al. 2004; López 2001; McWayne et al. 2004; Ryan et al. 2010). This definition of parental participation is undoubtedly reflective of the experiences and perspectives of the dominant white, middle-class community (Crozier 2001; Klugman, Lee, and Nelson 2012). However, there is other research which shows that Latinos/as do indeed care and that there are barriers that impede, or hamper, Latino/a parental involvement in schools.

Some scholars suggest that barriers to Latino/a parental involvement in schools revolve around lack of knowledge about school settings and limited English proficiency (Delgado-Gaitan 1990). Yet, there is research that finds that native-born Mexican American parents who tend to speak fluent English and are knowledgeable of school processes and expectations are less involved in their child’s education than foreign-born parents (Lopez, Sanchez, and Hamilton 2000). This contrast needs further and urgent attention, particularly when studies have also shown that third- and fourth- generation Mexican Americans fall behind in educational levels compared to earlier generations (Téllez and Ortiz 2008). Thus, the factors associated with low Latino/a parental involvement in schools, such as linguistic and cultural barriers, are not always present; yet, the results remain the same, which should lead to further investigations regarding the validity of previous research.

Though a plethora of studies have examined Latino/a parental involvement in schools, few studies have analyzed this issue from a Chicana feminist, autobiographical perspective. In order to fill in this gap in the literature, this research details the struggles of a Chicana/Latina with parent involvement, using testimonio as a research methodology and Chicana feminist theory as the conceptual framework. Based on the author’s personal experiences, this study will...
elucidate the barriers and support structures that have impeded and aided her family’s involvement in schools.

**Literature Review**

A number of studies find that parent involvement in schools is critical for students’ academic success and achievement (Epstein 2001; Epstein and Dauber 1991; Keith and Lichtman 1994). Studies find, for example, that parent involvement in schools is positively correlated with academic achievement, school attendance, graduation rates, educational aspirations, constructive classroom behavior, enrollment in rigorous curriculum, and positive attitudes toward school (Bracke and Corts 2012). Furthermore, parents who participate in schools are more knowledgeable about the school’s expectations and are thus better advocates for their children (Delgado-Gaitan 1991). Additionally, when parents are involved in schools, teachers provide greater attention to students, teachers identify students’ potential learning problems at earlier stages, and parents and teachers are able to coordinate efforts to aid students and provide family services (Bracke and Corts 2012). Parental involvement is also associated with greater community mobilization around issues concerning school quality, such as the hiring of qualified teachers, administrators, and staff and the building and maintenance of quality physical facilities (Bracke and Corts 2012; Epstein 1995; Mediratta and Fruchter 2001; Zill and Nord 1994). In short, parental involvement in schools fosters academic success and is paramount for establishing positive relationships between students, parents, teachers, and the larger community.

Although research shows that most parents value education and recognize that parental involvement is critical for students’ educational success (Epstein 2001), parents with lower levels of education and from working-class and racial/ethnic minority backgrounds tend to be less involved in their children’s schools (Delgado-Gaitan 1991;englund et al. 2004; Grolnick et al.1997; Lareau and Shumar 1996; Ramirez 2003; Ryan et al. 2010). Several factors have been identified as possible causes for these parents’ lower participation levels including: an unwelcoming school environment, lack of trust in the school, feelings that participation will not ‘make a difference,’ lack of time and flexibility in parents’ schedules, and lack of teacher preparation in the domain of family-school relationships (Bracke and Corts 2012; Lareau and Shumar 1996). Concerning the latter point, Bracke and Corts (2012) note that “many teacher education programs do not provide pre-service teachers with opportunities to interact with families in their field experiences, meaning that a teacher candidate may have had little practical experience in working with parents – and thus may be hesitant to work with parents” (191). The lack of parental involvement is thus also the result of teachers’ inability to effectively engage with parents.

Given their lower levels of participation in schools, many researchers and practitioners, particularly those who subscribe to cultural deficit theory, assume that working-class and racial/ethnic minority parents do not place a high premium on education. Cultural deficit models tend to portray these parents as incompetent and uninterested in their children’s educational success (Delgado-Gaitan 1991). Scholars, however, have begun to debunk many of the myths surrounding these parents’ participation in schools.

In their study of Latino parent participation, for example, Quicho and Daoud (2006) found that Latino parents had high expectations of their children’s academic achievement, though teachers held negative perceptions of Latino parents. Furthermore, researchers have found Latino/a parents tend to value education because they perceive it as a means to obtaining well-paid jobs for their children (Adams et al. 1994). However, the level of parent involvement is misclassified because it does not fit the standards of parent involvement as being visible involvement. Thus, the lack of visibility may make it seem that Latino parents do not care. Indeed, Hill and Craft (2003) found that teachers believe that parents who volunteer more at school valued education more than did other parents.

The findings from Quicho and Daoud’s (2006) study contrast starkly with the perceptions many teachers and administrators have of Latino/a parent involvement in their children’s education. Teachers and administrators often perceive that Latino/a parents do not care about their children’s education (Chrispeels and Rivero 2001; Quicho and Daoud 2006; Valdés 1996). In short, the poor outcomes of Latino/a students, combined with the tendencies to judge them more negatively (Hill and Torres 2010) and the misinterpretation of the educational values in the Latino/a household based upon the lack of parent involvement, requires further research. In particular, more research from the perspective of Latino/a families is needed. In an effort to fill in this gap in the literature, this study analyzes Latino/a parental involvement via the lenses of Chicana feminist theory and testimonio.

**Theoretical Framework**

This study is grounded in Chicana feminist theorizations of home pedagogies (Delgado Bernal et al. 2006; Villenas 2006). More specifically, it draws from Delgado Bernal et al.’s (2006) conceptualization of “pedagogies of the home” (42). Pedagogies of the home are the culturally specific ways that Latino/a parents and families organize informal teaching and learning practices within the home environment (Delgado Bernal et al. 2006). In contrast to cultural deficit models, a pedagogy of the home framework underscores the cultural strengths embedded within Latino/a ways of teaching and learning. This framework resonates with ethnographic research documenting Latino(a) ways of teaching and learning as...
promoting her daughter’s educational success. This will be accomplished
throughout their educational trajectories.

A pedagogies of the home perspective underscores the role of Latina mothers
in promoting and facilitating Latino/a children’s educational successes. This
framework thus contest hegemonic and pejorative portrayals of Latina mothers
in the media and schools. As Villenas (2006) noted, "the teaching and learning of
the home allow Chicanas to draw on their own cultures and sense of self to resist
domination along the axes of race, class, gender, and sexual orientation" (114).
Through subtle and overt resistant strategies that they learn at home, Chicanas are able to overcome the challenges and inequalities they
counter throughout their educational trajectories.

According to Delgado Bernal et al. (2006), the intergenerational transmission of
knowledge within working-class Latino/a households – a process that is oftentimes
brokered by Latina mothers, and which typically takes the form of cuentos (stories),
consejos (advice), dichos (sayings/proverbs), and other storytelling forms –
helps Latinos/as survive, resist, and succeed within an educational system that is
oftentimes oppressive to Latino/a students. As Delgado Bernal et al. (2006) noted,
"the teaching and learning of the home allow Chicanas to draw on their own
cultures and sense of self to resist domination along the axes of race, class, gender,
and sexual orientation" (114). Through subtle and overt resistant strategies that they
learn at home, Chicanas are able to overcome the challenges and inequalities they
encounter throughout their educational trajectories.

This study employs testimonio as the primary research methodology. Testimonios
provide a personal account that allows the researcher deeper personal access to the
topic being observed. This form of methodology holds particular importance for
Latin/o/a scholars because it repositions power out of the colonized framework
and allows Latino/a scholars to construct knowledge through narratives that
originate from personal experiences, which challenge social inequalities (Huber
and Cueva 2012). This form of method, then, denies the claim that any research
can be conducted under genuine objectivity, while accepting that a cultural bias
has been present in previous modes of research; hence, testimonios commit to
providing a different view under a different lens, one which has historically been
disregarded by mainstream academic research. Hence, testimonios reject the
construct of unbiased knowledge and challenges it by locating the collectives
of individuals formed by common experiences of oppression, resistance, and
marginalization (Delgado Bernal, Burciaga, and Flores Carmona 2012).

Though testimonios appear to be a form of research that operates with a single
agenda, its value rests on the information mainstream academic research does
not typically access. Testimonio in educational research helps us understand the
oppression that exists within educational institutions by showcasing the sort of
biases that otherwise go unnoticed; therefore, this methodology highlights and
calls attention to the efforts which students of color commit to for the sake of
challenging and transforming cultural and intellectual spaces (Huber and Cueva
2012). As a form of communication, it stands on the premise that sharing the
personal narratives that require vulnerability and intimacy is an invitation for
audiences to self-reflect, to engage with deeper understanding of the marginalized,
and to share spaces with people who otherwise might never coalesce (Delgado
Bernal, Burciaga, and Flores Carmona 2012). Mainstream research, with its
limitations that create cultural bias, leaves out crucial information that only existing
members of the researched community have access. Testimonio breaks through such
barriers because it is a form of research that looks to disrupt silence, create deep
meaningful connections through common noise, and serve as a catalyst for social
justice; therefore, it is no surprise that testimonio in academia has grown in practice
as the result of political urgency to pursue social justice education reform and for
communities of color (Delgado Bernal, Burciaga, and Flores Carmona 2012).

In short, guided by Chicana feminist theorizations of home pedagogies, this
study will highlight the role of one Latina mother (the author’s mother) in
promoting her daughter’s educational success. This will be accomplished
through the use of testimonio.
outright misguidance that is given to those same students contribute more to the
unfairly defined parent involvement. Perhaps the highest expectation my mother set for my sisters and me came in the form of our attendance. School attendance had a specific sort of meaning in my home. My mother showed us rigorous discipline in the way she delivered us to elementary school. Every day she woke us up, before 7:00 a.m. and directed us through our morning routine. As soon as we set foot off our bed, my mom hurried us from our room to the bathroom. We washed our faces, brushed our teeth, and combed our hair. She always insisted we look presentable; “como la gente” (like people), she would say. Through this dicho (saying), my mom communicated the importance of grooming, self-presentation, and discipline, values undoubtedly critical for educational and occupational success. Our clothes had to be ironed, creased, and matching. If I wore a blue and white dress, my hair accessories, my shoes, and my socks had to correlate. My hair was combed differently every day. She would not let us leave the house two days in a row with the same hair style; that would show lack of effort on her part, and she could not allow people to think she was not trying. When word got around that a kid nearby had lice, we had to wake up earlier to put our hair in a braid, each day a different style. Appearance mattered to my mother; in her mind, a well put together child was representative of a loving and caring mother. I saw how the other kids came to school and felt privileged because I had a mother who made sure I was proper, como la gente.

After our morning rigor, my mother walked us through South Central Los Angeles to get to our school. As a single mother, she was fearless. We walked underneath the local 110 freeway overpass where drug addicts, homeless people, and gang members often gathered to hideout from the cops. Once in the sixth grade, I was robbed by a grown man who grabbed for my neck, wrestled me down to the ground, left me with scratches and bruises around my neck, and stole my gold chain. Plenty of people drove by; saw me, an eleven year old girl, being mugged by a man, and did nothing. South Central was that sort of place, and my mother walked us through there every morning; we only altered routes at nights, when crime flared highest. If she felt any fear, we did not know it; she kept any assumed weakness off her face. We walked through these streets with sharply ironed clothes and lemon juice in our hair (because it kept the baby hairs from sticking up) and firm smiles on our faces because to my mother appearance, preparation, and confidence walked hand in hand. That fearless conviction of my mother made me feel protected. I was well aware, conceptually, that I lived in a dangerous area, and yet I could feel safe if I carried on the way my mother did.

My mother made it a point for us to arrive to school early every morning. She wanted to make sure that we had time to eat our free breakfast with the other kids while she had her slice of bread with raisins and coffee. Breakfast was also

Findings

As a youth, I was made aware of the importance of education by the high disciplinary standards my mother set for myself and my sisters, and I progressed in school using the tools and values—or pedagogies of the home—my mother taught me through her actions. Just as it has been previously documented, “many researchers have found that Latino parents have high expectations for their children’s education and want to participate in their academic success” (Quiocio and Daoud 2006, 256). My mother’s expectations and modes of participation, however, were specific to the cultural, economic and educational system in which we existed, as Delgado Bernal et al’s (2006) pedagogies of home framework suggests. She was born and raised in Mexico (which we visited at least once a year), we lived in the poverty-stricken community of South Central Los Angeles, and we were enrolled in a failing school district. Thus, my mother’s efforts were of a different sort than the kind that is typically classified as mainstream parent involvement. Most of her efforts took place in our home; her involvement was not always visible to my school. So, as researchers point out, “The lack of visibility may make it seem that Latino parents do not care... teachers believed that parents who volunteered more valued education more than did other parents” (Ryan et al. 2010, 393). The lack of communication on the school’s part, the prejudgments that were then constantly placed upon students and their families, and the outright misguidance that is given to those same students contribute more to the educational achievement gap that plagues our educational system than lack of the unfairly defined parent involvement.

This system of research, then, allows for scholars who otherwise felt excluded an avenue for further communication and validation of similar experiences. It is to no surprise that this research method follows in the work of scholars, particularly women of color, who have not only undergone marginalization but use testimonio as a vehicle to express the concerns, the stories, the efforts, and modes of survival from those of the margin to centralized academic audiences; and, thus, again challenging the space relations by providing evidence that such boundaries and forms of exclusion exist (Huber and Cueva 2012). Furthermore, it continues to grow validity as the intent of testimonio becomes clearer and academia recognizes that it is not a mode of selfish validation, but rather a tool for various communities to understand one another, engage with dialogue, and reach new understandings that otherwise might not present themselves without the, otherwise silent, voices of the marginalized (Reyes and Rodriguez 2012). As a form of research, it is more prone to create action than forms of qualitative and quantitative methods that leave out the human story behind the research, hence eliminating motivation to act. In short, based on Chicana feminist conceptualizations of home pedagogies, this research examines Latina parental involvement in schools via the use of testimonio. The findings are presented below.

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McNair Scholars Journal • Volume 14

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her time to chitchat, socialize and network with the other moms. All the moms shared information, resources and helped one another in their own unique way. There was no formal structure or set schedule. They simply asked for help when they needed it, and offered help when they could. They spoke to each other and tried to generate their own solutions because no one else helped, nor did it appear that anyone wanted to help. I cannot recall seeing school staff or teachers ever approaching the group of mothers who gathered in the mornings with any solutions. Perhaps there were cultural and language barriers that prevented the interactions from happening, but nonetheless, the two worlds never connected. Still, my mother could gather with the other mothers and get or receive help and solutions depending on the situation. She made me feel safe, my mother. Mi madre es chingona, my mother is bad-ass, I remember thinking - and she was.

As a student, I knew and felt that my mother cared for my education; I had absolutely no doubt about it. Yet, according to research, “Parent involvement, has been defined in various ways, but most definitions emphasize participation in school functions and events and direct communication between parents and school personnel” (Ryan et al. 2010, 392). My mother did not attend any Parent Teacher Association (PTA) meetings, or stay to volunteer during classroom hours, or organize any sort of afterhours community events because no one ever let her know that was expected of her, or even possible. As Quiocio and Daoud (2006) have noted, “Latino parents often misunderstood their role in their children’s education because they didn’t understand the concept of involvement as defined by the school” (257). Like most parents in the community I grew up in, my mother had limited contact with school staff. Those two worlds rarely met; they only came together during teacher-parent conferences (which always felt like a trial), and the annual open-house events hosted at the school. However, research concludes that “parent involvement has often been defined in terms of activities that are visible to school personnel and other parents” (Ryan et al. 2010, 393), yet there were few attempts from the schools I attended to create these opportunities for interpersonal communication.

Though school staff rarely made significant outreach efforts to parents, research suggests, “parents of ethnically and linguistically diverse students, however, often fail to participate in the schools in numbers comparable to other majority group parents” (Delgado-Gaitan 1991, 20). Research goes on to conclude that “ethnically diverse families living in poor socioeconomic conditions often face sustained isolation from the school culture, which can lead to miscommunication between parents and school” (Delgado-Gaitan 1991, 21). Yet the isolation of parents, at least that of my mother, was not a conscious one; she did not intend to not be involved. My mother and other parents were there, present in the mornings when they dropped us off, and in the afternoons when they picked us up; yet the school made no effort to communicate with them and provide the standards and expectations of parent involvement, as the school defined them. The parents in my school were, in fact, already a community; they had systems of communication and problem solving methods which they put to use almost daily. They simply needed a direction, which the school failed to provide, and in turn wasted the potential of that community.

I formed a sense of discipline for punctuality from the seriousness my mother applied to our school attendance. The way she saw it, she was responsible to get us to school, and she took that responsibility seriously. She woke us up early, made sure we were at school on time, and looked presentable. Once she dropped us off, she assumed the school would take over. My mother was not unique to this experience; research finds that, “many immigrant parents in the United States are confronted with expectations of parental involvement that contrast with those of their home countries, where parents are supposed to defer to their children’s teachers and not intervene in the schooling process” (Klugman, Lee, and Nelson 2012, 1321). Thus, just as research concludes, my mother trusted the school teachers and staff would do a much better job at providing an academic education to her daughters than she could. Her highest level of education was elementary school while the teachers at school had all completed college. She figured the best she could do was to get out of the way and let the teachers do their job. As one study points out, “low-income parents believe their role is to support teacher’s educational decisions rather than initiate activities or intervene in their children’s education more directly” (Ryan et al. 2010, 392). This was the tradition she came from. In Mexico, the parents were expected to trust that the teachers knew best; to question the teachers was a sign of disrespect of their authority and preparation, almost an insult; through this pedagogy of the home (Delgado Bernal et al., 2006), my mother taught me the importance of respecting institutional agents such as teachers, a value undoubtedly crucial for educational success. She did not know about parent involvement, the expectations of an effective parent were not explained to her. She did what she knew and did it to the best of her capacity.

The high standard of discipline my mother held us to during our mornings carried throughout my school day. Just as class got out, my mother was already at school, waiting for us. We walked back home and arrived to a home cooked meal. She cleaned the house from top to bottom, did any laundry that needed to be done that day, and cooked a meal from scratch every single day while we were at school. She did that work so that when we arrived home from school, we arrived to a clean home and a warm meal; those were the responsibilities she understood as expectations, and she met them daily. Just as we entered the door, my mother demanded that we change our clothes because our school clothes were our “good” clothes, and she wanted to keep them that way. Once we were in our home clothes, we sat down to eat. Then, it was time for homework; we were not allowed
I began walking myself to school and doing some of the other things my mom and I used to do anything else until our homework was done. And, because we lived in South Central and it was too dangerous to go out past sunset, if we wanted any time to play outside, we had to do our homework promptly and correctly; she checked our homework each day. When we played outside, we came inside at sunset, showered, waited for our long hair to dry (we did not own a hair dryer), and promptly went to bed, always part of the routine and on schedule. The next day, we started our process again. Thus, I never felt as if my mom did not care or value our education; I knew she did, and it made me value my role at school as well.

Though we lived in a poverty-stricken community, our sense of gratitude maintained our discipline; we could not waste any opportunity. We lived in a rough part of town plagued with violence and drug abuse, but my family was aware of a deeper sort of poverty, the kind we experienced in rural parts of Mexico. We cherished the opportunities we were granted, the education, the free breakfast at school, the clothes; all of it could not go to waste. Deep in our psyche was the idea that if we did not value our possessions, through our efforts, they could be taken away. On yearly summer trips to Mexico, I saw the sort of poverty that made South Central look like paradise. Other kids ran up to me and asked me to show them my things, and they were happy just to see and touch them. I gave some kids my home clothes, the kind we weren’t able to wear outside, and they were ecstatic. I saw them wear my home clothes to church. I saw the school materials children kept there, the pencils that were only long enough to hold with two fingers. Meanwhile in South Central, we threw out pencils far before the midpoint. Thus, my mother constantly reminded my sisters and I how good we had it, and how we could not waste our opportunities. That experience, knowing and feeling like my daily efforts held value, made me move along daily without ever stopping to complain about the disadvantages we were exposed to. Yet, gratitude and other similar values we gained from our home experiences are rarely valued or documented as an element involved with student success; but for me, it was the glue that held me together.

The summer before the start of middle school, my mother and my step dad separated. My mother, being the sort of woman that she is, took on her role as a single mother in stride. She never let herself become or be seen as a victim. I remember seeing her taking her predicament and pushing forward full speed ahead. She picked up multiple jobs, made sure our house remained up to par, and still fulfilled all of her motherly duties in regard to us. I was proud of her. I saw my mother’s striving, and it inspired me. She eventually picked up a full-time job, had part-time work, and did side jobs whenever they came up, and never once complained or cried about it. Ya ni llorar es bueno, she would say; crying won’t help us now. Her determination made me push myself, do things on my own, and take some of the daily duties of her hands. As the academic year continued, I began walking myself to school and doing some of the other things my mom used to do for me in previous years. Just as she was taking care of the things that needed to be taken care of, I too was doing my part, becoming an independent person, but not without structure. All that rigor and discipline from earlier years were now a part of me; I instinctually followed the traditions of my mother. I woke up early, I washed my face, brushed my teeth, combed my hair, ironed my clothes, and headed out of my home with enough time to get to school early and have my free breakfast. When I came home from school, I did my homework, and checked my sister’s homework just as if my mother was there; but she was not there, she was at work. I enjoyed knowing that my mother was out earning; she gave me a sense of pride, and that sense of purpose and pride translated over to my academics. I maintained my academic achievement because that was another burden I could keep from my mom. If I did well in school, my mother would have less to stress about.

Through my middle school experience, my mother and I shared more responsibilities, and I depended less on her to have an active role in my education. Research by Hansen and Lareau (cited in Delgado-Gaitan 1991 and Lareau 1989) concludes that the relationship my mother, my school, and I shared was a product of the school culture alienating students and parents from poor socioeconomic conditions until parents become isolated, resentful, and apathetic. Yet, my mother’s values and expectations had not diminished nor changed; instead, her expectations of me were rising. Additional research concludes that “parents are less involved because of lack of time and flexibility in their schedules” (Ryan et al. 2010, 392); this conclusion draws a simplistic yet unreliable connection between longer working hours and job positions that do not provide flexibility with a particular definition of parent involvement. Parent involvement, as defined by mainstream education, fundamentally excludes parents with a lower socio-economic status. Under this conclusion, mainstream education relieves itself of any liability and places all responsibility on the shoulders of parents. It completely disregards the life values my mother was teaching me, it disregards the discipline she had instilled in me already, it disregards the limited attempts school officials made to reach out to our community, and only infers that lack of their definition of parent involvement is caused by the disposition of a parent’s socio-economic background.

At the surface level, my mother’s actions can be interpreted as neglectful and abandoning. She became less active in the standards that she set for herself (making sure we got to school safe and ensuring we had a good clean environment when we got home). So, as research theorizes, “deficit perspectives depict inactive parents in the schools as incompetent and unable to help their children because they have a different language, work long hours away from home, belong to different ethnic groups, or are just not interested” (Delgado-Gaitan 1991, 22). Thus, some researchers have noted that a common conclusion from studies demonstrating lower involvement of ethnic minority parents is that they value...
education less than do whites (Fuligni 2007; Goldenberg et al. 2001; Ramirez 2003; Valencia and Black 2002). But, for me, her new view on life added to the values she was instilling within me. I was already made aware of disciplined attendance and the importance of personal appearance, and now I was witnessing a level of determination and drive that I did not see elsewhere. My mother had a full time job, part time work, and would do small jobs whenever they presented themselves. My grades reflected these three elements, and I was becoming a model student. However, in the eyes of researchers who conclude on sight parent involvement is directly connected to students’ academic success, I should have been on my way to a slow disengagement because of the lack of my mother’s visual presence in my education.

Despite what research might suggest based upon my mother’s involvement, I remained an excellent student. I was also becoming my mom’s right hand; I was developing a more important role. I taught myself how to drive by taking the car out into the neighborhood. No one pulled me aside and taught me how to drive; it was just something I did one day when no one was home. I remember grabbing the keys one day when no one was there and slowly drove the car through the neighborhood. But, that act was not an act of rebellion; I knew driving would give me a higher role in my house. According to Delgado Bernal et al. (2006), this was an act of “transformational resistance” (115) because driving would ultimately help me overcome challenges and obstacles I confronted in my life. I would be able to contribute more if I could drive, and I did. My mom would get headaches at night and I had to drive her in the middle of the night. It was out of necessity. I felt purposeful. My mother and I were partners. I elevated into the status of my mother. My mother never saw me as pitiful; I always made sure she knew I was in full control, and I was proud. I was contributing. I didn’t feel used, neglected, or abused; I felt privileged. I carried that attitude into school, I just needed to know what I needed to do and I got it done. That came from early responsibilities. As Delgado Bernal et al. (2006) notes, students’ commitment to their families through their fulfillment of familial obligations can be “a source of inspiration and motivation to overcome educational obstacles” (124). As long as I got my homework done and did well on tests, I could keep moving, even if I didn’t know where I was going. No one in school explained to me why I had to do well in school; they did not talk to me about college or a future career. I simply did well so my mother would not worry, not because of the idea of a better tomorrow. We existed in our present environment, in the current struggle; we were not operating under a vision of a better tomorrow, we were trying to survive the day. We had no empirical evidence to demonstrate that anything else worked.

For high school, I was supposed to go to Washington High School, but my mom did not want me to go there. Even she, who had little access to information, knew that the school would not be good for me. So, she enrolled me at El Sereno Junior High, which was five cities away, because my aunt, whose daughter went there, told my mom that the school was better than Washington High. Because I already knew how to drive, I drove there in the morning. I knew then that was not okay; I was driving a long distance to get to school, and I didn’t know anyone else who made that sort of drive. I did not know any other ninth graders who drove at all. I used to hide the car three blocks away and walk to school because I was scared that my mom would get in trouble. By then I was the mother. I protected my mother. I never worried about getting in trouble; I was more afraid of my mom getting into trouble. My mom used my aunt’s address, and I thought that if someone saw me driving, they would automatically know that my mom lied on my application. Yet, through the entire experience I felt proud. I fooled the school. My mother and I were taking on the entire school system, and we were winning. Delgado Bernal et al. (2006) would also label this an act of transformational resistance. My mother knew all the schools near South Central were horrible. They were the sort of schools that got mentioned in gangster rap songs; so, she did what she could to get me enrolled at another school, and trusted me to get there every morning. She trusted me. I was worthy of that. That’s why I felt proud. I had my mother’s trust. I was valuable.

During my first semester of high school I remained an A student. I still embodied the same discipline that I had learned in those early years. I attended every class and did not ditch school once, even though I had a car and other students would constantly ask me to take them out. I left my home around 6:30 a.m., though school started around 8 a.m. My mom expected me to get home before 5 p.m., do my homework, take care of my sisters, and make sure their homework was done. I had to be the watchful eye because my mom was not there, and I liked the responsibility. My role at home continued to translate over to my school work. I was good at receiving a task and getting it done. Thus, in-class work and homework came easy, and tests and quizzes were even simpler; all I had to do was take notes, remember the information and regurgitate it back to the teacher. All of those academic tasks were a breeze in relation to the responsibilities I was expected to fulfill at home. And yet, my contact with my teachers and my counselors was limited. I was offered no sense of direction, no alternative option beyond the world that was right in front of me.

During my second semester of high school, my mother was sent to prison. One night she called me and told me she got busted; I knew what happened and why she was going away, but I did not feel she was a bad person. She did what she had to do. I never felt sad publicly though I would cry some nights, but only when I was alone. I cried only because I missed her, not out of self-pity or pity for my sisters. I also cried because my mother was gone and I was left with an aunt that did not have the same level of authority that my mom had. My mom was secure and trusted me with a role, a purpose, but my aunt operated in fear and kept...
us from doing anything. She trusted no one. She counted the cookies we ate (we were only allowed 5 cookies each); she counted the amount of toilet paper we used, and often complained that we were not going to make it through the month. My mother never expressed that sort of concern, she always found a way. Still the worst part of my new life was that my aunt did not let me have a role at home; I could have helped. I felt as if she was wasting my potential; I also began to feel that school was likewise wasting my potential.

Though my mother was in prison, I remained an academic achiever in school. When I was in the tenth grade, I was in Algebra II with my older cousin; she was in the twelfth grade, was heading off to a four-year university, and we were both “A” students. My family saw her as the model student, and I was there with her. Thus, I knew I was good. My mother was in prison, we were forced to move into the projects of East Los Angeles, I had to be a mother to my sisters, and I still competed with the academic pride of my family. I knew, though the feeling was not as strong, that I was good enough to do anything that was expected of me.

The problem was, however, that no one at school (neither my teachers nor my counselors) expected anything from me. Even though I knew I had what it took academically, my teachers seemed not to care. They let the class run amuck. There was no discipline; students would walk out, kids would scream out the window to other students, teachers would sit in their desk while we chatted, and I felt I was just forced to be there, for no real purpose.

When my mother was released from prison, some of my previous discipline and habits returned. If I went to class, I was determined to be present and be engaged; I was never a disruptive student. I was responsive to the authority of my mother. If I got bad grades, my mom would know about it. I was afraid of disappointing her; I feared that if I disappointed my mother, I would fall off the pedestal she held me up to. I did not want to be one of the bad kids, though I was clearly aware that we were survivalists, and we did all the things we had to do to survive, whether they we good or bad. Still, I felt my mom held me in high regards because she gave me trust; she gave liberty. No one around me had that. I was the only Latina student who got to drive to school, who had a car, and who operated under an entirely different system. I was free, unbound by any cultural strings. I did not want to get pregnant because I would disappoint my mother. That was my mother’s major concern for me throughout my high school years. My high school success was determined by my ability to not get pregnant. If I did that, I was good.

Eventually, I stopped going to school simply because I did not care; I did not see the value of it. I saw that I could miss classes and still pass. The only time I met with a counselor was to change classes. When I began to think about my future and thought of being a lawyer, I went to the career center to ask questions. The counselor asked me what I wanted to be, so I said lawyer. She told me that it would take me eight “long” years after high school and suggested a career such as a flight attendant because it would take less time, and I would get to travel for free. I felt disappointed because my counselor, whom I assumed “knew best”, had no trust in my abilities, so I stopped thinking about being a lawyer all together. I slowly became disengaged, school was not being presented as valuable by any one. Classes were boring, teachers were wasteful, and no figure of authority seemed to care whether I was there or not. I felt purposeless, the worst feeling I could feel. Towards the end of the twelfth grade I told my mother, “Ya para que voy?” Why even bother? My cousins who graduated high school were not any better than I was, my teachers did not ever seem to expect anything from me, and my role outside of school was beginning to shift again. I was expected to be a bigger contributor. In retrospect, that is what always drove me towards achievement, knowing that I had a role, that I was purposeful and valuable.

Though I did not graduate from high school, I was able to pursue higher education, largely through the resources and knowledge I gleaned from my mother’s teaching, or pedagogies of the home (Delgado Bernal et al. 2006). She taught me to be resilient and resourceful. At the age of 31, I found out about the existence of FAFSA and I was given an opportunity to go to college for free. This information was never provided to me in High School. I knew this endeavor would be tremendously difficult, being that I was a wife, a mother of three, took care of a full household, fourteen years had passed since my disengagement from High School, and we would have to face the daily financial hardship that comes from a limited income. Yet, I was presented with an opportunity so grand that I could not let it go to waste, just like my mother taught me. I had in my possession the memories of my mother’s fearless conviction when things were against her. The way she took her predicaments and pushed forward like a beast. Just as when I was child, I followed my mother’s traditions. I used the many tools she had given me as a child such as confidence, discipline, and determination and I excelled. I became the 4.0 student with College President’s Highest Honors six consecutive semesters in a row; was granted membership to the Phi Theta Kappa international honor society for two-year colleges; was awarded the Outstanding-Women Award in 2009; obtained three Associates Degrees in Sociology, Social Science, and Liberal Arts-Social and Behavioral Science; and I am currently an undergrad student in a Northern California university, with a GPA of 3.9 and a plan to pursue a doctoral degree.

Conclusion

This research problematized Latino/a parental involvement in schools through the lenses of Chicana feminist theory and testimonio research methodology. Part of the purpose of this work is to challenge the previously accepted factors that contribute to student success, particularly regarding parental involvement in the Latino/a community and identify other factors that have been neglected.
by past research. As the findings clearly revealed, Latino/a parents, particularly mothers, highly value education. Though Latina/o parents do not engage in visual mainstream parental participation practices, they nonetheless teach their children values conducive to educational success, such as punctuality, respect for teachers, a strong work ethic, sacrifice, and endurance. These findings thus stand in stark contrast to cultural deficit theories, which tend to portray Latino/a parents and families as dysfunctional and uninterested in education. Researchers thus need to move beyond cultural deficit models and examine structural barriers that impede Latino/a educational success, such as unequal access to quality schooling, segregation, uncaring/unqualified teachers, and other structural inequities. Furthermore, researchers should re-evaluate the definition of parent involvement and create a more complex definition of parent involvement that includes valuable pedagogies of the home that have thus far been neglected by mainstream education. As more research is produced, policy and practice should reflect new findings to maximize student potential.

References


Tinkler, Barri. 2002. *A Review of Literature on Hispanic/Latino Parent Involvement in K-12 Education.* University of Denver, Denver, CO.


Yo También Soy Mariachi: All-Female Ensembles & Gender Representation in Mariachi Music

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Abstract

Despite the fact that mariachi music has become the international symbol of Mexican culture, the subtle implications of mariachi music as a gendered practice often go unnoticed by audiences. As all-female mariachi ensembles grow in popularity, issues of gender inequality within this typically male dominated field arise. In order to better understand the gender inequality within this musical genre, this review draws from three different strands of knowledge and looks at the intersection of the historical development of mariachi music, gender representation in music, and cultural notions of femininity and masculinity within song lyrics. Examining these aspects of mariachi performance reveals how the performers represent gender norms through their choice in traje (suit) and interpretation of song lyrics. Further research can help elucidate the many ways in which female musicians challenge stereotypes and make mariachi music their own.

Introduction

It is a typical night at the Cielito Lindo Restaurant. The dining area is filled with excited patrons leisurely enjoying their food and each other’s company as they wait for the show to begin. Suddenly, the stage lights go on. The sounds of a busy restaurant: silverware clinking, customers conversing, and cooks shouting orders, all begin to dissipate as anticipation rises. Finally, the mariachi musicians appear on stage and the room is filled to the brim with the boisterous sounds of mariachi music. Throughout the night, the audience members shout, sing, and are even brought to tears by the sounds of a song that brings back old memories. Yet, what tends to surprise, inspire, and sometimes even upset the audience the most is that the musicians on stage are all women. This is because men, not women, are typically thought of as mariachi musicians. Although women have been involved in mariachi performance as singers and instrumentalists for years, the prevailing image of a mariachi ensemble is of all male musicians (Sobrino 2003).

Audiences everywhere recognize mariachi music as a social practice and visual performance. All over the world, people are introduced to Mexican culture through these sights and sounds that for many elicit emotions of pride and celebration. The stereotypical imagery invoked by audiences of loud festive music performed by men dressed in Charro outfits (traditional Mexican cowboy outfits) is connected to the entertainment aspects of mariachi performance. The contexts in which mariachi musicians perform are usually family gatherings and festive cultural celebrations where contentious issues like race and gender are temporarily sanitized and packaged as entertainment. However, the complex nuances of mariachi music as a gendered practice often go unnoticed. This is because, as McClary (1991) writes, the audience has normalized the symbolic meanings present in mariachi performance. They have internalized and taken at face value what the performance is telling them about Mexican identity. As more and more women engage with mariachi music, the gendered aspects of music begin to surface. This discussion aims to understand the historical, social, and cultural contexts that female mariachi musicians are an active part of in order to break down the barriers that make female mariachi musicians the exception instead of the norm.

Mariachi Reyna de Los Angeles (Mariachi Queen of Los Angeles) is one of the country’s all female mariachi ensembles. Whether they are performing at the Cielito Lindo Restaurant or on tour, their performances exemplify the power of music. This power stems not just from the reactions of their audience, but also from their political and social identities as women. The existence of all female mariachi ensembles is generally unexplored by music scholars (Perez 2002). Yet, their presence within this genre provides an opportunity to explore how history, social norms, constructions of gender, and identity are transmitted, transformed, or challenged through mariachi music. Music after all is not apolitical or ahistorical as it is often thought to be (McClary 1991). It has the ability to construct and reproduce social norms which vary throughout cultures (McClary 1991). It is able to do this in all sorts of ways. The spaces in which it is played, who is allowed to perform, how it is performed, and the lyrical content to name a few, give us insight into different aspects of culture (McClary 1991; Soto Flores 2012). For example, the lyrical content of two popular songs when analyzed gives us insight into representations of gender in Mexican culture as articulated through music (Jaquez 2002; McClary 1991).

The nature of this inquiry is an interdisciplinary one. The literature reviewed in this discussion draws from three different strands of knowledge. The academic work focusing on female mariachi musicians is limited. Yet, when combined with research done by Chicana scholars on Chicana identity and the work done by music scholars on music and gender, the subtle nuances of mariachi performance begin to come to light. This research will explore the history of mariachi music and women’s roles within it. The issue of gender and gender performativity as discussed by scholars is reviewed and their application to mariachi music is explored. Lastly, in order to contextualize the presence of women within this
genre of music, the notions of masculinity and femininity in Mexican culture are examined through a lyrical analysis of two songs. At the most underlying level, this research aims to continue the discussion on gender as related to mariachi music. In particular, how mariachi music articulates notions of masculinity and femininity and how these notions in turn prevent women from being accepted as mariachi musicians are the questions this study aims to explore.

Literature Review

Mariachi History

The state of Jalisco lies in central Mexico, bordered by the Pacific Ocean to the west and the states of Aguascalientes and Guanajuato to the east. At the center of this state is the town of Cocula, the birthplace of mariachi (Rafael 1983; Sheehy 2006). The precise origins of the mariachi in its current form are not entirely known, but its initial formation as a musical group began in the eighteenth hundreds (Rafael 1983; Sheehy 2006). Like many aspects of Mexican society, music in Mexico is a result of syncretism, the melding together of distinct cultures (Rafael 1983). Native musical traditions, Spanish and African influences are all present in mariachi (Rafael 1983; Sheehy 2006). Different instruments like the guitar, violin, trumpet and harp were introduced by the Spanish as well as different poetic and rhythmic forms adding a more European centered sound to the music (Sheehy 2006). African derived rhythms are also present as a result of the influence of the many enslaved Africans who were brought to Mexico by the Spanish (Sheehy 2006). These different rhythmic and poetic forms are what make up the mariachi repertoire of today (Jaquez 2002; Sheehy 2006). They make up the five most notable types of songs performed by mariachis; the sones, polcas, huapangos, boleros and rancheras (Jaquez 2002; Sheehy 2006). Each different type is recognized by its unique rhythmic organization, tempo, meter, and lyrical content (Jaquez 2002; Sheehy 2006). The subjects of the songs are often romantic and speak of “lost love, love’s injustice, women’s beauty, and regional or national pride” (Jaquez 2002, 171). As Jaquez (2002) notes these lyrical themes are prominently sung in what she calls a “male-centered voice” making women the subject of a song (171). All of these elements, particularly the male voice as the legitimate mariachi sound, make up the mariachi ensemble that most audiences would recognize today (Jaquez 2002).

However, the mariachi ensemble that we know of today, typically made up of all male musicians took decades to form (Sheehy 2006). The Revolution of 1910 was a time of great change for Mexico as a nation (Mulholland 2007; Najera-Ramirez 1994; Sheehy 2006). It was not until after the Mexican Revolution, with a large rural population moving into urban cities, advancements in technology like radio and film, and a government campaign to unite all Mexicans through the ideology of mestizaje that the mariachi we know today was created (Mulholland 2007; Najera-Ramirez 1994; Sheehy 2006). The ideology of mestizaje argued that the melding of the Spanish European race and the Indigenous made the Mexican people, what Jose Vasconcelos termed, a ‘cosmic race’ (Mulholland 2007, 252). This new ethnic and racial identity was promoted by the Mexican elite in an attempt to unite the Mexican people and through the decades poets, artists, actors and musicians contributed to the creation of this national myth (Mulholland 2007; Najera-Ramirez 1994). By the early nineteen hundreds mariachi groups were performing for the Mexican president and visiting international officials (Sheehy 2006, 17). Mariachi music was also recorded for the first time, transforming the mariachi sound from a local custom to a symbolic representation of Mexican culture co-opted by the upper class (Sheehy 2006).

As this brief look at the history of mariachi has shown, music, like all aspects of culture, is not static. It has been subject to change as musicians, audience members, the Mexican government, and women negotiate and articulate its meanings in different ways. There have been many women throughout history who have contributed to mariachi (Perez and Sobrino 2005). The fact that their contributions are not as well-known tells us that the presence of women in mariachi is not one of total inclusion. Rather tensions exist between the female musicians who want to enact their own agency and the normalized forms of gender representation in mariachi which dictate what a female mariachi should look and sound like.

Gender Representation in Mariachi Music

In order to understand how gender is represented in mariachi music and how women mariachis perform their gender on stage, we must first understand what is meant by gender. Conventional definitions of gender distinguish it from sex on the well-known premise that gender is socially constructed and learned by individuals while sex is biologically determined (Butler 1990; West and Zimmerman 1987). Yet, there are issues with this premise because it fails to account for the many ways in which the acceptable criteria for either category are often interconnected in the sense that sex is as influenced by social structures as gender (Butler 1990; West and Zimmerman 1987). West and Zimmerman (1987) give the example of motherhood. The ability to give birth is strictly a function of the female body yet, there are social structures like the labor force and the nuclear family, which attribute the nurturing role of mothering strictly to women (West and Zimmerman 1987). In this sense, biological sex (the ability to give birth), is not easily distinguished from gender and perceived gender roles (motherhood). This distinction between sex and gender is also problematic because it constructs a dichotomy between only two genders, male and female. Despite the many scholars who have refuted this binary, the metaphor of separate spheres still persists among popular discourse (Kerber 1988). This metaphor has been used
to define separate roles for men and women (Kerber 1988). It posits that women and men occupy different spaces because of their different socializations; men occupy the public and women occupy the private or domestic sphere (Kerber 1988). However, as Kerber (1988) notes, there are many issues with the use of this rhetorical metaphor because its proponents have failed to holistically examine the mechanisms which produce these inequalities and have limited their analysis to include only the experiences of white middle class women (Kerber 1988).

This same dichotomy has often been assumed in the field of music (Post 1994). It is commonly argued that women are usually confined to the domestic sphere and musically, this means that most women sing or perform at home for their children or other family members (Post 1994). In contrast, the public sphere of men's world allows them more free time to dedicate to music and become accepted as musical performers (Post 1994). Post (1994) defines the private sphere of women as a broad social space which revolves around domestic activities such as child rearing and responsibilities during important family centered events. The public sphere involves activities outside of the household with people who are not necessarily family members and men that are typically in leadership positions (Post 1994). This metaphor of separate spheres however continues to be less useful when looking at women's and men's musical traditions cross culturally (Post 1994). In many different cultural traditions women are very commonly involved in public musical performances (Post 1994). The spaces that women and men occupy are much more integrated than they may seem. As Post (1994) writes, “these spheres exist on a continuum rather than as part of a clear dichotomy” (36). For female mariachi musicians the distinction between public and private spaces is often problematic. The public spaces in which mariachis perform; bars, clubs, restaurants and public stages are away from the home and are not considered places decent women or good mothers should be (Perez 2002). Yet, as more women step into the public sphere their gendered identities become a part of their performance.

Each time the members of Mariachi Reyna de Los Angeles perform they are performing more than just the music; they are performing for the audience the role of a Mexican woman (Soto Flores 2012; West and Zimmerman 1987). With their movements, gestures, feminine outfits and constant interaction with the audience they are “doing gender” (West and Zimmerman 1987, 126). West and Zimmerman (1987) argue that gender is something we all “do” every day, all the time during our interactions with other people. We perform gender through a series of “socially guided” actions and interactions, which express to others either our masculinity or femininity (West and Zimmerman 1987, 126). Thus, gender is not just something culturally determined; it is an ongoing set of actions and metaphorical images that we are constantly performing (Soto Flores 2012; West and Zimmerman 1987).

Soto Flores (2012) further elucidates this point by examining how female mariachi musicians metaphorically perform their own interpretation of the mariachi image through their different rendition of the traditional traje de charro or the typical mariachi suit. The typical mariachi suit is modeled after the suits worn by Mexican cowboys, which in turn are a symbol of the ideal Mexican male (Mulholland 2007; Najera-Ramirez 1994). As Mulholland (2007) writes, the national myth of mariachi, through a combination of symbols and metaphors perpetuates what she calls the “hegemonic representation of Mexican identity as mestizo, macho and rural” (251). In essence, Mexican notions of masculinity and what it means to be an ideal Mexican man are symbolically connected to Mariachi aesthetics. After all, the typical Mariachi musician is male, mestizo, and by wearing the traditional Charro uniform derived from the Mexican cowboy, connected to an idealized Mexican rural ranch life (Mulholland 2007; Najera-Ramirez 1994). Female musicians have been redefining the image of the mariachi through their choice of suits (Soto Flores 2012). In her discussion of female mariachi musicians Soto Flores (2012) comes across a variety of all-female groups who choose to divert from the now standardized full length skirts and perform wearing shorter skirts, dresses and even pants. The agency with which these all-female groups redefine the charro outfit reminds us that social norms are not static. Women are continuously challenging and redefining this musical genre. However, it is important to note that in Soto Flores’ discussion what was considered appropriately feminine did not change. The female groups she discussed all still wanted to look feminine and never challenged the assumption that this meant clothes worn by women like skirts and dresses or that colors like pink and purple were more appropriate for a feminine look. Their gender and sexuality is still put on display, packaged and normalized for the audience to consume (Perez 2002). As Perez notes, “the contemporary female mariachi usually conforms to the gender expectations characteristic of traditional Mexican culture” (2002, 156). This is seen in the feminized charro suits, “how a female handles her body on stage”, the male voice as the “measure [of] what is legitimately mariachi” and in the instruments they are encouraged to play (Perez 2002, 156). The masculine voice as the reference from which all performances are judged remains the norm. The all-female ensembles are expected to sing “feminine” songs in “feminine” keys. The way in which a female singer conveys song lyrics and the way audiences interpret her performance becomes a site for contention (Perez 2002). The audience is judging her performance on how well it compares to the “legitimate” masculine sound of mariachi. Perez’s point highlights the hegemonic structures that remain.

**History of Women in Mariachi**

Although, throughout the history of mariachi it was common to see a female vocalist accompanied by all male instrumentalists, the presence of all-female
The Southwest (Clark 2005; Jaquez 2002; Perez 2002; Sheehy 2006). Since groups in high schools and university campuses in California and throughout U.S. This revival of Chicano pride prompted the creation of youth mariachi self-determination by the thousands of young Mexican-Americans living in the 1970s when mariachi music was celebrated as a symbol of Mexican culture and suggest that this is perhaps a result of the Chicano Movement of the 1960s and (Jaquez 2002). Clark (2005), Jaquez (2002), Perez (2002) and Sheehy (2006). Major differences amongst mariachi groups on both sides of the border. The difference is that women are more likely to be included as musicians in the U.S. compared to Mexico, women's involvement was. In subsequent decades, other groups began to form in Mexico; Mariachi Las Adelitas and Mariachi Michoacán in the 1950s, Mariachi Las Estrellas de Mexico in the 1960s in Mexico City, and Las Perltas Tapatías from Guadalajara, Jalisco in 1989 (Perez and Sobrino 2005). In the U.S. all-female mariachi groups began forming in the 1970s and their presence in mariachi performance circuits rapidly increased throughout the 1990s (Perez and Sobrino 2005). Individual women like Rebecca Gonzales and Laura Sobrino have been playing as the only women in all-male ensembles since the 1970s but all-female groups like Mariachi Las Generales from Los Angeles and Mariachi Estrellá from Topeka, Kansas formed to prove that women could play as well as men could (Perez and Sobrino 2005). These women and the many more generations of female mariachi musicians continue to shape the history of women in mariachi.

In the United States compared to Mexico, women's involvement was influenced by the different historical circumstances women of Mexican descent faced. In her research on female mariachis, Jaquez (2002) discusses one of the major differences amongst mariachi groups on both sides of the border. The difference is that women are more likely to be included as musicians in the U.S. (Jaquez 2002). Clark (2005), Jaquez (2002), Perez (2002) and Sheehy (2006) suggest that this is perhaps a result of the Chicano Movement of the 1960s and 1970s when mariachi music was celebrated as a symbol of Mexican culture and self-determination by the thousands of young Mexican-Americans living in the U.S. This revival of Chicano pride prompted the creation of youth mariachi groups in high schools and university campuses in California and throughout the Southwest (Clark 2005; Jaquez 2002; Perez 2002; Sheehy 2006). Since then young women have been able to learn and participate in school programs, workshops and conferences dedicated to mariachi performance (Clark 2005; Jaquez 2002; Perez 2002; Sheehy 2006). Because of these programs women instrumentalists and all-female groups are more common in the U.S. (Jaquez, 2002). Nevertheless amongst the top paid show groups all-male ensembles are still the norm (Jaquez 2002). In the U.S. it is Nati Cano's Mariachi Los Camperos and Jose Hernandez's Mariachi Sol de Mexico that dominate the higher paying show group circuit (Jaquez 2002; Sheehy 2006). Mariachi Reyna is one of the few exceptions, but it is important to note that they too are directed by Jose Hernandez (Mariachi Reyna de Los Angeles Homepage).

Intersectionality and Chicana Identity

It is important to highlight the socially distinct circumstances faced by Chicanas in the United States. For centuries in America, women actively worked to shape their families and communities as mothers, workers, leaders and activists (Ruiz 2008). Women playing music is an extension of this tradition of involvement in their communities (Vargas 2012). Historians however typically ignore their stories and diminish the impact of their many contributions (Ruiz 2008; Vargas 2012). The agency with which Mexican women lived their lives and navigated through hegemonic social structures impacted all aspects of life in America (Ruiz 2008). Take for example the story of the Chicana Singer Rita Vidaurri. She was born in San Antonio Texas and grew up listening to Spanish language radio in the 1920s and 30s (Vargas 2010). As a teenager trying to peruse her dream of becoming a singer she struggled to gain the acceptance of her father, who like most at the time believed that young women did not belong on a public stage (Vargas 2010). Vidaurri challenged gender norms by performing in places not deemed acceptable for young women in Texas (Vargas 2010, 4). She established a musical career in Mexico City and became one of the most well-known female singers of the 1940s and 50s (Vargas 2010).

Vidaurri’s life is a perfect example of the role of intersectionality in the lives of female musicians. Her identity as a working class Mexican-American woman had a great impact on her music and performative style (Vargas 2010). Feminist scholars, particularly women of color, have shed light on the way in which gender, sexuality, class and race are experienced simultaneously by women (Crenshaw 1991; Zavella 1991). Traditionally, feminist theory focused primarily on gender as a form of oppression that affected all women equally, but failed to include the diverse experiences among women (Crenshaw 1991; Zavella 1991). The framework of intersectionality more holistically includes the voices of women who are marginalized on multiple levels (Crenshaw 1991; Zavella 1991). In this sense, an intersectional theoretical framework is ideal when examining the lives of female mariachi musicians. The experiences of Mexican American women and...
the contributions made by Chicana Feminists shed light on the complex social identity that many Chicana mariachi musicians experience.

Female mariachi musicians, the majority of which are also Mexican-American or Chicana, carry with them these multiple identities each time they perform. It is the intersection of their gender, sexual orientation, ethnicity, and class, which makes their stories unique (Crenshaw 1991; Zavella 1991). They experience institutionalized oppression in their lives as an ethnic minority and as women in a male dominated field (Crenshaw 1991; Zavella 1991). While other scholars used intersectionality theory to examine issues of labor, education, violence and other important issues faced by women of color, this theoretical lens can also elucidate issues of power and inequality in music. All-female mariachi ensembles offer music scholars the opportunity to explore this further. As mariachi musicians, they are symbolically connected to a musical genre that is so intimately associated with Mexican nationalism and issues of race and ethnicity (Mulholland 2007; Najera-Ramirez 1994). As female musicians their gender is often highlighted on stage most obviously by their distinct outfits, typically full length skirts in feminine colors like pink and purple. The intersections of these different racial and gendered aspects of mariachi music are also expressed lyrically. An analysis of two specific songs helps to further show how ideas of masculinity and femininity are articulated in mariachi music.

Exploring the Lyrics

**Normalizing Gender Dichotomies: Women as an Object of Desire**

While the different ways in which people perform gender may go easily unnoticed, one of the areas in which gender dichotomies are normalized and are more easily analyzed is in the lyrical content of the mariachi repertoire. Although there is a vast number of songs that a mariachi ensemble must be familiar with the broad themes which are usually present in the lyrics talk about women, love, and pride of one’s country or region (Jaquez 2002). What remains constant in these songs is what Jaquez (2002) describes as the “male-centered voice” which is characterized by the predominance of male composers and a normalization of a particular gender dynamic demonstrated through song lyrics (171-173). This second characteristic is especially important. Jaquez (2002) asserts that the lyrics in a great majority of songs normalize a relationship between men and women in which women are portrayed as an object of desire that is actively pursued by men (173). This dynamic plays out in sometimes obvious, but more often than not subtle ways.

Jaquez (2002) exemplifies this with her examination of the song “Ay Jalisco!” which she explains has multilayered meanings which are perceived by the audience in the context of a musical performance (173-174). The first is the song’s more obvious reference to regional pride. Its upbeat tempo and lyrics celebrate the state of Jalisco and liken its capital city of Guadalajara to a beautiful woman (Jaquez 2002). This comparison to a woman is the second underlying reference which, as Jaquez (2002) notes, follows the normalized gender relationship she previously described.

The state or homeland is thus feminized, casting woman as the object of desire as an allegory of man’s allegiance to his country or land. Issues of courtship and pursuit-- “por una morena echar mucha bala/Y bajo la luna cantar en Chapala” (for a Brown-skinned woman, fire a lot of bullets/and sing under the moon in Chapala [stanza five]) – cement women’s availability “lo mismo en los Altos/ Que alla en la Canada” (the same in Los Altos as in/over there in La Canada [stanza four]) (2002, 173).

The more standard interpretation of the song as a symbol of regional pride then overshadows the less obvious reference to women as objects of desire. Audiences perceive these references in a very interesting way. It is the context of a musical performance and the entertainment aspect of mariachi which mediate how the audience perceives these otherwise contentious topics of gender relationships and regional pride as nonthreatening and normal (Jaquez 2002). This normalization process in mariachi song lyrics that Jaquez sheds light on exemplifies McClary’s (1991) discussions of music as a location where social reproduction occurs. Music’s ability to actively reflect, reproduce, and challenge societal norms, once again, demonstrates the political nature of music (McClary 1991).

**El Macho y Maria**

It is under this established idea and following Jaquez’s example that two other songs; “El Rey” by Jose Alfredo Jimenez and “Yo También Soy Morena” by Aida Cuevas are examined. These songs represent lyrically the two dichotomies of the masculine and the feminine. While these two songs are not entirely representative of all mariachi songs, in their lyrics, there are symbolic representations of two idealized gender roles in Mexican and Chicano/a culture: machismo and marianismo. Machismo refers to an idealized form of manhood often portrayed to be dominant in Latin American cultures (Stevens 1973). Men are idealized as the heads of households and dominate the public sphere (Stevens 1973). A real man is said to be one without unquestionable authority, a womanizer who never shows his true emotions (Stevens 1973). “El Rey” is a very masculine song portraying a man down on his luck because of a woman. There are metaphors to patriarchy and machismo from the very beginning. In the title and the chorus he likens himself to “El Rey”, the King. “Con dinero y sin dinero/hago siempre lo que quiero/yo” (With or without money/I always do what I want/I) (1991) discussions of music as a location where social reproduction occurs. Music’s ability to actively reflect, reproduce, and challenge societal norms, once again, demonstrates the political nature of music (McClary 1991).
man as the dominant patriarch. He has no money and was scorned by a woman, but his identity as El Rey is still intact. The lyrics portray the idealized Mexican man, who even when down on his luck, is still in charge. These notions of masculinity are then in turn perceived and reproduced by the audience.

On the other hand, marianism portrays the ideal Mexican woman as someone who emulates the Virgin Mary, is pure, self-sacrificing, and through the pains of motherhood is a sort of exalted figure that brings protection to her family. “Yo También Soy Morena” is sung to the Virgen de Guadalupe on December 12. This date is said to be the day that the Virgen De Guadalupe appeared to a poor Indian peasant named Juan Diego (Poole 1995). She spoke to him in Nahuatl, the language of the Aztecs and she told him to speak to the local priest in order to have a church built in her honor (Poole 1995). At first, no one believed Juan Diego so the Virgen De Guadalupe had him search for roses, which during winter should not have been growing (Poole 1995). He returned to the priest with the roses and on the cloth, in which he had wrapped the roses, appeared the image of the Virgin (Poole 1995). It was regarded as a miracle. A cathedral was built in her honor and to this day La Virgen De Guadalupe is the revered patron saint of Mexico (Poole 1995). “Yo también soy morena/Y te vengo a cantar/Como el indio Juan Diego/T e traigo rosas y un oración” (I am also brown skinned/And I come to sing to you/like the Indian Juan Diego/I bring you roses and a prayer; Mariachi Publishing Company 2008). Race and gender intersect in this song. The references to Juan Diego as well as the symbolism of her brown skin remind the audience of the indigenous roots of the Mexican people. The lyrics also imbue La Virgen with a real power and strength that seem to celebrate her womanhood. “Yo también soy morena/Y te vengo a pedir/Que me cubra tu manto/Y a todos los de mi hogar” (I am also brown skinned/And I come to ask/That your shawl covers/Me and all in my home; Mariachi Publishing Company 2008). She is a symbol of power, strength and protection, yet there is a tension between representations of La Virgen as a powerful liberating figure and the exalted mother of Catholic dogma that is pure, chaste, and self-sacrificing. All of this tension and contradictions are brought forth in the lyrics sung by Aida Cuevas.

Within the lyrics of these two songs idealized gender norms for men and women are being conveyed and polarized. The audience however perceives these interpretations as celebrations of culture. They elicit pride and nationalistic fervor while simultaneously portraying men and women within these very narrow gender roles. The importance of exploring the mariachi repertoire lyrically is necessary in order to continue to deconstruct the different nuances and power structures involved in the social practice of mariachi music.

Future Research

The fact that not much research has been conducted that looks specifically at female mariachi musicians leaves room for a vast number of possibilities. Much more research can be done in the form of lyrical analysis. The large repertoire of songs known to mariachi ensembles provides a vast and varied sample. Any future research done must also include the views and experiences of the female musicians themselves. Research that looks at the audience and their views of female mariachi musicians would also shed light on the ways in which audience members perceive the gendered aspects of mariachi performance and whether or not these views have changed over time. It will be exciting to see how audiences at the Cielito Lindo restaurant and around the world will experience a mariachi performance as more and more women are able to say, Yo También soy Mariachi! The existence of all female mariachi ensembles provides an opportunity to explore how history, social norms, constructions of gender, and identity are transmitted, transformed or challenged through mariachi music. Mariachi music as a mechanism of social reproduction and a gendered practice perpetuates many of the hegemonic constructions of gender. However, these norms have not gone unchallenged. All-female ensembles are an example of the many ways in which women have made mariachi their own; through their long historical involvement, choice of suits, and interpretation of song lyrics. Yet, understanding how women have influenced the history of this musical genre and how their contributions are often ignored because cultural notions of gender, which are reproduced in mariachi music, deem them less significant is only the beginning. Future research is necessary in order to continue to deconstruct the different nuances and power structures involved in the social practice of mariachi music.

Conclusion

The relative success of all-female mariachi groups tensions and inequality still exist. As this discussion has shown, gender representations in mariachi music still conform to traditional expressions of masculinity and femininity. However, the female musicians who can proudly say they are a Mariachi will continue to shape this musical genre in new and exciting ways.

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References


The Cytotoxic Effect of Oshá on Human Breast Cancer Cells, Normal Human Blood Cells, and Embryonic Mouse Cells

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Abstract

Oshá or oshála is the traditional name of plants in the genera Lomatium and Ligusticum that are used medicinally by indigenous peoples in North and Central America. Oshá root has been used medicinally in women’s medicine as a natural contraceptive, an abortifacient, an emmenagogue, and an oxytocic agent. Given its traditional use in women’s medicine, previous researchers hypothesized that it would have an effect on estrogen receptor positive breast cancer cells. In a previous study in this laboratory, ethanolic extracts of certain oshá root extracts showed cytotoxic effects on the breast cancer cell lines MCF-7, BT-474, and MDA-MB-231. Aqueous extracts had no cytotoxic effect on any of the assayed cell lines. The current study investigated the effects these same extracts have on normal human peripheral blood mononuclear cells (PBMC) and mouse embryonic cells (3T3). This study produced the EC50 values of 80 ± 3, >100, and >100 mg/ml for Ligusticum porteri, Ligusticum grayi, and Lomatium californicum extracts, respectively, on PBMC, and 40 ± 1 and 55 ± 1 mg/ml for L. grayi and L. californicum extracts, respectively, on 3T3. These findings indicate that the traditional use of oshá as an abortifacient may be due to its cytotoxicity towards embryonic cells. Further investigation of these extracts and their cytotoxic effects on other types of cells is warranted.

Introduction

Scientists are taught from the very beginning to consider all aspects of biological phenomena, to question every conclusion, to research every angle of a problem, and to dig for knowledge on given topics. However, scientists today often restrict themselves to a Western way of thinking and, therefore, alienate an untapped resource of knowledge that Kimmerer (2002) describes as Traditional Ecological Knowledge (TEK). TEK as described by Berkes, Folke, and Gadgil (1995) is the holistic belief that with the privilege of such knowledge obtained from the earth and the practice thereof comes a responsibility to the earth. Thus, taking advantage of resources that aid in the healing of peoples must be met with the responsibility of not despoiling the environment, the source of aforementioned resources.

As progress is made in the sciences, researchers in fields ranging from pharmaceutical laboratories to agriculture are beginning to tap into the TEK provided by indigenous peoples. These peoples have a vast array of untapped knowledge that includes medicine and pharmacology. Researchers follow a similar line of thinking parallel to that of TEK, Scientific Ecological Knowledge (SEK; Kimmerer 2002). TEK and SEK are derived from the same source but, due to western influences, SEK has become more of a monopolized relationship in which we take from the environment but give nothing back. Both systems yield valuable information that progresses human life, but there is a definite need for integration of TEK and SEK.

As a scientist and a student, this researcher has been trained to examine all the evidence and to discuss alternative pathways for biological happenings. However, in biology and chemistry curricula, scientists are unknowingly ignoring an entire body of knowledge that lies with native peoples and that has the potential to make significant headway in finding cures. Researchers in pharmaceutical laboratories and agriculture are beginning to acknowledge the culture and practices of indigenous peoples in scientific research (Kimmerer 2002). In the past few decades, there has been a movement in biological research to explore this untapped knowledge.

Literature Review

Throughout history, peoples all over the world have been using medicinal plants to cure illnesses. A common example is willow bark, which has been used by peoples in Europe, Africa, and the Americas as a medicinal plant to alleviate a number of symptoms, including fever due to the common cold and painful menstruations (Jochle 1974; Moerman 1986). With the advancement of medicinal chemistry, the active compound in willow bark has been chemically synthesized and modified into the commonly known medicine, aspirin. It was through this example that scientists saw the significant roles that plants can serve as effective alternative treatments for many illnesses.

The study of medicinal plants in different cultures is called ethnopharmacology. Despite the increase in research on flora, only a small percentage of plant species have been chemically and pharmacologically investigated, leaving a vast potential of virtually untapped ethnopharmaceuticals to be studied. There is still a continuous search for new cytotoxic agents from natural sources worldwide (Cragg and Newman 1999). For instance, traditional doctors of Southern Thailand were interviewed and were cited to have employed numerous plants in therapies for cancer treatments (Itharat, Singchangchai, and Ratanasuwan 1998; Itharat et al. 2004). Nature has provided many effective anticancer agents that are currently used. Some have been derived from microorganisms, such as
dactinomycin and doxorubicin, and others from plants, such as vinblastine, taxanes, etc. (Ruffa et al. 2002). Unregulated cell growth is the universal property of tumor cells, and many research projects have investigated the cellular growth control mechanisms; this knowledge has contributed to the identification of compounds with specific antitumoral activity (Kang, Jim, and Jang 2000). With this basis, research labs are able to explore the scientific basis of the effects of many ethnopharmacological agents on cancer (Cordel, Becher, and Pezzuto 1991; Popoca et al. 1998). Historically speaking, women's health has been dealt with through natural means in many cultures around the world. Countless plant extracts have been used as anti-fertility agents in traditional medicinal practices for millennia, with great success. For instance, the targets of traditional remedies concerning women's health of the Chumash tribe include dysmenorrhea, premenstrual syndrome, feminine hygiene, heavy menstruation, urinary tract infections, parturition, lactation, infant care, menopause, sexually transmitted diseases, fertility, contraception, and abortions (Adams and Garcia 2005). In a recent study, these herbal remedies were found to be used as natural contraceptives (to prevent ovulation or fertilization), abortifacients (to prevent implantation), emmenagogues (to stimulate uterine flow) or oxytocic agents (to stimulate uterine contractions, particularly to promote labor (Conway and Slocumb 1979; Kumar 2011; Ritchie 2001). Researchers today have found many synthetic agents for regulating such things as fertility; however, these often cause many adverse side effects, including hormonal imbalance, hypertension, increased risk of cancer, and weight gain (McNamara 1996). This highlights the need to bridge western knowledge and indigenous knowledge in the field of women's medicine.

Umbelliferous plants play an important role in various traditional medical systems including Traditional Chinese Medicine and the Traditional Native American Medicine (Li et al. 2003). For instance, the roots of Angelica sinensis (Oliv.) Diels, of the family Umbelliferae, is one of the most commonly used traditional drugs in China, indicated against anemia, menstrual disorders, amenorrhea, and rheumatism (The Pharmacopoeia Commission of the People’s Republic of China 1992). The three plants that were investigated in the current study, Lomatium californicum, Ligusticum grayi, and Ligusticum porteri, are all Umbelliferous plants used in the Americas.

In the western part of North America, Lomatium is the largest genus of the family Umbelliferae (Hardig and Soltis 1999), with numerous species being used as therapeutics, by Native Americans of California (French 1971; Strike, Beck, and Roeder 1994). The roots of L. californicum have been found to contain Z-ligustilide, among other bioactive constituents (Asuming et al. 2005; Chou et al. 2006; Zschocke et al. 1998). A second report on L. californicum described the phytotoxic and antifungal activity of Z-ligustilide (Meepagala et al. 2005), which showed significant cytotoxic activity. A closely related plant species, Lomatium dissectum, was used to treat pulmonary complaints such as colds, coughs, pneumonia, tuberculosis, lung hemorrhage, and asthma (Turner, Bouchard, and Kennedy 1980; Turner et al. 1990). In 1986, Moerman cited numerous native peoples who also used this plant medicinally, and it was purported that many potential antiviral applications could be found. From this launched a study that reported L. dissectum to have antimicrobial activity (Cardellina and Van Wagener 1985; McCutcheon et al. 1995; Van Wagener, Huddleston, and Cardellina 1988). The genus Ligusticum, also of the family Umbelliferae, includes 60 species. Numerous studies have been published on the chemical composition of organic extracts or essential oil of plants in the genus Ligusticum, but only a few have reported on their biological activities. Scientific knowledge regarding biological activity and active components of L. porteri, also known as oshá, is sparse (Medina et al. 2005). Like the roots of L. californicum, Ligusticum porteri roots contain Z-ligustilide (Zschocke et al. 1998). In another study, aqueous and ethanol extracts of oshá root showed no significant cytotoxic effects on the human breast cancer cell line MCF7/AZ at a concentration of 50 μg/ml. It was noted, however, that an increased concentration might prove useful (Daniels et al. 2006). Another study done by Cole et al. (2007) showed that the essential oil from the leaf of L. porteri showed considerable cytotoxic activity against three human tumor cell lines, including MCF7. In the current study, the effects of L. porteri root extracts were investigated on MCF7 and other cell lines.

Table 1

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Names</th>
<th>Affiliated Tribe(s)</th>
<th>Medicinal Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Ligusticum grayi</em></td>
<td>oshá, oshala, Gray’s licorice root, gray’s lovage</td>
<td>Atsugewi</td>
<td>Cold remedy, cough medicine, gastrointestinal, panacea</td>
</tr>
<tr>
<td><em>Ligusticum porteri</em></td>
<td>oshá, chuchupate, porter’s lovage, bear root, mountain ginseng, nipo, Indian root, mountain carrot, Colorado cough root, bear medicine, wild lovage, wild parsley plant, chuchupate</td>
<td>Zuni, Apache, Chiricahua, Mescalero, Chumash, Yuki</td>
<td>Cough, bronchial conditions, painful menstruation, retained placenta, fevers, digestive disorders, toothache, panacea</td>
</tr>
<tr>
<td><em>Lomatium californicum</em></td>
<td>oshá, California rock parsnip, celery weed, California lomatium</td>
<td>Karok, Yuki, Kawaiisu, Yuki, Yurok, Poliklah</td>
<td>Dietary aid, cold remedy, gastrointestinal aid, bronchial conditions, panacea</td>
</tr>
</tbody>
</table>

Oshá is a highly palatable forage plant, and peoples from several Native American tribes have long been using the roots of oshá for its medicinal properties. Oshá
root prepared as medicine is known as chuchupate, and, before modern medicines were available, it was considered a panacea or cure-all, and its uses are still continued today. It is becoming recognized in the modern western world for its all-purpose medicinal qualities (Dodson and Dunnire 2007). Today, herbalists are beginning to say that it is a whole drug store within itself, where its effects are cleansing and purifying to the entire system (Bowen 1895). The use of chuchupate as a panacea led a previous researcher in this laboratory to hypothesize that it would be useful in cancer treatment. The use of chuchupate as an emmenagogue, which is a substance that has the ability to provoke menstruation, and an abortifacient, to terminate difficult pregnancies, further piqued interest in how this plant would affect breast cancer cells, possibly providing an alternative therapy for healing cancer.

Cytotoxicity screenings provide important preliminary data to help select plant extracts and natural products with anticancer potential for future work (Cardellina et al. 1999). In a previous study, chuchupate was investigated for its ability to inhibit the growth of breast cancer cells (Bautista 2005). The roots of three species of oshá: \textit{L. porteri}, \textit{L. grayi}, and \textit{L. californicum}, were used in the previous study. The anti-proliferative effects (ability to inhibit growth), and/or cytotoxic effects (ability to kill cells) were tested on three human breast cancer cell lines: BT-474 and MCF7, which are both estrogen-receptor positive (proliferate in the presence of estrogen), and MDA-MB 231, which is estrogen-receptor negative (estrogen independent; Bautista 2005). In a subsequent study, it was concluded that all three of the oshá root extracts did indeed have anti-proliferative effects on the BT-474 breast cancer cell line. Even more impressive was \textit{L. porteri} which showed significant anti-proliferative or cytotoxic effects towards all three breast cancer cell lines, indiscriminate of cell type, giving EC50 values (the concentration that kills 50% of the cells) of 32 to 80 mg/ml.

Although it was observed that \textit{L. grayi} and \textit{L. porteri} had a profound cytotoxic effect on breast cancer cells, there was a need to analyze the effects that these same extracts had on normal cells to determine if further research on this medicinal plant was warranted. Specifically, in the current study the EC50 values were determined on normal human peripheral mononuclear blood cells (PMBC) and on mouse embryonic cells (3T3) and compared to the EC50 values found for breast cancer cells.

**Methodology**

**Plant Collection**

All three plant samples were collected for a previous research student, Marisa Bautista (Bautista 2005). Dried \textit{L. californicum} was collected near Chuchupate Campground in Los Padres National Forest, California, and was a gift from J. Timbrook of the Santa Barbara Museum of Natural History (California), where a voucher specimen is stored. Dried \textit{L. grayi} was collected at Gold Lake, California, and was a gift from Christopher Hobbs. Dried \textit{L. porteri} was purchased from Garden of Grace Botanicals (Cornville, Arizona).

**Extraction Procedure**

An extraction procedure was prepared during the previous study performed by Marisa Bautista (Bautista 2005). To prepare aqueous extracts, dried oshá root (10.0 g) was chopped finely, added to 250 ml of boiling deionized water, boiled for 20 minutes and steeped for a 24-hour period. After cooling, the pH was adjusted to 7.2 by addition of 0.5 M NaOH. Ethanolic extracts were prepared by grinding one gram of fresh or dried oshá root to a fine meal using a mortar and pestle, and then extracting with 25 ml of 95% ethanol for 20 minutes. All extracts were vacuum-filtered through 3 mm filter paper. Filtrates were centrifuged at 2000 Xg for 5 minutes. Supernatants were sterilized by filtration through a 0.20 mm filter. One milliliter of each extract was dried under vacuum and the mass was determined. Sterile extracts were stored at -20°C. Dilutions were prepared by adding sterile-filtered water or 95% ethanol to aqueous or ethanolic oshá root extracts, respectively. Test media was prepared by adding 1% (v/v) of the various dilutions to growth media. Control media contained 1% (v/v) sterile water or 95% ethanol.

**Cytotoxicity Assay on Breast Cancer and Embryonic Cell Lines**

Three human breast adenocarcinoma cell lines (MDA-MB-231, BT-474, MCF7) were used, as well as the mouse embryonic fibroblast 3T3 cell line. All cell lines were grown in an incubator at 5% CO2 and 37 °C in growth medium (Improved Minimal Essential Media, Richter’s modification [Corning Cellgro] containing 10% fetal bovine serum [Axenia Biologix], 1000 U penicillin [Fisher Bioreagents], and 0.1 mg/ml streptomycin [Fisher Bioreagents]). For the assay, cells were washed with growth medium. The medium was decanted, and cells were detached with 1.5 ml 0.025% trypsin-EDTA (Sigma), and then medium was added to a volume of 5 ml. The cell pellet, obtained by centrifugation (1200 x g, 5 min), was resuspended in 5 ml of medium to make a cell suspension. Viable cell density was determined by the trypsin blue exclusion assay in a hemacytometer, and then cell suspension was diluted with medium to a density of 50,000 cells per ml. One hundred µl of these cell suspensions were seeded into each of ten wells in a 96-well microtiter plate, which was then incubated at 37 °C for 48 hours to allow for cell attachment.

**Preparation and Cytotoxicity Assay on PBMC**

Thirty milliliters of whole blood were collected by venipuncture into evacuated collection tubes containing sodium heparin as anticoagulant on ice, following a
protocol approved by the California State University, Sacramento, Institutional Review Board for use of human subjects. Prior to the PBMC procedure, the collection tubes were inverted to mix the blood.

Fico/Lite™- LymphoH was supplied from Atlanta Biologicals (Atlanta, Georgia) with a density of 1.077 ± 0.001 g/ml @ 20°C and an osmolality of 290 ± 10 mOs/kg. Fifteen ml of the Fico/Lite solution was pipetted into a 50 ml sterile centrifuge tube. Twenty ml of phosphate-buffered saline (PBS; 1.9 mM NaH$_2$PO$_4$, 8.1 mM Na$_2$HPO$_4$, 154 mM NaCl, pH 7.2) was mixed with 20 ml of anti-coagulant-treated whole blood. The blood/PBS mixture was carefully layered onto the Fico/Lite, making sure a distinct boundary existed between the diluted blood and the Fico/Lite solution (Boyum 1968; Fuss et al. 2009; Hokland and Heron 1980). Centrifugation at 1800 rpm for an hour resulted in the separation of PBMCs at the blood-Fico/Lite interface. Other white blood cells and red blood cells, which are unusable, pass through the interface and collect in the bottom layer. Above the PBMC layer, which is in the middle, is the upper layer that contains plasma and platelets. This layer was carefully aspirated without disturbing the mononuclear cell layer at the interface. With a clean pipet, the mononuclear cell layer was carefully collected at the interface, minimizing the amount of Fico/Lite (bottom layer) withdrawn with the sample. The PBMC layer was then washed with sterile PBS to remove any contaminating separation medium. The number of viable cells was assessed with the Trypan Blue exclusion assay (Mishell and Shiigi 1980). After collection and prior to inoculation, cells were resuspended at a density of 1 x 10$^6$ cells per ml in media. Then 50 µl of cell suspension was seeded into each well of a 96-well microtiter plate. The cells were then immediately inoculated with 50 µl of a media-extract series (ten wells per concentration). Plates were then incubated for 48 hours, and the numbers of viable cells (relative to the control cells containing only vehicle) were assessed with the Cell Titer 96 Aqueous One Solution Assay (Promega Corporation; Cory et al. 1991). The absorbance of the formazan product was measured at 490 nm with a microtiter plate reader (BioRad). All assays were performed in ten wells. The EC$_{50}$ value, the concentration of the plant extract that reduced the absorbance at 490 nm to half the control value, was determined using the ED50Plus V1.0 software.

### Results and Discussion

The criteria established by the US National Cancer Institute to consider a medicinal plant worthy of further investigation is an EC$_{50}$ less than 30 µg/ml in the preliminary assay of a crude extract (Suffness and Pezzuto 1990). The range of doses assayed in this study was 20-100 µg/ml. The aqueous extracts exhibited no activity towards any of the tested cell lines (data not shown). EC$_{50}$ values for ethanolic extracts are displayed in Table 2. The EC$_{50}$ values differed from those obtained by a previous researcher in the laboratory (Bautista 2005); in most cases, the EC$_{50}$ values obtained in this study were less than those in the previous study. This may be due to degradation of the extract components over time. As in the previous study, the *L. porteri* extract was the most potent. Notably, it showed significantly more cytotoxicity against all three breast cancer cell lines than against PBMC. This may indicate that the extract preferentially targets fast-growing cells, since unstimulated PBMC grow very slowly, if at all. The EC$_{50}$ value of the *L. porteri* extract against 3T3, another fast-growing cell line, were also well below the EC$_{50}$ values against PBMC, supporting this hypothesis. Additionally, the cytotoxicity of *L. porteri* and *L. californicum* against these embryonic cells offers scientific corroboration of the use of oshá as an abortifacient.

### Table 2

<table>
<thead>
<tr>
<th>Cell Line</th>
<th>EC50 Value (µg/ml)</th>
<th><em>L. californica</em></th>
<th><em>L. grayi</em></th>
<th><em>L. porteri</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>BT – 474</td>
<td>60 ± 3</td>
<td>81 ± 2</td>
<td>32 ± 1</td>
<td></td>
</tr>
<tr>
<td>MDA – MB – 231</td>
<td>&gt; 100</td>
<td>&gt; 100</td>
<td>60 ± 1</td>
<td></td>
</tr>
<tr>
<td>MCF – 7</td>
<td>&gt; 100</td>
<td>97 ± 5</td>
<td>53 ± 1</td>
<td></td>
</tr>
<tr>
<td>PBMC</td>
<td>&gt;100</td>
<td>&gt;100</td>
<td>80 ± 3</td>
<td></td>
</tr>
<tr>
<td>3T3</td>
<td>55 ± 1</td>
<td>N/A</td>
<td>40 ± 1</td>
<td></td>
</tr>
</tbody>
</table>

Although all of the EC$_{50}$ values are above the established NCI value, it is likely that fresh extracts will give different results. Therefore, further testing with fresh extracts, while taking care to decrease error and refine the EC$_{50}$ values, will be the next step in this study. The results of this study have helped not only to shed light on the scientific richness that can be found in traditional medicine, but also to find supporting evidence for the ethnomedicines that have been utilized by peoples for millenia.
References


The Effect of Group Composition on Social Anxiety through the Activation of Stereotype Threat in Academic Situations

Juliana V. Matveyeva
Dr. Greg Kim-Ju, Faculty Mentor

Abstract

The following study examines the effects of group composition, via the mechanism of stereotype threat, on social anxiety of Asian American female college students. Participants were presented with a video stimulus that contained either a group of all White females or all Asian American females engaging in an academic setting. The experimental procedure was conducted online and included pre- and post-measures of social anxiety scales, ethnic identity, mood anagram, demographics, as well as a video stimulus. Analyses did not yield a significant interaction effect between ethnicity and video stimulus, as hypothesized. However, findings showed a significant main effect of race, with White participants exhibiting more generalized anxiety than did Asian Americans across the two videos, $F(2, 11) = 51.97, p < .001$.

Introduction

Claude M. Steele, an influential social psychology researcher who discusses the profound effects of stereotypes in his book titled, *Whistling Vivaldi: Other Clues to How Stereotypes Affect Us* (2011) describes his first situation when he became aware of his race. This phenomenon is termed encounter (Cross 1971); as a ten-year-old growing up in the 1960s in segregated Chicago, Steele found that simply based on the fact that he is African American, his use of a public pool was restricted to Wednesdays. This event started the author’s exploration and eventual ground-breaking research examining the link between awareness of one’s own racial identity as well as different and surprising instances where racial stereotypes can threaten other people’s performances. He demonstrates that stereotypes can affect every individual in a unique way since our personas are constructed with multiple and overlapping identities. It is with negative stereotypes that people may experience stereotype threat, which for the implicated group refers to the threat of fulfilling a societal stereotype leading to a hindered performance (Steele and Aronson 1995).

To understand our complex social world, the literature in cognitive and social psychology has shown that we have a tendency to break down social stimuli and phenomena into categories. Mental shortcuts, known in psychology as schemas, help a person process information by creating mental frameworks through which incoming information can be sorted and incorporated (Bartlett 1932). One unfortunate side effect of schemas is stereotyping, defined as the action of generalizing characteristics or traits of a group of people to a member of the same group (Shen, Wang, and Swanson 2011). Studies have indicated that consequences of this stereotyping include the formation of specific images associated with groups (Steele and Aronson 1995). For example, the “model minority” image, a seemingly positive stereotype about Asian Americans, romanticizes this group as the “models” of minorities in terms of their success and overachievement in various domains, particularly academic and financial (Chao, Chiu, and Lee 2010). This image also suggests that all group members should strive to achieve these high expectations simply on the basis of group membership. Moreover, the literature indicates that the mere existence of a stereotype can potentially threaten the affect, cognition, and behavior of the racial group in question (Steele and Aronson 1995). The strength of a stereotype influence on those who are targeted can be related to levels of stigma consciousness, an expectation of intensity or extent to which one believes they will be stereotyped (Pinel 1999). Higher levels of stigma consciousness can affect Asian Americans’ intergroup interactions, even prevent group involvement (Son and Shelton 2011).

Stereotypes can have a profound effect on people’s actions. One line of research investigates how stereotypes can have a negative impact on people’s performance in academic domains (Shih et al. 2002; Son and Shelton 2011; Steele and Aronson 1995). Recent studies, however, have shown that even seemingly positive stereotypes such as the “model minority” image can also have negative consequences (Son and Shelton 2011). For example, Asian Americans who become more conscious of their own group’s cultural stereotypes, such as being skillful, diligent, and highly intelligent, may become more withdrawn in social situations. The present study investigates how stereotypes of Asian Americans may impact their own social experiences in various ethnically composed academic settings. In the following section, the researcher examines the literature on racial and cultural stereotypes, the consequences of these stereotypes in the form of stereotype threat, and how stereotype threat may affect the experiences of Asian Americans.

Racial and Cultural Stereotypes

Stereotype Content and Formation

Racial and cultural stereotypes are based on the public’s perceived and actual images of racial group members (Karlings, Coffman, and Walters 1969). Racial characteristics such as skin color and hair texture are often used for stereotyping, primarily because these are observable external characteristics.
Much of the earlier work on racial stereotypes focused on Jews and African Americans (Katz and Braly 1933). In the 1960s, scholars examined other groups such as Asian Americans anecdotally with the “model minority” stereotype which was used by educators and politicians to not only laud the success of Asian Americans but also motivate other minorities to work hard and succeed like their ethnic minority counterparts (Chao, Chiu, and Lee 2010; Shen, Wang, and Swanson 2011). These images suggested a diligent, educated, and hard-working portrayal of Asian Americans that represented the “American dream” for many ethnic minorities. Moreover, these images of Asian Americans are still present in the United States and can potentially affect the way the targeted group members perceive themselves and are perceived by others. For example, these stereotypes—once made salient to individuals, can potentially increase pressure on Asian Americans when they perform specific tasks in settings relevant to the applicable stereotype. In the case of Asian Americans, they could potentially feel anxiety while performing an academic task because they feel pressure to meet a very high standard consistent with the “model minority” image. Additionally, the pressure to confirm the stereotype may cause a lot of distress to those individuals who do not meet the standard implied by the image.

**Consequences of Stereotypes for Those Who Are Targeted**

According to Steele (2010), the power of stereotyping phenomena is such that negative images may impact individuals in subtle ways without them consciously being aware that a negative stereotype is responsible for handicapping their behavior. Simply being cued to their belonging to a certain racial group may trigger a stereotype and lead to unintentional behavioral consequences. For example, Steele and Aronson (1995) explored the effect of stereotypes on African Americans’ performance on intellectual tests. Due to the effect of stereotype threat, they argued that after the group membership becomes salient, the self-evaluative threat alone would be enough to inhibit performance tied to the activated stereotype. Indeed their findings showed that African American participants underperformed compared to their White counterparts when their race was made salient. These findings suggested that a racial stereotype can trigger and negatively impact group members’ performance on high stakes intelligence tests such as the Graduate Record Examination (GRE). Importantly, performance was only affected in settings where racial stereotypes were relevant (i.e., educational settings). While the results of the Steele and Aronson study were striking, there were a few specific limitations with the research design: the researchers did not take into account the extent of participants’ interaction with in-group and out-group members, they did not measure ethnic identity, and finally they did not always use a White control group.

**Stereotype Threat**

Since the aforementioned study was first published, researchers in the last two decades have been primarily interested in the impact of stereotypes on minority groups. It is important to note that stereotype threat is universal insofar that any social group or individual can be impacted by stereotypes in relevant domains. For example, Steele (2010) describes the experience of Ted McDougall, a White male who at the time was enrolled in an African American political science class. According to Steele (2010), “Ted’s story makes a straightforward point: identity threat of the sort that has been shown to affect the intellectual performance of women and blacks is likely a generational phenomenon that, in some form or another, in some situation or another, can affect anyone” (88). This example indicates that the term minority is dependent on the circumstances and the individual’s perception of those circumstances. Therefore, the fact that a White male in an average classroom would be expected to feel like a member of a dominant group but given the specific circumstances of Ted’s situation could still experience stereotype threat, suggests that this phenomenon is context-dependent.

**Stereotype Threat and Asian Americans**

There is a plethora of stereotypes about Asian Americans, with negative stereotypes including “nerdy, passive, devious, stingy, and speaking English poorly” (Shen, Wang, and Swanson 2011). At the same time, there is a good amount of seemingly positive stereotypes such as being intelligent and persevering, some of which constitute the “model minority” image. This image generally portrays Asian Americans in a positive manner, highlighting their intelligence, math and science acumen, academic achievements, and docile behavior (Wang and Shen 2008; Shen, Wang, and Swanson 2011, 283). The question then arises, despite the positive connotations of the “model minority” stereotype, can it lead to negative consequences by leaving Asian American students feeling pressured to live up to those standards?

To better understand the double-sided nature of the “model minority” stereotype, this study briefly reviews the ways in which it was created and synthesized in the 1960s and 1970s. Scholars argue that it originated as a way to explain differences between racial groups and assign blame to other minorities, such as African Americans and Latinos, for their shortcomings (Wang and Shen 2008). Son and Shelton (2011) propose that “the stereotype that Asian Americans are intelligent incurs undesirable costs, particularly in interpersonal relations with European Americans” (52). This is due to Asian American students fearing hostility and potential backlash from their White roommates if the stereotype is proven wrong. Those researchers also posit that since White students exist on top of the social hierarchy, they are most threatened by the existence of the Asian American stereotype for success. Additionally, their findings indicate that Asian Americans feel most anxious and concerned in regards to appearing intelligent around Whites.
Stereotype Threat and Racial Composition

The potential costs of stereotype threat are not simply at the intergroup level, however. The consequences may also involve behaviors at the individual level. In various instances it becomes apparent that anxiety and other performance pressures are lowered when the individual is surrounded by in-group members rather than being a token representative surrounded by the out-group members (Lord and Saenz 1985; Son and Shelton 2011). Another factor that may add to a self-evaluative threat is the presence of observers, especially while performing a mental task, as is common in academic settings (Seta and Seta 1982). It is no secret that performance will change when there is an observer present. However, certain types of observers may also influence behavior. For example, if it is made salient to the individual that the racial composition is homogenous and different from the self, it may trigger a stereotype that compounds the impact of the two concepts: being a token representative and being observed.

Stereotype Threat and Ethnic Identity

Another factor related to stereotype threat may involve ethnic identity, which refers to people’s sense of belonging and membership to their own ethnic group (Phinney 1990). Ethnic identity becomes an important factor when considering stereotype threat, since one’s ethnic and cultural associations may be a driving force behind what stereotypes the person may feel apply to them.

Another factor related to stereotype threat involves the aforementioned stigma consciousness. Considering higher stigma consciousness, even the seemingly positive stereotypes, such as “model minority” can lead to “greater anxiety, contact avoidance, and perceived need to conform” (Son and Shelton 2011, 51). Pinel (1999) proposes that Asian Americans with higher levels of stigma consciousness feel a stronger sense of membership to the target group and thus are also more affected by relevant stereotypes. For example, when Asian Americans were co-habiting with a White roommate, they felt greater performance deficit and more social inhibition due to the pressure of appearing highly intelligent (Son and Shelton 2011).

Stereotype Boost

Interestingly, in addition to stereotype threat, researchers have examined how stereotypes may positively affect performance. Called stereotype boost, stereotype activation may actually serve to enhance performance on a task (Shih et al. 2002). There are opposing findings in the literature in regards to whether or not the stereotype needs to be self-relevant in order to boost performance.

Shih et al. (2002) found that if defined as “applicable to one of the individual’s many identities”, stereotype boost appeared evident (640). Another study by Levy (1996) included an experiment that activated the positive stereotype of the elderly, subsequently improving the memory of the older, not younger, participants. However, Dijkshn and Knippenberg (1998) challenged the aforementioned assumption by activating a stereotype of “professors” or “soccer hooligans” and examining how this activation influenced participants’ answers in the game of Trivial Pursuit. Although in reality the participants were in neither of those categories, merely the “state of mind” and channeling of the accompanying traits of those stereotypes produced an effect where the participants randomly assigned to the category “professors” outperformed the participants assigned to the “soccer hooligans” group.

Another issue that is frequently raised in stereotype boost activation is the difference between the target group- for which the stereotype is the most applicable, and non-target group- those for which the stereotype is least applicable, participants. Wheeler and Petty (2001) suggested that the impact of stereotypes in target participants occurs through the process in which the self is implicated, also known as the “hot” process. On the other hand, the non-targets go through a “cold” process for which self is not implicated. Due to the differences mentioned above, it would seem obvious that target and non-target participants benefit from different types of stereotype activation. For target participants, the most effective way to achieve the stereotype boost is through subtle activation. The literature suggests this is so because self-relevant importation floats at the very surface of our consciousness and therefore does not require a lot of effort to bring it forth. For example, simply having a photograph of an Asian landmark in the classroom could serve as a subtle cue. For non-targets, however, blatant cues are more effective to achieve stereotype boost. An example of a blatant cue could be reading a poem where Asian characteristics are praised prior to collecting experimental data. This is because non-target participants are not aware of the relevance of stereotype boost to their circumstance and need a more forceful cue (Shih et al. 2002).

Research examining the impact of stereotypes has primarily focused on African Americans and Latinos, with less emphasis on Asian Americans. And even though stereotype threat has been studied extensively in academic conditions, there has been less research on stereotype threat of Asian Americans in the social context.

The Present Study

Given the review above, the present study aimed to explore how cultural stereotypes may impact Asian American female college students in interpersonal academic settings. Specifically, this line of research examined how viewing various ethnic group compositions would activate the effects of stereotypes and influence social anxiety levels for Asian American and White women. The researcher predicted that Asian American women would experience a higher increase in social anxiety when watching a video of different ethnicity, as compared to the White counterparts.
Methods

Participants

Eight White and eight Asian American females were recruited from the psychology pool at a public university in northern California. They were compensated with a .5 hour research credit to fulfill the university requirement.

Materials and Procedure

SurveyMonkey. Data collection and stimulus presentation were done through online software and questionnaire tool. After participants signed up for the experiment, the link with self-guided instructions was sent via email.

Social Anxiety Scale-Adolescents (La Greca 1999). The Social Anxiety Scale-Adolescents (SAS-A) aimed to assess the level of social anxiety, particularly in the context of peer situations. It was administered twice: prior to participants receiving the stimulus to get baseline readings and after the stimulus was presented to determine any differences. This instrument contained 18 items and 4 fillers on a 5-point scale (1 = not at all or 5 = true all the time). Furthermore, the SAS-A consisted of three subscales: fear of negative evaluation by peers (FNE), social avoidance and distress that is specific to new situations or unfamiliar peers (SAD-New), and social avoidance and distress that is experienced more generally when in the company of peers (SAD-General). The subscale scores are calculated by summing the related items. The ranges are as follows: FNE [8-40], SAD-New [6-30], and SAD-General [4-20].

Stereotype Activation. The researcher created a 10-item mood anagram by using a focus group to brainstorm applicable race-related words. Only a couple of letters remained visible while the rest of the letters were replaced by blanks. Since participants were instructed to fill in letters quickly, this was an effective way to assess stereotype activation. For example, if presented with a partially completed word like “A S _ _ _”, the stereotype would be considered activated if the participant wrote “Asian” but inactive if they chose a random word such as “astro”. A percentage score of stereotype activation was then calculated across the ten items for each participant.

Multigroup Ethnic Identity Measure-Revised (Phinney and Ong 2007). The Multigroup Ethnic Identity Measure-Revised (MEIM-R) was administered to assess the ethnic identity level of participants. The instrument contained 6 items that were assessed on a 5-point scale (1 = strongly disagree or 5 = strongly agree). The questionnaire consisted of two first-order factors: exploration and commitment and one second-order factor: ethnic identity.

Ethnic Composition. One of the videos was presented as a stimulus to the participants. Both videos included three females engaging with each other in an academic situation taking place at a school library. The situations were identical with the exception of group composition (all White women vs. all Asian American women). If an Asian American participant viewed a video with all White women, she was considered to be in the ethnic minority composition; if viewing all Asian American women, she would be considered in the ethnic majority composition. Similarly, a White participant would be in the ethnic minority composition if viewing an all Asian American video; an ethnic majority composition if viewing an all-White video. Each video was three minutes in length and illustrated the women gathering together to work on a school assignment. All participants in the video engaged in social interaction. The participants were instructed to imagine themselves engaging with the group of women presented in the video.

Procedure

The researcher went to classrooms to describe the study and recruit participants. After receiving email addresses from interested students, they were forwarded a link with the research protocol. After consenting to participate in the experiment, the participant proceeded to answer the SAS-A. Upon completion of this scale, the participant was prompted to watch one of two videos (all White vs. all Asian American women). After the stimulus was presented, the participant was asked to complete the mood anagram, SAS-A, MEIM-R, and a basic demographics questionnaire.

Results

White females (see Table 1) were comparable in academic standing with Asian American females (see Table 2), with both samples consisting of at least 50% sophomores. Additionally, across both ethnicities, 57% of the participants were majoring in Psychology and 13% in Biology. Other majors included Sociology, Communications, Kinesiology, Nursing, and Special Majors representing 6% each. Moreover, findings showed the range of annual household income for White females was much lower than for Asian females, with three White participants indicating under $35,000 while only one Asian American participant did so.
Table 1
Demographic Characteristics of White Participants (N = 8)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class standing</td>
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<tr>
<td>Freshman</td>
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<tr>
<td>Sophomore</td>
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<tr>
<td>Junior</td>
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<td>Biology</td>
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<tr>
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</tr>
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<tr>
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<tr>
<td>Special Major</td>
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<tr>
<td>Parents’ annual income ($)</td>
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<td></td>
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<tr>
<td>100,000+</td>
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Table 2
Demographic Characteristics of Asian Participants (N = 8)

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<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class standing</td>
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<tr>
<td>Freshman</td>
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<td>Sophomore</td>
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<tr>
<td>5+ Years</td>
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<td>12.5</td>
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<tr>
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<td>Sociology</td>
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<td>0</td>
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<tr>
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<tr>
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<tr>
<td>Special Major</td>
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<td>12.5</td>
</tr>
<tr>
<td>Parents’ annual income ($)</td>
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<td></td>
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<td>0-14,999</td>
<td>0</td>
<td>0</td>
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<td>12.5</td>
</tr>
<tr>
<td>100,000+</td>
<td>1</td>
<td>12.5</td>
</tr>
</tbody>
</table>

Stereotype Threat and Social Anxiety
Analysis employed a mixed-design where ethnicity (White, Asian American) and group composition (all White vs. all Asian) served as the between-subjects, time (pre and post) served as the repeated measures, and social anxiety (fear of negative evaluation, social avoidance and distress in new situations, and generalized social avoidance and distress) served as the dependent variables. White females filled in the mood anagram with 25% of race-related words, while Asian American women only filled in 12%. Findings showed (see Table 3) significant main effect of generalized social avoidance and distress by ethnicity with White participants (M = 11.72) experiencing higher anxiety than did Asian American participants (M = 8.13) across the two social settings, F(2, 11) = 51.97, p < .001. No other significant effects were found.
Table 3
Pre- and Post- Subscale Mean Scores for the SAS-A Measure Across Participants

<table>
<thead>
<tr>
<th>Participant</th>
<th>Pre- SAS-A</th>
<th>Post- SAS-A</th>
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<tr>
<td></td>
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<td>SAD_New</td>
</tr>
<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
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<tr>
<td>n</td>
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<tr>
<td>Asian</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>17.50</td>
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</tr>
<tr>
<td>SD</td>
<td>6.15</td>
<td>3.78</td>
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</tr>
</tbody>
</table>

Note. FNE = fear of negative evaluation. SAD_New = social avoidance and distress in new situations, SAD_General = social avoidance and distress in general social situations.

Discussion

This study examined how stereotype threat activation varied the social anxiety levels in Asian American and White women participants. Contrary to the researcher’s original hypothesis, there were no significant findings indicating that Asian American women experienced a higher increase in social anxiety when watching a video of different ethnicity, as compared to the White female counterparts. However, the analysis did yield a significant main effect in generalized social avoidance and distress by ethnicity with White participants experiencing this more so than did Asian American participants. This result makes sense since the stereotype activation in White women was twice the amount of that in Asian American females. This finding, while unexpected, could be explained by the same rationale as Ted McDougal’s story (Steele, 2010) where he is a “minority” in a specific setting. Since Asian Americans are a minority they may have become familiar being in a classroom setting dominated primarily by White students and therefore such a situation would not generate a great deal of anxiety. However, White females may have experienced a significant level of anxiety after watching an all Asian American video since this situation would be highly unusual for them. Whites would not expect to be a token minority among Asian Americans, unless they were taking an Asian studies class, for example. This finding demonstrates that stereotype threat is truly context-dependent.

The current research study has a few limitations. Due to time constraints the experiment was distributed and conducted online so the experimental conditions were not identical for all participants, depending on the time and location that each participant chose to take the survey. While this proved to be a very convenient method of data collection and allowed the experimenter to reach more participants, the conditions of the experiment itself were not as controlled as they could have been. Especially since the nature of the experiment requires the participant to be isolated while taking the survey, the outside stimulus (i.e. people in the library of different ethnicities) may have unintentionally influenced the participant. Another limitation is that the sample is rather small. Better patterns may emerge as the sample size increases, perhaps to a cell size of 30, and additional significant findings may be more apparent.

For future research directions, the researcher would like to include other ethnic groups such as Latinas and African Americans. Eventually, the researcher would like to extend the scope of the experiment to both males and females. However, research on women seemed more pertinent since significantly more women are majoring in psychology than are men. Another variation could be manipulating the group composition to see how having various proportions of in- out-group members affects anxiety.
References


Phthalate Plasticizers Disrupt Early Reproductive Development in Nematode Worms

Rebecca Muradyan
Dr. Thomas Landerholm, Faculty Mentor

Abstract

Human-derived toxins in surface water frequently exist temporarily in the water but persist in surrounding soils. Organisms in the soils may suffer greater impact than those living in or consuming the water. Phthalates are added to polyvinyl chloride (PVC) products to increase flexibility but do not bind to the PVC, allowing them to leak into the environment. Di(2-ethylhexyl) phthalate (DEHP) has been shown to disrupt reproductive development in several animals, including mammals and fish. The focus of this study is to observe impacts on soil organisms living at the point of accumulation. Well studied Caenorhabditis elegans is used as a model for these organisms. In the presence of 20 μg/ml DEHP for 24 hours, the total worm population is reduced nearly 50%. There are significant reductions on gastrula and comma stage embryos but not on other developmental stages. C. elegans life cycle includes approximately 12hrs from gastrulation to hatching (larval L1 stage), another 12hrs from L1 to L2, 8hrs from L3, 8hrs to L4, and 18-20hrs to become an adult and restart the cycle. The results of 24-hour exposure suggest that DEHP is affecting very early reproductive stages, as early as Primordial Germ Cells, sperm, and egg production. For future directions, the early reproduction at the cellular level will be examined by performing PCR using PGC, sperm- and egg-specific gene products.

Introduction

Phthalates are colorless and mostly odorless plasticizers added to products made from polyvinyl chloride (PVC) to increase softness and flexibility. Specifically, di (2-ethylhexyl) phthalate (DEHP) is the most commonly used phthalate plasticizer with an estimated global annual production of 1-4 million metric tons per year (Toxics Use Reduction Institute 2006). The ability to increase polymer flexibility makes DEHP a unique substance to use in various products including medical devices, children’s toys, building material, food packaging, clothing and personal-care products (Kavlock et al. 2002). However, DEHP does not chemically bind to the PVC polymer, therefore it readily leaks and is found ubiquitously in the environment (Pflieger-Bruss, Schuppe, and Schill 2004). Different concentrations of DEHP found in the surface water and surrounding soils act as teratogens, having been shown to damage the embryo or fetus of several organisms exposed to it.

Several studies have shown that low doses of DEHP have just as much of a detrimental effect on a population as do high doses. Significant defects in oocyte maturation in high and low doses of DEHP have been observed in mouse and horse models (Ambrusio et al. 2011; Pocar et al. 2012). Complete pregnancy failure of pregnant mouse dams was observed with a high dose of 500 mg/kg/day of DEHP (Pocar et al. 2012). At low doses of 0.05 and 5 mg/kg/day of DEHP in the adult male offspring, significantly decreased sperm count and viability have been observed (Pocar et al. 2012). Male offspring of treated dams exposed to 15, 45, 135, and 405 mg/kg/day of DEHP experienced a reduction in daily sperm concentration by 19-25% (Andrade et al. 2006). Research has also shown a decrease in C. elegans egg number per worm after 24 hours of exposure to concentrations of 0.02 and 0.2 mg/l of DEHP (Roh et al. 2007). Based on these previously published findings, DEHP significantly affects reproduction consistently through reduction of the number of eggs and sperm among mammal and worm models.

The focus of this study is to observe the early reproductive effects of DEHP on invertebrate organisms found lower on the food chain and at the point of accumulation. Toxins found in surface water flow into surrounding soils where they persist and accumulate. A free-living, soil-dwelling, nematode worm, Caenorhabditis elegans, is used as a model to represent these organisms. C. elegans is affordable, rapid-growing and its culture in the laboratory allows researchers to recreate the daily exposure levels to DEHP found in the environment. The worm life cycle takes 3-4 days at 20º C, making it a prime model to work within a laboratory setting (Brenner 1974). The adult hermaphrodite, containing both the male and female elements necessary to self-fertilize, lays approximately 300 offspring in its lifetime (Brenner 1974). Fertilized zygotes undergo cleavage and early gastrulation inside the adult and laid embryos develop from a 28-cell gastrula stage, to the comma, and start the elongation process of 1.5 fold, bifold, and trifold (Altun and Hall 2009). The trifold embryo hatches and transitions into the larval stages of L1, L2, L3, and L4, followed by the hermaphroditic adult (Altun and Hall 2009).

The development of the cells that are capable of meiotic division and reproduction, or germline cells, in C. elegans is remarkable in that all of the cells derived from the germline are produced in each adult hermaphrodite. These include the original reproductive progenitor cells, the Promordial Germ Cells (PGCs), cells of the sperm lineage (spermatogonia, spermocytes), and cells of the egg lineage (oogonia, oocytes). The differentiation of PGCs from all other cells (known as somatic cells) and the subsequent production of both sets of gametes occur throughout the C. elegans life cycle (Hubbard and Greenstein 2005).
initial differentiation of PGCs, or specification, begins during the cleavage and gastrulation stages of early embryogenesis as the P-lineage stem cells that produce all of the somatic progenitors of the worm undergo the transition to PGCs (Hubbard and Greenstein 2005). This process is complete by the early L1 larval stage. Proliferation of PGCs occurs in larval worms between L1 and L3 under prime conditions (Hubbard and Greenstein 2005). These proliferation events are suspended under conditions of starvation, high temperatures or crowding as the L1 stage worms cease activity and enter the dau stage, where worms can survive for 13 months until favorable conditions occur and then enter the L4 stage (Altun and Hall 2009). Differentiation of PGCs into cells of the sperm and egg lineages and subsequent gametogenesis occur in L4 larval worms and young adult worms. Differentiation of spermatogonia occurs in the L4 stage followed by the differentiation of oogonia in young hermaphroditic adult worms (Hubbard and Greenstein 2005). Adult worms continue to produce both sperm and eggs throughout their reproductive lives. Environmental disruption of these processes can lead to wide-spread disruption of the reproductive capacity of a population of C. elegans in either the natural or laboratory setting.

Research on the effects of DEHP on the reproductive system has been conducted using mammal models, but relatively little has been done with a focus on invertebrate organisms. Previous studies have shown the genome of both C. elegans and vertebrate organisms to have a high level of conservation (Roh et al. 2007). Therefore, studies in vertebrates are relevant to studies in C. elegans, and vice versa, especially in the germ line of the reproductive system. Through all the previous research, it is clear that DEHP has a detrimental effect on the exposed population (Andrade et al. 2006; Pocar et al. 2012; Roh et al. 2007). Yet despite these studies, there is still much to learn about the effects of DEHP exposure in invertebrate organisms during the early reproductive stages, such as the germ line. The nematode worm is the ideal model organism to observe changes in the germ line, because much is known about germ line cells in C. elegans. According to Roh et al. (2007), the published median lethal concentration (LC50) of 24-hr DEHP treated nematode worms was estimated as 22.55 mg/l of DEHP. This study used 20 mg/l (or 20 µg/ml) of DEHP as the starting concentration, as well as two concentrations of 1/10 and 1/100 of the LC50, at 2µg/ml and 0.2µg/ml of DEHP. Population dynamics analyses of the total worm population, as well as primary and sub-primary stages of embryonic and larval worm stages were performed. Primary stages include adult, embryonic, and larval worms. Sub-primary embryonic stages include the gastrula, comma, bifold, and trifold. The sub-primary larval stages include the L1, L2, L3, and L4. DEHP treated worm counts within each category were compared to untreated worm counts.

Studying the possible teratogenic effects of DEHP in the germ line is important, because every organism must identify and induce germ line cells early in development that have the capacity to produce the eggs and sperm at sexual maturity. Therefore, this research will ask the following questions: Does DEHP consistently reduce the exposed worm population in a dose-dependent manner? Are there consistent effects on specific developmental time points in the C. elegans life cycle? And, based on the length of DEHP exposure, what are the most likely developmental points of DEHP teratogenesis?

Literature Review

Environmental Toxicology and Teratology

Man-made toxic chemicals are dumped into the environment with little understanding of the consequences on the ecosystem. Many of these chemicals are lipophilic, have low vapor pressures and cannot be degraded, causing concern for the widespread dispersal and ability to persist in the environment for years or even decades (Campbell and Reece 2002). The waterways are contaminated by a variety of environmental toxicants that may initially be relatively harmless, but become more toxic when metabolized under certain conditions, such as by microorganisms (Campbell and Reece 2002), in the gut (Lehraiki et al. 2009), or through reactions with other substances. Toxic chemicals have the potential to act as teratogenic agents, which cause developmental abnormalities to the developing embryo (Vorhees 1989). Many of these chemicals exert their effects as endocrine-disrupting compounds (EDCs), which interfere with the function of the endocrine system needed for homeostatic maintenance and the regulation of developmental processes (Endocrine Disruptors Research 2012). Examples of the ubiquitous contamination of EDCs found in the waterways include: phthalates, dioxins, estrogenic compounds, heavy metals, and pesticides. There is an increased concern on the effects of toxic chemicals on the health of the ecosystem, especially the organisms that live in the waterways, which have a far greater chance of reaching dangerous exposure levels than do humans.

The Effects of Phthalates on Reproduction

Phthalates are added to products made from polyvinyl chloride (PVC) to increase softness and flexibility. The present study focuses on the reproductive effects of phthalates, specifically di(2-ethylhexyl)phthalate (DEHP) using the nematode worm, C. elegans, as the mode to represent the invertebrate population. DEHP is the most commonly used phthalate plasticizer (Toxics Use Reduction Institute 2006) and previous studies have shown it to have reproductive effects at low doses, having just as much of a detrimental effect on a population as the less common exposure to high doses (Ambruosi et al. 2011; Andrade et al. 2006; Pocar et al. 2012; Roh et al. 2007). Phthalate concentrations found in surface water range from 0.33 to 97.8 µg/l of DEHP, the highest being in waste dump water and compost water samples (Fromhe et al. 2002). Multiple studies have
observed a reduction in sperm concentration (Andrade et al. 2006; Lovekamp-Swan and Davis 2003; Pocar et al. 2011), egg concentration (Roh et al. 2007) and impairment in oocyte maturation (Ambruosi et al. 2011; Carnevali et al. 2010; Pocar et al. 2011) from DEHP-exposure at low and high concentrations.

The Biochemistry of Phthalates
In male animal models, DEHP has been shown to cause destruction of testicular structure and function in vertebrates characterized by atrophy, decreased spermatogenesis and decreased fertilization capacity. In rats, DEHP increased accumulation of reactive oxygen species (ROS) in the testis, which lead to the release of cytochrome c from mitochondria and induced apoptosis of spermatocytes (Kasahara et al. 2002). In fish, DEHP activates peroxisome proliferator-activated receptor (PPAR) genes: acyl-coenzyme A oxidase 1 (acox1) and enoyl-coenzyme A hydratase/3-hydroxyacyl coenzyme A dehydrogenase (ebdh1) leading to increased ROS, and resulting in DNA damage and apoptosis (Uren-Webster et al. 2010). Conflicting studies arise on whether DEHP acts pro- or anti-androgenic. Christiansen et al. (2010) observed that at low doses, DEHP induced negative anti-androgenic effects on the development of male rats. Another study states that DEHP drives testosterone production by acting proandrogenically (Chauvigne et al. 2009).

In female animal models, DEHP has been shown to decrease fecundity, ovulation, oocyte growth and maturation. Additionally, in mice, endometrial receptivity was reduced and an associated disruption in implantation of embryos was observed (R. Li et al. 2012). In female rats, an up-regulation of estrogen and progesterone expression levels was observed via the nuclear factor-kB (NFkB) and mitogen-activated protein kinase (MAPK) pathway (R. Li et al. 2012). Conversely, a decrease in progesterone levels was found, but similar to other studies, DEHP induced apoptosis of ovarian granulosa cells (N. Li et al. 2012). In zebrafish, DEHP exposure resulted in a decrease in ovulation and embryo production (Carnevali et al. 2010). Also, a significant embryo mortality rate was observed with DEHP-treated fish embryos due to an accumulation of oxidative stress (Mankidy et al. 2013). The mechanism of action for DEHP most likely involves multiple pathways (Uren-Webster et al. 2010).

Caenorhabditis elegans as a Model for Environmental Monitoring
Vertebrate models are predominantly used in studies to assess chemical toxicants in the waterways; however, there is a need to focus on organisms found lower on the food chain that support the whole ecosystem and live at the point of toxicant accumulation. The nematode worm, Caenorhabditis elegans, is such an organism and is a great model of the responses to daily exposure levels of teratogenic compounds found in the environment. It is important to note that in C. elegans, toxicants are absorbed through the skin and directly enter the reproductive organs, whereas the vertebrate reproductive system is better protected from such direct exposures.

Brenner (1973) first introduced the significance and potential of using a small, soil-inhabiting, free-living nematode worm for genetic analysis. Since then, as the first multicellular organism to have its genome sequenced, many seminal discoveries have been made using Caenorhabditis elegans as a model organism in fields of development, neuroscience, apoptosis, gene regulation, signal transduction, stress response, aging, and RNA interference (Antoshechkin and Sternberg 2007; Leung et al. 2008). Additionally, C. elegans contains features that make it an excellent model for biological research, such as having a short life cycle of about 3 days, producing about 300 embryos per self-fertilizing hermaphrodite, while requiring a simple diet of Escherichia coli, and having a small body size making high throughput screening methods possible (Brenner 1974; Leung et al. 2008). There is peaked interest in the field of environmental toxicology using C. elegans, because it has been so successful and accessible (Leung et al. 2008).

Advantages of C. elegans as a Model for Vertebrates
Studies have shown the genome of both C. elegans and vertebrate organisms to have a high level of conservation in basic physiological processes and stress responses, making C. elegans the ideal model organism (Leung et al. 2008; Roh et al. 2007). Ultimately, studies performed on C. elegans can also be used as possible predictive results on the vertebrate model, as well as in reverse, especially the reproductive system, because the general steps of the production of sex cells are similar. In rodents, primordial germ cells differentiate into sex cells, but only the sperm or the egg is produced in the offspring, whereas both sperm and egg are produced in the hermaphroditic worm.

Population Size and Reproductive Function as Indicators of Endocrine Disruption
With exposure to environmental toxicants, the first critical study of impact is on the population size. A change in the overall population size of an organism is expected to have had alterations in the reproductive system. Population dynamics analysis of primary categories, which includes the adults, larva, and embryos, and sub-primary categories of the embryo and larva, was performed to assess impact of toxicants. Counting worms from each stage of the life cycle allows a more focused analysis of where the primary impacts of teratogens may be.

The nematode worm life cycle begins with a self-fertilizing, hermaphroditic adult worm, which undergoes fertilization in utero and lays an egg once it reaches the 28-cell stage (called gastrula) under optimal conditions. Embryogenesis outside the uterus takes approximately 10-12 hours at 20°C, starting from the gastrula, followed by comma, 1.5 fold, bifold, and trifold. The trifold embryo hatches and enters the larval stages of L1 (12 hrs), L2 (8hrs), L3 (8hrs), and L4 (18-20hrs) where germ-line development occurs (Figure 1). The cellular steps in reproductive development in C.
*Caenorhabditis elegans* are that early stem cells become primordial germ cells, which subsequently produce spermatic stem cells in larval L4 worms and then egg stem cells all throughout the adult life. The most proximal oocyte enters the spermatheca and becomes fertilized into a zygote and restarts the cycle (Greenstein 2005; Lints and Hall 2009). Internal fertilization of embryo development up to the bifold and trifold stages may occur under unfavorable conditions within the hermaphroditic adult.

**Figure 1**

![Nematode life cycle. Hermaphroditic adult worms lays eggs which undergo embryogenesis, hatch into the larval stages, become adults, and reenter the cycle.](http://www.wormatlas.org)

**The Purpose of the Present Study**

Invertebrate organisms are continuously exposed to DEHP in water ways and surrounding soils, therefore, *Caenorhabditis elegans* is used in a laboratory setting to monitor the invertebrate population when exposed to phthalates. This research hypothesizes that exposure to DEHP in concentrations ranging from 0.2-20µg/ml will significantly reduce the worm population. Also, this research hypothesizes that, due to the biochemistry of DEHP, this effect will be due to a decrease in egg development. This research hypothesizes that, due to published studies in rats and fish, this effect will also be due to a decrease in sperm development. Lastly, this research hypothesizes that, due to adult hermaphroditic worms producing both self-sperm and eggs, this effect will be due to a decrease in primordial germ cells.

**Methodology**

**Caenorhabditis elegans Strains and Culture on Solid Medium**

*Caenorhabditis elegans* were grown and maintained on nematode growth medium (NGM) with a lawn of *Escherichia coli* strain OP50, at 20 °C. *C. elegans* Bristol strain N2 (wild-type) was purchased from the *Caenorhabditis* Genetic Center (Minneapolis, MN). To prepare 1 liter of NGM agar: 21 g Bacto-Agar, 3 g Sodium Chloride (NaCl), and 2.5 g Bacto-Peptone were added to 1L Millipore ddH20, autoclaved and cooled to 54°C in a water bath. The following were aseptically added and swirled to mix: 100 mL Potassium Phosphate Buffer (K3PO4), 4 ml Magnesium Sulfate (MgSO4), 4 ml Calcium Chloride (CaCl2), 4 ml 5mg/ml Cholesterol in Ethanol, and 20 ml of 20% v/v Fungisol. Agar was poured into gridded 35 mm X 10 mm petridishes under sterile conditions. Plates were allowed to sit at room temperature for 2-3 days to solidify and to observe any fungal or bacterial contamination.

*C. elegans* thrives on *E. coli* strain OP50 as its food source. *E. coli* strain OP50 can multiply in a Luria-Bertani (LB) medium. To prepare 1 liter of LB Media: 10 g of Tryptone, 10 g of Sodium Chloride (NaCl), and 5 g of Bacto Yeast Extract were added 1L Millipore ddH20, autoclaved and cooled to 54°C at room temperature before inoculating with *E. coli* strain OP50. Inoculated media sat overnight at 37°C to multiply. To form a lawn of *E. coli* on the NGM plates as a food source for *C. elegans*, exactly 25 mL of *E. coli* strain OP50 suspension were dispensed in the middle of the small NGM plates and spread with a plastic rod to form a larger lawn. The plates sat at room temperature overnight for the *E. coli* OP50 lawn to grow.

Worms were transferred to NGM plates with 24hr *E. coli* lawns by cutting 1cm³ agar cubes from existing worm dishes. A sterile plastic loop was used to cut out a 1 cm x 1 cm cube of agar from an old plate with a good worm population, and reverse the cut out agar face down onto a new seeded NGM plate. Plates were stored in an incubator at 20°C for 72 hours before data collection.

**Treatment with DEHP**

Published values for the median lethal concentration (LC50) were used as our starting concentrations and 10-fold decreasing increments were used subsequently. One ml of 20 µg/ml, the LC50 for *C. elegans*, according to Roh et al. (2007), was directly added into 48-hour plates with worm growth, and stored at 20°C for 24-hours, totaling up to 72-hours before data collection. Data were collected after 24-hours of exposure to DEHP. With significantly different results compared to untreated worms, a 10-fold lower concentration of 2 µg/ml DEHP was used to treat worms using the same procedure. Another 10-fold lower concentration of 0.2 µg/ml of DEHP treated worms was observed. All solid and liquid waste containing DEHP were disposed in a designated solid or liquid biohazard container. Five replicates were conducted for each concentration and control.
Population Analysis
The impacts of DEHP were determined by changes in the population number and population dynamics of worms from treated and untreated plates. Worms were collected off petridishes by a series of three washes using a collection buffer containing 1470 mL of 0.5X EDTA and 30 mL of Tween. For the first wash, 500 mL of collection buffer was used to wash the agar surface 3-5 times to collect all the worms into a 1.7 mL graduated microcentrifuge tube. A second wash of 500 mL of collection buffer with a rubber policeman was used in a circular motion to remove and collect any remaining eggs on the agar surface. A last wash of 500 mL of collection buffer was used to wash the surface 3-5 times to collect any remaining worms and eggs on the plate. After the three wash steps, each microcentrifuge tube contained 1.5 mL total of collection buffer and worms collected off plates.

Exactly 15 µL of 100X sodium azide solution was added to each tube. Sodium azide temporarily paralyzes the worms and causes them to settle to the bottom. After five minutes, tubes were centrifuged for two minutes at 10,000 rpm. Immediately after, the pellet of worms were disturbed and mixed throughout the buffer using a micropipette. Fifteen microliters of the worm solution were collected from the center of the total volume of buffer and transferred to a microscope grid slide and covered with a coverslip.

Data collection
Estimated total worm counts were made from repeated samples of 15µl from a total volume of 1.5ml per plate. Total worm counts of primary and sub-primary stages of worm development were done under a scanning microscope at 100X magnification. The primary stages include the adult, larval, and embryonic worms. The sub-primary larval stages include the L1, L2, L3, and L4 and the sub-primary embryonic stages include the gastrula, comma, bifold, and trifold. Plates were observed under a dissecting microscope to confirm all worms were removed. Any remaining worms were counted and added to the estimated totals of the specific developmental stage of each worm.

Results
A population dynamics analysis of total worm numbers, as well as primary and sub-primary stages of worm development, was performed using exposure concentrations of 0.2 µg/ml, 2µg/ml, and 20 µg/ml of DEHP (Table 1 and Figure 2). Primary categories include adults, larva, and embryos. Sub-primary stages of larva include L1, L2, L3, and L4 and sub-primary stages of embryos include gastrula, comma, bifold, and trifold. Average total worm populations were significantly reduced at all concentrations compared to untreated worms (Figure 2). Within the primary categories, the number of adult worms on plates treated with DEHP did not differ compared to the untreated plates; however, the number of embryonic and larval worms on treated plates did significantly differ from untreated populations. The number of embryonic worms were significantly different at 0.2 µg/ml DEHP and 20 µg/ml DEHP (p<0.05) compared to the number of embryonic worms in the untreated plates; specifically, the number of bifold and trifold worms were most impacted (Figure 3). The number of larval worms were significantly decreased at 2µg/ml DEHP and 20 µg/ml DEHP (p<0.01) compared to the number of larval worms in the untreated plates; specifically, the number of L1 worms were most impacted at both concentrations and the number of L2 worms at 2µg/ml DEHP (Figure 4).

Table 1
Worm population counts of main and sub-categories. Notes: Mean±SEM (worms); *p<0.05, **p<0.01 (t-test); N=5.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Control</th>
<th>DEHP 0.2 µg/ml</th>
<th>DEHP 2 µg/ml</th>
<th>DEHP 20 µg/ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total worm population</td>
<td>9382±840</td>
<td>4607±908*</td>
<td>4526±126**</td>
<td>3879±682**</td>
</tr>
<tr>
<td>Adult worms</td>
<td>443±22</td>
<td>318±58</td>
<td>395±124</td>
<td>900±244</td>
</tr>
<tr>
<td>Embryo stage:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>gastrula</td>
<td>160±73</td>
<td>33±11</td>
<td>173±64</td>
<td>67±42</td>
</tr>
<tr>
<td>comma</td>
<td>40±19</td>
<td>7±5</td>
<td>9±3</td>
<td>47±39</td>
</tr>
<tr>
<td>bifold</td>
<td>420±96</td>
<td>87±30</td>
<td>187±63</td>
<td>120±61*</td>
</tr>
<tr>
<td>trifold</td>
<td>1033±340</td>
<td>253±140*</td>
<td>173±60*</td>
<td>140±46*</td>
</tr>
<tr>
<td>Larval stage:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L1</td>
<td>4878±589</td>
<td>4047±605</td>
<td>2507±380**</td>
<td>1407±552**</td>
</tr>
<tr>
<td>L2</td>
<td>1452±450</td>
<td>880±384</td>
<td>327±88*</td>
<td>520±199</td>
</tr>
<tr>
<td>L3</td>
<td>477±147</td>
<td>513±142</td>
<td>220±66</td>
<td>340±210</td>
</tr>
<tr>
<td>L4</td>
<td>302±79</td>
<td>453±66</td>
<td>207±59</td>
<td>187±89</td>
</tr>
</tbody>
</table>

Figure 2
Effects of DEHP on total population counts of C. elegans. Total population, larval and embryonic stages were significantly decreased after 24-hour treatment (asterisk: p<0.05, SEM, N=5 plates).
Figure 3
Effects of DEHP on total population dynamics of *C. elegans* embryo stages. After 24-hour DEHP treatment, the gastrula, bifold, and trifold stages were significantly decreased (asterisk: \( p<0.05 \), SEM, \( N=5 \) plates).

Figure 4
Effects of DEHP on total population dynamics of *C. elegans* larval stages. After 24-hour DEHP treatment, the early larval stages were significantly decreased (asterisk: \( p<0.05 \), SEM, \( N=5 \) plates).

Discussion
*Caenorhabditis elegans* served as a model to represent invertebrate organisms exposed to varying DEHP concentrations in surrounding soils and surface water. The concentrations of DEHP used in this study are high and not seen in the natural environment; however invertebrates are exposed to DEHP in surface water and surrounding soils on a daily basis at lower concentrations. A major impact on 24-hours of 0.2µg/ml, 2µg/ml, and 20µg/ml of DEHP treated worms was on the total worm population, suggesting that DEHP is highly toxic to the invertebrate population. A disruption of the invertebrate population can also be detrimental to the food cycle, since invertebrates are lowest on the food chain. Primary time points in the *C. elegans* life cycle shows embryo and larval stages were most impacted. More specific developmental time points of embryonic and larval stages showed consistent effects at the bifold, trifold, and L1 stages of the worm life cycle. Therefore, based on results from 24-hour treated worms, the potential targets of DEHP teratology may extend as far back as the development of Primordial Germ Cells, sperm, and eggs in L4 larva and young adult worms. It is also possible that DEHP may affect fertilization and/or laying, which occur in adult worms. Preliminary data suggest that internal fertilization is occurring within the adult (a phenomenon called bagging), however, a consistently higher proportion was observed in treated worms. A potential target of DEHP could also be the direct death of bifold, trifold, and L1 worms.

Future Directions
Based on findings from this study and previously published studies, a future study focusing on whether there will be a consistent reduction of the number of PGC, sperm, and eggs produced in a population of *C. elegans*. Performing a polymerase chain reaction (PCR) using PGC-specific (nos-1 and nos-2), sperm-specific (spe-9) and egg-specific (egg-1, oma-1, and rme-2) gene products comparing both DEHP treated and untreated worms will allow us to observe differences at a cellular level (Table 2). The housekeeping gene, glycerol-3-phosphate dehydrogenase (gpd-1), will act as the internal control ensuring that genetic levels of both treated and untreated worms were the same.

<table>
<thead>
<tr>
<th>Reproductive cells</th>
<th>Gene Target</th>
<th>PCR Primers</th>
<th>CGC GGP Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sperm</td>
<td>Spe-9</td>
<td>Forward: ttc tga aag tag ggc tcc tac</td>
<td>RT495</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reverse: aec aat ega tag cat cct gac</td>
<td></td>
</tr>
<tr>
<td>Egg</td>
<td>Egg-1</td>
<td>Forward: ttc tga aag tag ggc tcc tac</td>
<td>TX189</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reverse: gct gca tga tag cct gaa aat</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oma-1</td>
<td>Forward: ttc tga aag tag ggc tcc tac</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reverse: gct gca tga tag cct gaa aat</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rme-2</td>
<td>Forward: ttc tga aag tag ggc tcc tac</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reverse: gct gca tga tag cct gaa aat</td>
<td></td>
</tr>
<tr>
<td>Primordial Germ Cells (PGC)</td>
<td>Nos-1</td>
<td>Forward: gaa cca cgg gtt cat cca ct</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reverse: ctc gag att ttc tca tca tca tca</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nos-2</td>
<td>Forward: ttc cca cca cgg gtt cat cca ct</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reverse: cgc ggc ttc ctc tca cca tca tca tca</td>
<td></td>
</tr>
<tr>
<td>Housekeeping gene</td>
<td>Glycerol-3-phosphate dehydrogenase (Gpd-1)</td>
<td>Forward: ttc cca cca cgg gtt cat cca tca tca tca</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reverse: ggc ggc ttc ctc tca cca tca tca tca</td>
<td></td>
</tr>
</tbody>
</table>
Performing a PCR of very early egg development post-fertilization and comparing treated and untreated worms can tell us whether this was the target of DEHP. Also, DEHP may be causing the direct death of worms in the bifold, trifold, and L1 stages, therefore, the isolation of each of these three stages follow by DEHP treatment can show us whether the direct death is occurring. A further evaluation is also needed to understand why internal fertilization is occurring in the majority of the treated worms and few of the untreated worms.

References


Zhao, Yan, Hong Ao, Li Chen, Chantal M. Sottas, Ren-shan Ge, Luxi Li, and Yunhui Zhang. 2012. “Mono-(2-ethylhexyl)phthalate Affects the Steroidogenesis in Rat Leydig Cells through Provoking ROS Perturbation.” Toxicology in Vitro, no. 26: 950-955.
Mentoring African American Former Foster Youth with Faculty Members of African Descent in Higher Education

Jazzmine Parker
Dr. Sylvester Bowie, Faculty Mentor

Abstract

Upon emancipation from the foster care system at age 18, many African Americans are not prepared for college, but like many other non-traditional populations, these former foster youth aspire to attend college. For those entering college, in addition to facing the challenges of being former foster youth, African Americans may have to deal with stereotypes from both their peers as well as faculty members. This research will develop a conceptual model to explore whether having a faculty mentor of African descent has an effect on academic achievement for African American former foster youth.

Introduction

Previous research in the United States consistently highlights the negative outcomes for young adults who have been part of the foster care system. Some of the outcomes include: low educational attainment, high unemployment, homelessness, mental and physical health challenges, delinquency, and other risky behavior as compared to their non-foster youth peers (Ahrens et al. 2011; Day et al. 2011; Dworsky et al. 2010; Greeson and Bowen 2008; Osterling and Hines 2006; Williams 2011; Zetlin and Shea 2010). While these youth experience such unfortunate conditions, it is important to highlight their positive aspirations including the desire to continue their education. Despite the fact that many emancipated foster youth nationwide want to pursue post-secondary education, only two percent attain a Bachelor’s degree or higher (Rassen, Cooper and Mery 2010). The generally poor educational outcomes found among this population are associated with numerous factors. Factors such as growing up in out-of-home care and transitioning to young adulthood influence educational outcomes. Some of these factors include maltreatment, inconsistent social support, and lack of access to educational assistance or college preparation classes and advising (Merdinger et al. 2005; Zetlin and Shea 2010). Dealing with the emotional trauma from the foster care system, not having consistent social support, and no access to college preparation classes may be putting many former foster youth behind their peers in being prepared for college.

The foster youth that enrolls in college may experience many financial and emotional barriers (Merdinger et al. 2005; Rassen, Cooper and Mery 2010; Unra 2011). Because of a lack of educational support and poor preparation for youth exiting the foster care system, colleges and universities are starting to view former foster youth as an underserved student population and are making efforts to reach out to the population. Campuses that lack support services are starting to design programs to provide financial, academic, and other support to students who have aged out of foster care (Day et al. 2011; Unra 2011). This is exemplified in programs like the Guardian Scholars Program at California State University, Sacramento. This program provides students with support through social events and tutoring. Most importantly, students who participate in this program are provided with mentoring to help with guidance through education, career, and personal development. Merdinger et al. (2005) have linked student success with the strength of their social support.

Strayhorn and Terrell (2007) suggest that college students benefit from interactions with faculty members. They argue that faculty members give students someone to look up to as well as offer emotional support during times of vulnerability. While these students are provided with mentors, African American students may have a hard time building a relationship with non-minority faculty members. These students are more apt to seek help from friends, family, or academic counselors who are minorities than from white faculty (Griffin and Toldson 2012; Guiffrida 2005; Tatum 1997). Ogbu (1991) argues that the development of an oppositional identity by African American youth contributes to their low academic performance (cited in Kao and Thompson 2003, 434). Kao and Thompson (2003) further argue that this kind of oppositional identity starts in adolescence, during the time when most teenagers are going through stages of identity crisis. For African Americans, the identity focuses on their collective experience of discrimination; they define themselves in opposition to the dominant group (Kao and Thompson 2003). Feelings of anger and resentment are caused by their growing awareness of systematic exclusion of black people from participation in US society (Tatum 1997). With these feelings of anger and resentment, students begin to develop behaviors that are opposite from the dominant society. Certain styles of speech, dress, and music may be embraced as “authentically Black” and become highly valued, while behaviors associated with the dominant group are disregarded (Tatum 1997, 84). Having a culture that is unique from the dominant society can result in misunderstandings about such actions and behaviors. This can result in stereotyping of these African Americans and other minorities. Stereotypes against minorities in higher education continue to hinder their academic achievement. Stereotypes affect students’ academic
ability because it undermines their ability to be prosperous (Guiffrida 2005; Tatum 1997). Stereotypes such as the myth of inferiority can cause anxiety among students, eventually leading them to conform to the stereotype (Strayhorn and Terrell 2007). This author believes having a positive role model can stop this from happening.

African American students may seek help from other professionals of color in hopes of finding guidance and support in times of isolation. Providing African American students with mentors of African descent may promote cultural awareness and academic achievement (Griffin and Toldson 2012; Guiffrida 2005). Research suggests that it is important for African American students to be exposed and connected to African descendants who have been successful in higher education (Griffin and Toldson 2012; Guiffrida 2005). How will mentors of African descent influence the academic achievement of African American former foster youth?

Literature Review

The literature that connects African American college experiences and former foster youth college experience is limited, but separate research on each population exists (Conger and Marni 2003; Dworsky et al. 2012). Due to the paucity of research connecting the college experience of African Americans and former foster youth, this literature review identifies barriers that the intersecting group of former foster youth and African Americans experiences while in higher education. This author will use research provided by Conger and Marni (2003) to address issues of ethnicity within the foster care system, along with research from other authors. The literature highlights how the foster care system causes emotional trauma for youth, creates barriers to educational success, and the importance of mentoring for African American former foster youth as a way to counteract some of these barriers.

Life in the Foster Care system

On its own, entering into foster care increases the likelihood of developing a mental disorder (Timmer et al. 2006; Williams 2011; Zetlin and Shea 2010). The foster care system creates numerous emotional distresses that may have negative long-term consequences. In this system, African American children have a representation more than twice their amount in the nation (27% vs. 12.8%) (Child Welfare Information Gateway 2011). Most foster youth experience an average of three out of home placements while in the foster care system, with these placements being in facilities such as non-relative family foster homes (47%), relative family foster homes (27%), institutions (9%), and group homes (6%) (Child Welfare Information Gateway 2011; Merdinger et al. 2005). The combination of an uncertain foster care placement, maltreatment, and the possible parental abuse due to their parents’ limited parenting skills helps explains behavioral disruptions such as defiance and aggression among foster youth (Kaplan, Skolnik, and Turnbull 2009; Timmer et al. 2006; Williams 2011; Zetlin and Shea 2010). These behaviors are usually a reflection of the environment provided for them by their biological parents. The environments usually involve substance abuse, mental illness, a high degree of emotional dysfunction, and inconsistent child management skills (Timmer et al. 2006; Williams 2011). Constantly moving from location to location can cause anxiety and frustration for youth as they ponder where their next placement will be (Conger and Marni 2003; Timmer et al. 2006). Externalizing behaviors classified as aggressive, defiant, and angry may explain why many youth experience multiple placements. Youth who display these behaviors are troublesome to caregivers (Timmer et al. 2006). Some child welfare experts agree that foster parents who are trained in how to manage youth with behavioral difficulties may influence a reduced number of foster placements (Conger and Marni 2003). Taking foster parent classes may better prepare potential foster parents about what to expect before taking a foster youth into their home.

Barriers in High School

Having several placements might involve transferring to multiple schools. Lack of communication between the school systems and social workers is one barrier to success for these youth (Conger and Marni 2003; Zetlin and Shea 2010). Some caseworkers and foster youth providers do not inform school staff of a youth’s status, due to concerns of being stigmatized. They fear that their foster care status would result in youth being treated differently by their teachers and other school personnel (Conger and Marni 2003). Furthermore, many teachers and staff are unaware of the laws regarding the foster care system, and this affects how they serve students. Having an open line of communication between social workers and educators is critical for helping youth in foster care succeed in school (Day et al. 2011; Havalchak et al. 2009).

School transfers can be problematic, often requiring adjustment to new classes, curricula, and teachers, as well as missed or repeated lessons (Conger and Marni 2003; Day et al. 2011; Zetlin and Shea 2010). Constantly transferring to new schools causes students to suffer from circumstances they cannot control. In fact, switching schools is associated with low overall academic performance, classroom adjustments, and grades (Conger and Marni 2003). While the major consequence of having to transfer schools is low performance on standardized tests and grades, research points to additional consequences as well. Failure to transfer transcripts with other school records is an additional barrier for youth in high school. One study, which examined a random sample of case files for foster youth, found that transcripts and school records were not transferred in a timely manner (Havalchak et al. 2009). The failure to transfer transcripts may be one reason why many foster youth do not graduate from high school. Not transferring
transcripts in a timely manner can hinder a student’s chances of taking courses or participating in programs that will prepare them for college.

Lack of preparation for postsecondary education is yet another reason former foster youth who attend college fail to graduate (Day et al. 2011; Dworsky and Perez 2010; Zetlin and Shea 2010). Before enrolling in college, many of these youth are not prepared for the workload that is expected of them. In high school, former foster youth are less likely (15%) to take college prep courses than their non-foster care peers (32%; Havalchak et al. 2009). Taking college preparatory classes trains students for the workload they will experience in college. Data on postsecondary education for former foster youth are sparse and difficult to compare; estimates range widely for college enrollment rates: 7% to 48%; and college graduation rates: 1% to 11% (Havalchak et al. 2009). These low numbers in higher education suggest a lack of preparation for children in the foster care system. In the study conducted by Merdinger (2005), more than half of the participants reported that the foster care system did not prepare them well for college. Encouraging and guiding youth to take advantage of college preparatory courses in high school, assisting with scholarship applications, and providing transition services and college preparation programs are crucial to their educational successes (Dworsky and Perez 2010; Havalchak et al. 2009). Providing college preparation to youth while they are in the foster care system will prepare them for the course workload once they make it into college.

**Barriers in Higher Education**

It has been suggested that student service personnel at most post-secondary institutions are not familiar with or prepared to address the unique needs of former foster youth (Day et al. 2011; Dworsky and Perez 2010; Rassen, Cooper, and Mery 2010). There may be a limited number of knowledgeable staff available to provide services. Many colleges’ efforts in relation to former foster youth are dependent on the commitment and efforts of the individual Foster Youth Liaison or a limited number of key staff (Rassen, Cooper, and Mery 2010). Colleges rely on specially trained staff members who are committed to serve the needs of former foster youth. If key staff members leave or change positions, assistance to students can be compromised (Rassen, Cooper, and Mery 2010). Staff members who are not aware of the services available to former foster youth hinder students from accessing services to support their educations. In a survey conducted by Rassen, Cooper, and Mery (2010), respondents indicated a top priority for outreach is to inform students about all the support services and staff available to them. Staying informed about all services and staff available may encourage more former foster youth to continue their educations.

Being emancipated from state care forces former foster youth to be independent financially, and find ways to fund their education. Most foster youth do not have anyone to co-sign a loan, and the lack of financial resources requires them to be in long hours of employment (Rassen, Cooper, and Mery 2010; Unra 2011). When former foster youth were asked in a survey about what specific resources are used at their college, most students indicated they used Financial Aid, Chafee grants, and Educational Opportunity Program (EOP) counseling (Rassen, Cooper and Mery 2010). Former foster youth who have exceeded the age limit are no longer able to receive funds, and must rely on employment to meet their financial obligations. According to Merdinger et al. (2005), most former foster youth work off campus, for an average of 26 hours weekly. Working long hours while taking a full course load (12 units) can limit the amount of time available to do homework. In a study conducted in the Midwest of former foster youth enrolled in college, the need to work was a common explanation for dropping out of school (Merdinger et al. 2005). As a solution to address this problem, it has been suggested that foster care alumni could be given priority in federally funded work-study programs (Day et al. 2011). Work-study programs tend to provide students with flexible hours, allowing them more time to study. Work is less likely to negatively affect their educational success because the number of hours a student can work is limited and work hours are more flexible (Day et al. 2011). With limitations on the number of hours to work and flexible work schedules, federal work-study programs allow former foster youths to focus on their education.

**Mentoring Foster Youth**

Youths who have emancipated themselves out of the foster care system have been identified as a vulnerable subpopulation from the child welfare system (Ahrens et al. 2011; Day et al. 2011; Dworsky et al. 2012; Greeson and Bowen 2008; Osterling and Hines 2006; Williams 2011; Zetlin and Shea 2010). To aid in the transition to independence, The Foster Care Independence Act of 1999 states that Federal funds may be used to provide personal and emotional support to children aging out of foster care, through mentors and the promotion of interactions with dedicated adults (Avery 2011). These funds also provide mentors. Having a mentor after aging out of the foster care system provides youth with strategies for independence. Mentoring programs can nurture connections that promote positive emotional outcomes in youths’ behavioral and academic functioning (Ahrens et al. 2011; Avery 2011; Greeson and Bowen 2008; Spencer 2007; Williams 2011). Having a mentor functions as a positive role model for youth to build resilience and this can continue into higher education. Having access to positive social support on campus such as faculty and community mentors seems to increase the likelihood that college students will persist until they graduate (Day et al. 2011).

While it is ideal for a mentoring relationship to promote emotional closeness and longevity, not all relationships are compatibly matched. A dysfunctional academic relationship can be defined as a relationship where one or both partners are suffering distress from being in the mentoring relationship (Spencer 2007). A
number of factors can contribute to a dysfunctional relationship including; time commitment, gender, race, or ethnicity. Formal mentoring for children of color is generally provided by white mentors, but the youths are more likely to identify their natural mentors as people who are similar in terms of race and or ethnicity (Spencer 2007; Strayhorn and Terrell 2007). While non-minority faculty members may have been educated about the experiences of African Americans, they are only able to have sympathy for the daily struggles of these students. On the other hand, faculty of African descent may be able to provide these students with proper guidance from their own experiences (Griffin and Toldson 2012).

Faculty of African descent are able to create an emotional relationship that is unique from non-minority faculty members. Their common culture and experience with racism enables them to relate to students with genuineness, authenticity, and creativity in ways that white faculty members are not equipped to do (Griffin and Toldson 2012; Guiffrida 2005; Moore and Toliver 2010; Strayhorn and Terrell 2007). Black students experience multiple stressors at predominately white universities that cause them to dropout. Stressors within this population include racism, involvement in the criminal justice system, poverty, and over identification with special education services (Moore and Toliver 2010). Dealing with these uncontrollable issues may leave students feeling helpless with no one to turn to. Hiring black faculty members to serve as mentors has been a retention strategy used by many predominately white colleges (Moore and Toliver 2010). Research conducted by Strayhorn and Terrell (2007) found that African American students who were engaged with a faculty member of the same race were more satisfied with college. Having faculty members of African descent on campus is beneficial for the African American community, as well as adding diversity to predominantly White universities.

This is an exploratory research project, and a theoretical approach will be used. This author will develop a conceptual model to highlight how pairing African American faculty member mentors with foster youth of the same race may increase more educated youth.

**Same Race Mentoring Model**

**University Support Services**

Having programs that allow students to be around other students who share experiences similar to theirs, can help decrease social isolation (Dworsky and Perez 2010; Rassen, Cooper and Mery 2010; Unrau 2011). Such programs allow students to make new friends, and develop healthy social habits among their peers and their friends. Examples of colleges that offer such a program for former foster youth include (but are not limited to): Western Michigan University, California State University Sacramento, and Seattle University. These schools provide social support and financial services to these unique students. Academic requirements within these programs keep students responsible for making academic progress. Some programs have a G.P.A requirement of at least a 2.0 and require students to sign an agreement that outlines expectations towards academic progress (Dworsky and Perez 2010). Tutoring services for help with homework assist this population towards academic achievement. Students have reported that getting assistance with choosing classes and finding the right major are their top priorities (Dworsky and Perez 2010). Program directors work hard to make sure additional services are available to students. Students are provided with referrals for health, counseling, and community services (Dworsky and Perez 2010).

Financial services are important for the advancement in education for this population. Financial services such as scholarships, book grants, and bus passes for students who have to commute to school (Dworsky and Perez 2010; Rassen, Cooper, and Mery 2010). Some schools offer additional financial services to students who are eligible. One such service is a competitive scholarship, this allows students to write about the reasons they are receiving funding and why it is important for their education. For example, California State University, Sacramento; California State University, East Bay; San Francisco State University; University of California, Irvine; and Western Michigan University have additional funds that cover remaining expenses for former foster youth after all other sources of financial aid have been exhausted (Dworsky and Perez 2010; Unrau 2011). These financial services allow students to focus more on school and less on rent, food, and books.

**Mentoring**

Youth who have been in the foster care system are at high risk for poor adult outcomes after emancipating from the foster care system. Some of these outcomes include: delinquency, homelessness, low educational attainment, poor mental health, poor physical health, unemployment, and other risky behavior compared to the general public (Ahrens et al. 2011; Day et al. 2011; Dworsky et al. 2012; Greeson and Bowen 2008; Osterling and Hines 2006). To keep youth on the right track toward academic achievement, mentors may motivate students to stay in school. The presence of a positive, trusted, adult role model has been recognized as a protective factor against violence, drug and alcohol use, gang participation, and a poor attitude towards school (Avery 2011; Osterling and Hines 2006; Williams 2011). Mentoring has also been shown to have emotional and developmental benefits for foster youth. Some of these benefits include better socio-emotional health, self-esteem, cognitive skills, and problem solving skills (Avery 2011; Kaplan, Skolnik, and Turnbull 2009; Osterling and Hines 2006; Williams 2011). Having these skills will assist with social development for youth interaction with other adults and peers.
Faculty Mentors of the Same Race

Foster youth experience many barriers within the foster care system that carry over into adulthood. Some of these barriers include lack of social support, lack of preparation for college, and the need to work to be self-sufficient. Dealing with these barriers has hindered many foster youth from completing their educations (Dworsky and Perez 2010; Rassen, Cooper, and Mery 2010). In addition to dealing with obstacles coming out of the foster care system, African American former foster youths may have to deal with additional barriers in education such as racism and stereotypes. While in the foster care system, African American foster youths do not have the opportunity to develop a strong sense of racial identity, since finding a stable home is a priority (White et al. 2008).

Research has shown that being provided with a faculty mentor of the same ethnic or racial background has been beneficial for the general population of African Americans in higher education (Griffin and Toldson 2012). Having a faculty mentor from the same racial background could be beneficial for African American former foster youth. Mentoring has been shown to be effective for at-risk populations, especially African Americans. Students sometimes do not realize their full potential, and mentoring draws out hidden talents from this group (Griffin and Toldson 2012). Having mentors of the same racial background may help change student perceptions about themselves and the community they come from. Having a mentor of the same race may serve as a buffer to this issue and increase self-confidence and persistence to continue their education.

Society continues to project stereotypes of African Americans as not being scholarly, and better suited for entertainment and athletics (Griffin and Toldson 2012; Tatum 1997). For those attending predominately white institutions, they may have to deal with additional stereotypes within the educational system. Some of the stereotypes about men include being troubled, hopeless, and only attending school for financial aid or to “throw a ball around” (Tatum 1997, 84). Some of the stereotypes for African Americans include the women being welfare mothers, drug addicts, victims of domestic violence or A.I.D.S, and school dropouts (Tatum 1997). Some students find non-minority faculty members to be insensitive toward them (Tatum 1997). Some students find the non-black instructors to be unapproachable (Guiffrida 2005). Exposure to negative images about one’s group may have some students feeling as if school is not the place for them. Some students begin to internalize these stereotypes and start to fall behind in their studies (Harris 2012).

African American students who attend Historically Black Colleges and Universities (HBCU) have positive role models around them. Many of the students, faculty, and staff members at these institutions are of the same race, and students may not experience racial isolation (Gilbert et al. 2006; Guiffrida 2005; Harris 2012; Tatum 1997). With most of the population being of African descent, these students do not have to worry about racism toward them, and are provided with positive role models.

Tatum (1997) explains the importance of racial identity, and how it affects African Americans. Racial identity can be viewed as a person’s perception of sharing a common racial heritage with a particular racial group (Gilbert et al. 2006; Tatum 1997). When frustrated with racist situations, students turn to their friends for support. In some cases, non-minority friends are not prepared to offer support because they may not have experienced discrimination. Support is sometimes found among students in other organizations; in higher education settings, this is sometimes reflected in the presence of African American student groups. These include African American Greek-letter organizations, pre-professional clubs (such as health, business, and law), gospel choirs, and “theme floors,” or areas in dormitories that are designated living spaces for African American students. Oftens, these opportunities create a sense of belonging and purpose for students. African American students need a place to get together and discuss issues outside of class that are happening on their college campuses (Tatum 1997). Some universities do not offer this opportunity to their students.

African American students and professors at predominately white universities have fewer options for social interaction than their white counterparts. This experience has lead black students to seek black faculty for guidance, support, and understanding (Griffin 2012; Tatum 1997). In studies of African American students who have been mentored by same race faculty, levels of satisfaction are higher (Guiffrida 2005). African American faculty members tend to go beyond the call of duty to help students (Guiffrida 2005). One way this is done is by providing holistic advising sessions to their students. During an advising session, the student is not only provided with necessary classes for their major, but students also get to express opinions about topics outside of academia such as family, personal interests, and employment (Guiffrida 2005). Some faculty mentors also share their personal experiences in their profession.

Professors emphasize the importance of diversity in academia. African American faculty are more likely to incorporate black history into their curriculum and less likely to stereotype students based on their race (Guiffrida 2005). These faculty emphasize that higher education does not place a value on African Americans, but they must beat the barriers and do what they are supposed to do as students (Guiffrida 2005). Students are taught to value diversity, and to move beyond stereotypical ways of communicating with others. This is done through demonstrating mastery of their work and effective problem solving skills that can be utilized once they are immersed into dominant society (Guiffrida 2005; Moore and Toliver 2010). African American faculty have a positive outlook on the students’ capabilities and provide the students with more motivation than non-minority professors. Students are pushed harder to meet high expectations...
of showing their intelligence; and are expected to have consistent attendance, hand in quality work, participate, and think critically (Guiffrida 2005). This holds students accountable for their academic progress. Holding high expectations of the students changes the image of the black community.

Providing on campus university support is important to the success for former foster youth. Services such as filling out financial aid forms, applying for the Chafee grant, and tutoring services are a few of those services. In addition to these services, having a mentor is important to the mental health for these students. Being a college student requires students to multitask and be flexible with work, homework, and family. African American students have additional stressors that may hinder their educational success. Some of these stressors include racial isolation, stereotypes from the community, and professor who appear to be hostile (Guiffrida 2005). Mentors may provide students with an outlet to discuss their issues and a way to solve the problem. Having this comfort may alleviate some stress, and encourage students to continue their education.

Limitations

There are some identified limitations with this research, which include perceived personal bias from the author, and the inability to generalize to the population. It may be perceived that this author is personally biased about the topic because of her own experience with the foster care system. Although the author has had some personal experience within the foster care system, topics highlighted in this study do not necessarily reflect the author’s personal feelings or experience with the foster care system.

With this model is the inability to generalize about how mentoring with same race faculty members can be effective for all African American former foster youth. Some students may not feel comfortable with seeking help from faculty of the same race. As stated by one participant in a previous study, faculty members of African descent sometimes hold students to a standard that is too high for the student to reach (Guiffrida 2005). The student was required to do additional assignments and was often called on for participating in class, making it obvious to other students that she was different from them. Diversity training may provide insight for faculty members on how to work with African Americans. Youth who had positive experiences with the foster care system or positive contact with any non-minorities may not have a desire to be mentored by faculty of the same race. Some youth may have a natural skill of communicating with anyone despite their race or ethnicity.

Another limitation with this model was no inclusion of faculty members’ perspectives. Since faculty of color are also underrepresented in higher education, having access to mentors may be limited. In addition, the faculty members that are on campus may have a limited amount of time to mentor students.

A final limitation is the status of being a former foster youth. After aging out of the foster care system, some former foster youth are not aware that they qualify for foster care services. Youth who were in kinship care or an adopted family may not know they qualify for services. Since some students fear being stigmatized, they may refuse to identify as former foster youth and therefore not receive services offered by programs such as Guardian Scholars.

Research Implications

If research is able to support the author’s model, then maybe there are lessons that can be learned about mentoring foster youth after emancipating from the foster care system. While some research tends to highlight negative outcomes for former foster youth, the idea of providing intervention by a role model could be beneficial. Mentoring programs for African Americans in higher education have been shown to be successful. Since former foster youth have been identified as a vulnerable population, African American former foster youth may be at even
greater risk as they deal with the added issues of racism and stereotypes in higher education. Being provided with mentors from the same racial background might provide students with emotional support and techniques for enhancing success as students in the academy.

California has made efforts to provide former foster youth with additional services within higher education. Students are provided with housing support and an additional grant to assist with their early years in college. The Guardian Scholars Program provides resources for students to excel in their higher education experiences. Students are provided with information on developmental support, financial advising, and mentors.

**Future Research**

Future research should include participants who have experienced being part of the foster care system and are currently in higher education. Participants should include students who have mentors of the same race, and students who have mentors of other races. A quantitative method such as that of a survey, should be used in conjunction with the qualitative method of in-depth interviews.

**References**


The Influence of Athletic and Nonathletic Identities on Subclinical Eating and Somatoform Disorder Symptomology in Competitive Hispanic Male Athletes

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Abstract

The purpose of this research was to evaluate the relationship of athletic and nonathletic identities and subclinical eating and somatoform disorder symptomology in the competitive Hispanic male athlete population. The researcher administered a survey to eighteen male athletes that assessed athletic and nonathletic identities, and symptomology. Due to a limited sample size, the results are not statistically significant, and there is no evidence that symptomology was influenced more by an athletic or nonathletic identity. However, data do suggest food restrictive patterns in the population.

Introduction

Concern for college-aged athletic males exists among physical and mental health professionals who postulate that an increased desire for masculinity can lead to manifestation of weight control behaviors, which have deleterious effects on physical and mental health (Blow et al. 2010; Cafri et al. 2005; Pope, Phillips, and Olivardia 2000a; Ricciardelli et al. 2007; Thompson and Cafri 2007). Resulting from a perception of masculinity and strength as exclusive designations of masculinity, young males are vulnerable for developing body dissatisfaction evolving into a clinically diagnosable somatoform disorder referred to as muscle dysmorphia. Muscle dysmorphia is an excessive preoccupation with gaining muscle mass and decreasing body fat. Research has evaluated the incidence of body dysmorphia and the comorbidity for developing eating disorders, indicated by males with body dysmorphia who demonstrate an obsession with food, binge-purge behaviors, and the use of sports nutrition supplements (Pope et al. 2000b). There is a paucity of research on the body modification behaviors of undergraduate Hispanic males despite the rapid growth of this ethnic minority in college populations (National Center for Education Statistics 2007). Although ample evidence illustrates the occurrence of detrimental weight gain and weight loss behaviors among Hispanic youth, further studies should assess the prevalence of these behaviors among the undergraduate male population (Blow et al. 2010). Research on collegiate athletes, individuals who compete in NCAA Division 1 teams, proposes that subclinical muscle dysmorphia and eating disorder behaviors are disproportionately influenced by body dissatisfaction and are more frequently derived from concerns with athletic performance (Petrie et al. 2008; Raudenbush and Meyer 2003; Steinfeldt et al. 2011). Contrary to research on non-athletic undergraduate students who do not compete in NCAA Division 1, there is no significant influence of acculturation or ethnicity on the incidence of muscle dysmorphia among collegiate athletes (Galli et al. 2011). An investigation is necessary to examine the reason why these disparities do not exist in competitive male athlete populations. This investigation will examine the relationship of cultural and athletic identity with the pursuit of masculinity and the manifestation of muscle dysmorphia and eating disorder behaviors.

Investigations on the young and college-aged Hispanic population have reported a large incidence of eating disordered behaviors and body modification practices (Blow et al. 2010; Ricciardelli et al. 2007). College-aged Hispanic males exhibit decreased levels of body satisfaction from media exposure (Lorenzen, Grieve, and Thomas 2004; Nieri et al. 2005), and young Hispanic males have lower body satisfaction than young non-Hispanic Caucasian males (Neumark-Sztainer et al. 2002). Compared to young males of non-Hispanic Caucasian identity, young Hispanic males report higher frequencies of binge-purge behaviors, such as binge eating combined with self-induced vomiting, laxatives, or diuretics (Neumark-Sztainer and Hannan 2000; Story et al. 1995). Additional research supports that the perception of a small body size among young Hispanic males leads to lower body satisfaction (Nieri et al. 2005). Among young Hispanic males with low body satisfaction, there is an increased propensity towards extreme weight loss and muscle gain behaviors (Croll et al. 2002; Neumark-Sztainer et al. 1999; Serdula et al. 1993). The majority of male collegiate athletes, regardless of ethnicity, perceive their actual body size as smaller than their ideal body size (Galli et al. 2011; Galli and Reel 2009), indicating the prevalence of a desire to increase muscle mass. The desire for a more muscular body size often correlates with enhancing performance in a sport (Galli et al. 2011). Increased muscularity may serve a functional purpose for collegiate athletes who are not obsessed with body image but concerned with developing adequate defenses while engaged in a violent sport such as football (Steinfeldt et al. 2011). However, in collegiate sports such as men’s swimming, where a small uniform leaves most of the body exposed, there is an increased prevalence of body modification behaviors such as excessive exercise which is not valuable for performance enhancement (Raudenbush and Meyer 2003). While more research must be done to clarify the relationship between masculinity and desired muscularity for athletes, there is significant evidence that male athletes who desire a more masculine physique are considered at risk.
for implementing rigorous exercise schedules, restrictive dietary patterns, and supplement use (Murray et al. 2012; Pope et al. 2000b). Most collegiate athletes, male or female, use some form of nutritional supplement, and yet many do not understand the efficacy or purpose of supplementation on their health or performance (Burns et al. 2004). Comprehensive nutrition education for athletes can result in developing more positive food choices and better athletic performance (Quatromoni 2008). While investigations of the relationships between negative body image and disordered eating have shown to have some correlation with nutrition supplementation (Raudenbush and Meyer 2003), these studies have ignored the performance goal oriented lifestyles collegiate athletes plan in collaboration with dietitians, athletic trainers, and physicians (Galli et al. 2011). Additionally, the influence of cultural differences (degree of acculturation or assimilation to team culture) on the manifestation of body dysmorphia and weight control behaviors in collegiate athletes have yet to be investigated (Ricciardelli et al. 2007).

There is an absence of literature that assesses the influence of cultural and athletic identities on young Hispanic males and their consumption of sports nutrition supplements. Young Hispanic males with body dissatisfaction are at a higher risk for substance abuse (Nieri et al. 2005; Rhodes et al. 2007) and may be more likely to use supplements to achieve weight modification, including increased muscularity (Pillitteri et al. 2008). However, literature on the perceptions and attitudes of the male Hispanic college population towards nutritional supplements and weight control is limited (Blow et al. 2010). Further examinations should include whether Hispanic males who identify themselves as athletes are motivated to use nutrition supplements by similar weight control or body size concerns as their peers who do not identify as athletes.

Literature Review

Somatoform/Eating Disorders in the Male Population

Young males in the college population are sensitive to gender identity and gender roles. They frequently misperceive their muscles as small or weak, therefore lacking masculinity (Grossbard, Neighbors, and Larimer 2011; Pope et al. 2000b). Ninety percent of participants in a survey of males attending college in the Midwest, Northeast, and Southwest areas of the United States reported some form of muscular dissatisfaction (Frederick et al. 2007). Body dissatisfaction among college males can escalate to detrimental weight control behaviors. One study reports that 25% of college males reported binge eating and restrictive dieting, and 30% supported “compulsive exercise”, as methods for gaining muscle and losing weight (Lavender, De Young, and Anderson 2010, 120). Pope et al. (2000b) performed multiple examinations of college-aged male body image in the United States and Europe. Subsequent to reviewing media images containing partially nude male models, college-aged men reported their ideal and perceived body size on a somatomorphic matrix. Men from Austria, France, and the United States were found to report an ideal body size with twenty eight pounds more muscle than the average male (Pope et al. 2000b). In a later study, men from the United States and Europe reported an ideal body size that was twenty pounds more muscular than the average male (Yang, Gray, and Pope Jr. 2005). These studies illustrate that in the United States and Europe, the social conditioning of males may lead to developing muscle dysmorphia (Yang, Gray, and Pope Jr. 2005). The abundance of media images portraying hypersexual behaviors, such as alcohol consumption (Nieri et al. 2005), sexual promiscuity, and strength have a major influence on the cognitive construct of masculinity in males (Pope, Phillips, and Olivardia 2000a). Selectivity for these masculine ideals are also observed in the evolution of toys for male children which have developed increasingly aggressive features, including unrealistically enlarged muscles and violent facial expressions (Pope, Phillips, and Olivardia 2000a).

Individuals with muscle dysmorphia, a subtype of a somatoform disorder, exhibit anxiety and obsessive behaviors manifesting from aspirations of increasing the size of their muscles (Pope et al. 2000a). Clinical diagnosis of a somatoform disorder involves analysis of psychological impairment, anxiety, or distress associated with body dissatisfaction, but many males exhibit subclinical symptomology such as one or more of these symptoms; however, not in sufficient quantity for an appropriate diagnosis (Cafri et al. 2008; Pope, Phillips, and Olivardia 2000a; Thompson and Cafri 2007). Pioneering researchers classified this behavioral disorder as reverse anorexia nervosa because males reported the same anxiety and body misperception as individuals diagnosed with anorexia nervosa, but with an opposite objective; patients with reverse anorexia nervosa wanted to gain weight (Pope, Phillips, and Olivardia 2000a). Research has also confirmed that restrictive dieting occurs with muscle dysmorphia in the form of binging and compulsive eating as well as an obsessive relationship with food (Andersen et al. 1995; Murray et al. 2012). While individuals with muscle dysmorphia may participate in excessive workout routines or use supplements to increase muscle size they also exhibit concerns with the adiposity of their bodies (Pope et al. 2000b; Pope, Phillips, and Olivardia 2000a; Raudenbush and Meyer 2003; Steinfeldt et al. 2011). Some males misperceive their bodies as too thin and unmuscular, while others are concerned with being overweight and unmuscular (Kelley, Neufeld, and Musher-Eizenman 2010; Murray et al. 2012). Individuals with muscle dysmorphia are more likely to engage in the use of anabolic steroids and ergogenic supplements (Hildebrandt, Alfano, and Langenbucher 2010; Pope et al. 2005). Additional concern exists in Western countries where suicide rates are higher among males who perceive their bodies as unimuscular, compared to males with somatoform disorders manifesting in concern for specific body regions such as
facial hair or reproductive organs (Pope et al. 2005). Cultural differences in perceptions of masculinity are a determinant of muscle dysmorphism. Despite the similar frequency of advertisements exposing the male body in both Asia and the United States, clinical diagnoses of somatoform disorders in Asia are not related to muscle dysmorphism (Kanayama and Pope 2011). This is particularly associated with the lack of conceptual affinity between muscularity and masculinity in Asian cultures (Kanayama and Pope 2011; Yang, Gray, and Pope Jr. 2005). In addition to muscularity, the rigid structure of the male gender role in the United States incorporates avoidance of psychological health services, due to the perception of mental health concerns as feminine qualities (Levant, Wimer, and Williams 2011). Eating and somatoform disorders are predominantly diagnosed among females (Hudson et al. 2007), which perpetuates the perception of these disorders as a disparity, primarily feminine, and irrelevant to men’s health. Due to the design of eating disorder and body dysmorphic evaluations for female populations, there are difficulties in assessing muscle dysmorphism symptomology among males (Bottamini and Ste-Marie 2006). Researchers acknowledge that male populations, which share or adopt Western values and identities, are at an increased risk of developing undiagnosed muscle dysmorphism (Ricciardelli et al. 2007).

**Hispanic Collegiate Males**

Machismo behaviors are a determinant of masculinity in the Hispanic culture (DeSantis 2012; Rhodes et al. 2007). Machismo behaviors are defined by high-risk hypersexual behaviors, dominance, substance abuse, and frequent unprotected sex with multiple partners (Rhodes et al. 2007). Hypersexual behaviors, a Western construct of masculinity, are frequently portrayed in alcohol advertisements, and influence the body satisfaction and behaviors of young Hispanic males (Nieri et al. 2005). Without knowing an individual’s degree of acculturation, it is impossible to determine their definition of masculinity or their willingness to engage in unhealthy weight modification practices (Blow et al. 2010; Nieri et al. 2005). A sample of young Hispanic males with low body satisfaction and greater degrees of acculturation reported fewer “antidrug” norms, indicating less reluctance toward using drugs or supplements to modify weight (Nieri et al. 2005). In contrast, a greater proportion of responses from less acculturated Hispanic males reported lower substance use than their more acculturated peers (Nieri et al. 2005). A viable argument is made by these studies: the more acculturated a Hispanic male becomes, the more likely he will engage in modification behaviors to achieve “machismo” or “masculine” traits, and experience some form of body or muscular dissatisfaction (Nieri et al. 2005; Warren, Castillo, and Gleaves 2010).

Stephenson (2000) defines acculturation as a “complex, multidimensional process of learning that occurs when individuals or groups come into continuous contact with different societies” (71) and contributes to the development of body dissatisfaction among the Hispanic community (Warren, Castillo, and Gleaves 2010). Investigations on body dissatisfaction and the desire to gain weight yield contrasting arguments for the influence of acculturation, since a higher degree of acculturation has also been associated with obesity among Hispanic youth (Bowie et al. 2007; Hubert, Snider, and Winkleby 2005). These findings indicate that more acculturated Hispanic youth with poor body satisfaction desire thinner bodies regardless of their actual weight. An earlier examination revealed that Hispanics still participated in unhealthy weight modification techniques like restrictive dieting, despite significant reports of high weight satisfaction and body pride (Story et al. 1995). Since pride is a foundational element of the machismo identity, researchers expect resistance among males to report unadulterated concerns with body image on a questionnaire (Bottamini and Ste-Marie 2006). Despite the existence of studies on this population, research has not evaluated the objectives of Hispanic males as decreasing adiposity, increasing muscularity, or some combination of both (Kelley, Neufeld, and Mushar-Eizenman 2010). Although there is body dissatisfaction among young Hispanic males that lead some to engage in weight control or weight gain behaviors (Croll et al. 2002; Neumark-Sztainer et al. 1999, 2002; Serdula 1993), there is little evidence that acculturation or cultural identity can explain the occurrence of nutrition supplement use on the preference for weight loss, weight gain, or both, in this population.

Research on young Hispanic males reveals an array of body modification behaviors including the use of binge-purge strategies and supplements. In a survey of Minnesota students from 61 public schools, 21.2% of the Hispanic male population reported increasing food and food supplements to gain muscle and weight (Neumark-Sztainer et al. 1999). In additional responses, Hispanic males (7.1%) reported using purging strategies (self-induced vomiting, laxatives, diuretics, and/or diet pills) as weight loss strategies and 27.9% of respondents reported consuming food supplements or increasing portion sizes to gain weight and muscle (Neumark-Sztainer et al. 1999). Additional research assessed a population of 152 Hispanic male students in Minnesota, 33.6% of respondents indicated low body satisfaction and reported using caloric substitutes (10.1%), skipping meals (18.8%), and decreasing portion size (22.8%) as weight modification mechanisms (Neumark-Sztainer et al. 2002). However, the 2002 study did not reveal any correlating data between degree of acculturation, body dissatisfaction, and weight control methods among that population. These findings are consistent with earlier studies, which reported skipping meals and dieting pills as popular choices for weight loss among young Hispanic males (Serdula et al. 1993). Although these students were neither self-reported athletes nor college students diagnosed with an eating disorder, there are trends of body dissatisfaction and supplement use developing at a young age for Hispanic male students.
Acceptance of drugs and dietary supplements as safe and efficable options for losing weight may be greater among young Hispanic males. Pillitteri et al. (2008) surveyed 3,500 US adults ages 25-34 on their use of dietary supplements to lose weight. Survey responses indicated that 19.8% of the male population used dietary supplements, and 41.6% of Hispanic adults were more likely to use dietary supplements (Pillitteri et al. 2008). Although this research evaluated the adult population, the data suggest a large acceptance of the efficacy of supplements among the Hispanic population--but it does not take into account the degree of acculturation of the sample. Furthermore, a study on the prevalence of substance abuse among young Hispanic males with body dissatisfaction revealed that acculturated young men who perceived their body size as too thin reported consuming larger amounts of alcohol (Nieri et al. 2005). Although males with muscle dysmorphia are more likely to use ergogenic substances to gain weight (Hildebrand, Alfano, and Langenbucher 2010), Hispanic males regard substance use (alcohol, tobacco, and other drug use) as masculine, and is illustrated by the incidence of use among respondents (Rhodes et al. 2007). Acceptance of drugs and substances may influence the decision making process of young Hispanic males with intentions of modifying their weight. The significance of conventional gender roles in the Hispanic culture, combined with low risk avoidance, places this population at a high risk for using substances (Gonzalez-Guarda et al. 2010), which may determine the likelihood of using sports nutrition supplements.

In the United States, supplement use is common among collegiate athletes at high risk for developing body dysmorphia, muscle dysmorphia, and eating disorders (Galli et al. 2011; Pope, Phillips, and Olivardia 2000a). A survey of collegiate athletes found that 88.8% of respondents reported using a nutrition supplement (Burns et al. 2004). Among respondents in Burns et al. (2004), some of the more popular sports supplements used by athletes included creatine (31.4%), protein supplements (40.3%), and calorie-replacement drinks (47.0%). These results resonate with previous claims that creatine was used by 36% of freshman male football players (Rosenbloom, Jonnalagadda, and Skinner 2002) and 39% of male athletes (Jacobson, Sobonya, and Ransone 2001). Multiple studies suggest that the majority of collegiate athletes consume supplements regardless of their perceived adequacy or effectiveness, indicating that collegiate athletes lack access to quality nutrition supplement information (Jacobson, Sobonya, and Ransone 2001; Rosenbloom, Jonnalagadda, and Skinner 2002; Shattuck 2001). In general, athletes are uninformed about nutrition, indicated by studies in which 47% of male respondents believed that protein was the main energy source for muscle (Rosenbloom et al. 2002). This lack of knowledge may arise from the infrequency of an athlete’s consultation with doctors or dietitians for information on sports nutrition supplements. Instead, athletes often rely on athletic trainers or coaches who may not be as qualified to make recommendations on nutrition supplementation (Burns et al. 2004). Although there is a paucity of information detailing the perceived efficacy of supplements among the Hispanic population, supplement use and muscle dysmorphia are prevalent among both the Hispanic and athletic populations.

**Competitive Collegiate Male Athletes**

Diet modification and supplement use are popular performance enhancing methods among collegiate athletes (Petrie et al. 2008; Raudenbush and Meyer 2003). A study by Raudenbush and Meyer (2003) found that one in four male athletes used supplements to increase muscle mass. They found that supplement users were fifteen pounds heavier and spent more time weight lifting than teammates who did not report using supplements. Like their teammates, these athletes identified their ideal body size as larger, but correctly estimated their actual body sizes as larger than their teammates (Raudenbush and Meyer 2003). Additional research affirms that although collegiate athletes report higher levels of body satisfaction than nonathletes, this population still participates in more muscle gain and weight loss behaviors than their nonathletic peers (de Bruin, Oudejans, and Bakker 2007; Galli et al. 2011; Ziegler et al. 1998). Since body image concerns emerge from career or sport oriented goals, and not poor body image, there are claims that there is a lower incidence of developing clinical eating and somatoform disorder symptomology (Galli et al. 2011). Comparable to their Hispanic peers, collegiate athletes are also a high-risk population for body dysmorphia symptomology and substance use (Diehl et al. 2012; Quatramoni 2008).

Among collegiate male athletes, masculinity is not an exclusive definition of masculinity (Galli et al. 2011; Raudenbush and Meyer 2003; Steinfeldt et al. 2011). Investigations among collegiate male athletes report that masculinity is associated with being an athlete, but the drive for muscularity, and subsequent supplement use, serves a functional purpose to enhance performance (Steinfeldt et al. 2011). Collegiate male athletes report ideal body sizes that are twenty pounds more muscular than their own, and that sport related pressures are a priority over sexual attractiveness or developing a more “healthy” body (Steinfeldt et al. 2011). This corresponds with research found in a study of 203 collegiate male athletes (mean age=20.29) where the motivation to gain muscle mass was derived from weight pressures perpetuated by coaches and teammates, rather than self-reported concerns with body appearance (Galli et al. 2011). In one particular study, researchers claimed that male swimmers reported the highest amount of weekly hours spent doing workouts and aerobic exercise than athletes in other sports (Raudenbush and Meyer 2003). Raudenbush and Meyer (2003) concluded that social pressures, such as the uniforms the swimmers wore, which exposed more of their bodies, influenced their desire to modify their bodies. In addition, the study by Steinfeldt et al. (2011) indicated that males who strongly identified...
as athletes reported longer and more intense workout routines for conditioning (Steinfeldt et al. 2011). Galli et al. (2011), Raudenbush and Meyer (2003), and Steinfeldt et al. (2011) report that there is no significant relationship between ethnicity and somatiform disorder symptomology. Although body dissatisfaction is seldom reported, there is compelling evidence that collegiate athletes are preoccupied with working out and gaining muscle (Galli et al. 2011).

Additional investigations are necessary to determine why there is less incidence of body dissatisfaction among male collegiate athletes despite an apparent preoccupation with body modification in the population. Evaluating the significance of athletic and masculine identities may provide evidence for the development of eating and somatiform disorder psychopathology among male athletes. Analogous investigations are pertinent for the male Hispanic population, for whom strength and masculinity, substance use, and low risk avoidance are determinants of masculinity and place this group at a higher risk for participating in health damaging behaviors and developing muscle dysmorphia (Gonzales-Guarda et al. 2010; Nieri et al. 2005; Rhodes et al. 2007).

The hypothesis is that Hispanic athletes who consider their identity as an athlete to be more important than their cultural identity will exhibit fewer positive responses (in agreement more often) than their Hispanic athletic peers who do not consider athleticism their preeminent identity. Hispanic athletes who do not identify as “athletes” will have more positive responses indicating a greater prevalence of subclinical muscle dysmorphia or disordered eating symptomology.

Methods

Participants
A survey was distributed to 119 male participants who competed in NCAA Division 1 or varsity athletics at California State University, Sacramento. Among the participating teams were rowing (n=21), baseball (n=31), football (n=30), tennis (n=8), basketball (n=12) and soccer (n=17). Eighteen responses indicated some form of Hispanic identity (Mexican, Spanish, Latino, or Hispanic). The surveys of students who did not report a Hispanic identity were excluded from analysis of the results.

Instruments
The author, with valuable input from Maureen Smith, Ph.D. and Kathleen Deegan, Ph.D., developed a survey. The survey was generated based on instruments used in seminal studies with high validity (Galli et al. 2011; Pope et al. 2000b). The survey was distributed to participants based on the availability of coaches. The author personally administered a paper format of the survey to teams with pencils during a ten to fifteen minute time period of a team meeting for each individual sport.

Ethnicity and Cultural Identity
The objective of this research was to determine the cultural identity, body/muscle satisfaction, and eating disorder pathology among athletic Hispanic males. A survey was designed to examine the influence of identity on the frequency of disordered eating and somatiform behaviors. Athletes reported their ethnic identity in a blank space, to discourage students from being limited to selections like “Hispanic” or “Caucasian” as ethnicities allowing students to include whatever ethnicity they considered most influential to their identity. Responses such as “Mexican”, “Latino”, “Hispanic” and “South American” were identified as “Hispanic” identities. Additionally, students were asked if their athletic identity was more significant than their cultural identity. An additional question existed in the survey to corroborate, or impugn, the validity of the response in conjunction with the influence of athletic identity; using a Likert scale, the respondent recorded their level of agreement with the statement: “My identity as an athlete is more important than my cultural identity.”

Subclinical Somatiform Disorder Symptomology
To assess subclinical somatiform disorder symptomology, the survey extracted responses that described the attitudes of athletes toward exercise, food, and body image. In order to address body satisfaction, respondents assessed their own body type in three ways. First, respondents assessed their own body type by selecting one of the following responses: “Underweight, more muscle and less fat”, “Underweight, less muscle and more fat”, “Average weight, more muscle and less fat”, “Average Weight, less muscle and more fat”, “Overweight, more muscle and less fat”, “Overweight, less muscle and more fat.” Subsequently, respondents compared their body type to the body type of an ideal athlete by selecting one of the following options: “More muscle and more fat”, “More muscle and less fat”, “Less muscle and more fat”, and “Less muscle and less fat.” Lastly, respondents compared their body type to the ideal sexually attractive body type by selecting one of the four responses from the previous question. These questions are similar to the somatomorphic matrix used by Pope et al. (2000b), but the responses were modified to limit the selection of choices available to the respondent. Pope et al. (2000b) used the somatomorphic matrix to quantify such responses as “Average weight, more muscle and less fat” by using illustrations which varied in adipose and muscle composition. The somatomorphic matrix used by Pope et al. (2000b) reveals very specific details about body type preferences while the purposes of the current survey are concerned with general body satisfaction and not necessarily...
the desired amount (by mass and weight) of adipose or muscle tissue an athlete wishes to increase or decrease.

Additional questions used a Likert scale format to assess whether athletes felt that their masculinity was significant to their teammates or coaches, and whether peer pressure affected the respondents desire to increase masculinity. Another Likert scale question addressed whether athletes agreed that working out had interfered with their social or academic responsibilities. Similar questions were used by Raudenbush and Meyer (2003) as well as Galli et al. (2011).

Subclinical Eating Disorder Symptomology

To evaluate subclinical eating disorder symptomology, numerous Likert scale questions were used that had similarity to assessments of an eating disorder, as defined by the Diagnostic Statistical Manual-IV, and were also used in the assessment of eating disorders by Croll et al. (2002) as well as Lavender, De Young, and Anderson (2010). Some of these questions such as: “I avoid eating foods which are low in protein” and “Eating foods which contain fat contribute to an undesirable body,” implicitly addressed the eating behaviors of athletes or their propensity for adopting stringent or polarized eating patterns. Another Likert scale question assessed whether athletes believed that protein supplements were a dynamic source of protein.

Analysis

The purpose of the survey was to assess the correlation between cultural or athletic identity and the frequency of responses, which indicated subclinical eating or somatoform disorder symptomology. Frequency of responses indicating subclinical symptomology was the dependent variable, with the influence of Hispanic or athletic identity as the independent variable. Responses from Likert scales were combined, such that “Agreed” and “Strongly Agreed” are reported as “Agreed”. Additionally, the responses “Disagreed” and “Strongly Disagreed” are reported as “Disagreed”.

Results

Of the 119 responses from athletics, eighteen responses were from Hispanic males. Of the eighteen Hispanic athlete responses, twelve respondents were AA (athletic athletes; athletes who indicated that “athlete” was a more significant identity), three identified as students, one identified with their ethnic group, and two indicated some other form of identity (family member, friend, etc.). For the purposes of this study, which examines the differences between athletic and nonathletic identities, the responses of non-athletic identifying athletes are combined to form a group of six athletes with nonathletic identities.

Table 1
Responses to Body Type Question

<table>
<thead>
<tr>
<th>Perception of Body Type</th>
<th>Athletic Identity (n=12)</th>
<th>Non Athletic Identity (n=6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight (more muscle, less fat)</td>
<td>20.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Underweight (less muscle, more fat)</td>
<td>0.0%</td>
<td>25.0%</td>
</tr>
<tr>
<td>Average Weight (more muscle, less fat)</td>
<td>60.0%</td>
<td>50.0%</td>
</tr>
<tr>
<td>Average Weight (less muscle, more fat)</td>
<td>0.0%</td>
<td>25.0%</td>
</tr>
<tr>
<td>Overweight (more muscle, less fat)</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Overweight (less muscle, more fat)</td>
<td>20.0%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

Table 1 reports the responses of athletes identifying as athletes, and athletes who did not identify as athletes, to the options used to describe their perception of their body type. Of the AA (athletic identifying athletes) respondents, 20% indicated that they were overweight with more fat than muscle, 20% indicated that they were underweight with more muscle than fat, and 60% indicated that they were average weight with more muscle than fat. Among the NA (non-athletic identifying athletes) respondents, 25% indicated that they were average weight with more fat than muscle, 50% indicated that they were average weight with more muscle than fat, and 25% indicated that they were underweight with more fat than muscle.

Table 2
Responses to Survey Questions

<table>
<thead>
<tr>
<th>Question/Statement</th>
<th>Athletic Identity (n=12) Agreement with Statement</th>
<th>Non Athletic Identity (n=6) Agreement with Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ideal Athletic Body Type Contains More Muscle and Less Fat than Respondent</td>
<td>75%</td>
<td>66.6%</td>
</tr>
<tr>
<td>Sexually Attractive Body Type Contains More Muscle and Less Fat than Respondent</td>
<td>91.6%</td>
<td>83.3%</td>
</tr>
<tr>
<td>Coaches encourage respondent to gain muscle mass</td>
<td>70%</td>
<td>50.0%</td>
</tr>
<tr>
<td>Protein supplements are effective at increasing muscle mass</td>
<td>33.3%</td>
<td>30.0%</td>
</tr>
<tr>
<td>Respondent avoids low protein foods</td>
<td>33.3%</td>
<td>66.6%</td>
</tr>
<tr>
<td>Foods with fat contribute to an undesirable body type</td>
<td>41.6%</td>
<td>66.6%</td>
</tr>
</tbody>
</table>

Table 2 reports the responses to survey questions among AA athletes and NA athletes. 91.6% of the AA respondents indicated that the more sexually attractive body type had more muscle and less fat, while 75% indicated that the ideal body...
type for their sport had more muscle and less fat. Of the AA respondents, 70% indicated that coaches and teammates encouraged them to gain muscle mass, but only 33.3% agreed that protein supplements like Muscle Milk or amino acids were viable options for obtaining protein. In addition, 33.3% of AA respondents agreed that they avoided foods that were low in protein, and 41.6% of AA respondents agreed that foods with fat contribute to an undesirable body type. Among NA respondents, 83.3% indicated that the more sexually attractive body type had more muscle and less fat than their own, and 66.6% of respondents indicated that the ideal body type for their sport had more muscle and less fat than their own. In addition, 50% of the NA respondents agreed that coaches and teammates encouraged them to gain muscle mass, and 50% also agreed that protein supplements were a viable option for obtaining protein. Among the NA respondents, 66.6% agreed that they avoided foods that were low in protein, and 66.6% of respondents agreed that consuming foods with fat contributed to an undesirable body type.

Discussion

Although the sample sizes were not large enough to generate any statistically significant conclusions, support for the original hypotheses is present in the responses of these collegiate Hispanic athletes. The original hypothesis claimed that collegiate Hispanic males who participate in competitive athletics would exhibit less disordered eating or negative body image responses if they identified as athletes, rather than with another identity such as culture or student. AA responses indicated a higher frequency of negative body image, including beliefs that muscularity would improve athletic performance as well as sexual attractiveness. There is a low prevalence of disordered eating behaviors from AA survey responses. Compared to the non-athletic responses (NA), fewer AA athletes believed that protein supplementation, or avoiding foods that are low in protein, were efficacious methods for gaining muscle mass. This reveals that although athletes are interested in increasing muscle mass, they may not be using protein supplements. Since anabolic steroid use is not addressed in the survey, it is speculative as to whether athletes obtain adequate protein through methods that are more deleterious. There is evidence of a lack of nutrition education in the Hispanic athletic population, as both AA and NA believed that fat in foods contributed to an undesirable body type. Considering that 33.3% of the AA athletes and 50% of the NA athletes agreed that protein supplements were a viable option for building muscle, product promotion might influence the nutrition education of these athletes. Although the respondents were athletes at Sacramento State, where Muscle Milk sponsors athletic events, this may be representative of athletes at other campuses with active protein supplement marketing.

There are limitations to drawing conclusions from the data collected from this survey due to the methodology of data collection. For example, the survey used questions that are modified from multiple sources, but did not utilize a specific questionnaire with commensurate statistically verified validity as the questionnaires used in Galli et al. 2011; Pope et al. 2000b; and Raudenbush and Meyer 2003. More readily used instruments that quantify symptomology of eating and somatoform disorder symptomology require lengthy administration times for respondents to complete, but would be more accurate in determining symptomology. Thus, the results of this survey may not be sufficient means to declare an incidence of eating or somatoform disorder symptomology in the population surveyed. Additionally, the responses to questions regarding nutrition may not be a valid measure of an eating disorder since athletes may not have adequate nutrition education—rather than an individual with an eating disorder who might have advanced education in nutrition, and thus manipulates their diet to take advantage of certain nutrients.

There are an array of modifications, which could improve the validity of this study. One major improvement would be the generation of sufficient data; the dilemma in this experiment are attributed to the dearth of Hispanic athletes on the campus. Additionally, the assessment of the influence of cultural identity requires a unique experimental method besides a survey addressing respondent’s personal feelings. Identity itself was an ambiguous term in the survey, and an athlete who identifies with their ethnic or cultural identity may still identify as an athlete. Elucidating the origins of masculinity are further complicated since the influence of all of these identities amalgamate in the personalities, beliefs, and consumer choices of the athletes. Additionally, more valid methods of testing for eating and somatoform disorders could improve the response to the hypothesis concerning the prevalence of symptomology. The data are further complicated by confounding variables such as the specific sport of the athlete. Athletes engaged in tennis or rowing may be more concerned with decreasing adiposity than athletes in baseball or football who are more concerned with increasing muscularity.
References


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### From the Fields to College: An Analysis of College Aspirations among Latino Farm Workers

**Rodolfo Rodriguez**

Dr. Manuel Barajas, Faculty Mentor

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#### Abstract

Access to resources that help shape aspirations to go to college is not as readily available to all students; the exposure to these resources is dependent on an individual’s social location and characteristics. According to Bourdieu (1993), the knowledge attained in primary and secondary educational institutions is an important indicator of educational achievement. This study applied Bourdieu’s social and cultural capital theory to examine the decisions of Latino students and non-students to pursue a post-secondary education, specifically those with farm working backgrounds. The researcher conducted seven in-depth interviews and found that although all participants identified a support network, only those who had been involved in a structured college-preparation program attended a four-year university. Furthermore, participants who did not attend college cited other reasons for choosing not to enroll, including financial reasons, pressure to work, and gender expectations.

#### Introduction

Traditionally, education is viewed as the most efficient approach to move up the socio-economic ladder (Neelsen 1975); thus, a significant amount of importance is attached to educational success. In the United States, an individual’s merit, drive, and hard work are emphasized to explain accumulated wealth. However, an individual’s race, class, and gender grant certain members of society more opportunities and resources than others (Collins 1999; E. Ramirez 2012). The privileges granted, tied to social and cultural norms, manifest into social inequalities (McIntosh 1997), including access to institutions of higher education. For example, Latinos/as are the largest minority population in the United States (Camacho 2011); yet, Latinos/as remain underrepresented in universities throughout the nation. In 2011, 13.9% of Latino/as had earned college degrees, in contrast to 30.3% of Whites, 52.4% of Asian Americans and Pacific Islanders, and 19.8% of Blacks (US Census Bureau 2012). Past research has emphasized educational success across all racial and ethnic groups, but little
attention has been given to the experiences of Latino/a students, particularly those with farm working backgrounds.

Latinos/as from farm working backgrounds often have the lowest educational attainment than any other subcategory within the Latino/a community (Huang 2003). They are often less likely to continue with higher education, and those who are foreign born are more likely to drop out of school (Fry 2005). This research investigates the contributing factors that help shape college aspirations among Latino/a farm workers. For the purposes of this research the terms Latino/Latina and Chicano/Chicana are used to identify people of Mexican descent. Specifically, this study focuses on Latinos/as who have an employment history in farm labor and graduated from a California public high school. The researcher chose this sample group because individuals with a farm working background often come from the most marginalized and exploited communities in the United States.

The purpose of this study is to examine the social factors that affect the motivation of Latinos/as from farm working backgrounds and their decisions on whether or not they pursue higher education. This research focused on the question: what factors are associated with the development of academic aspirations among Chicanos/as with farm working backgrounds?

**Literature Review**

Various theories attempt to explain Chicanos/as’ choices about post-secondary education. The themes that repeatedly emerge throughout the literature include: 1) influence of an individual’s socio-economic status, 2) racial and cultural differences that can impede and/or support an individual’s path towards a post-secondary education, 3) institutional academic support, 4) the encouragement and support from family, counselors, teachers and/or significant others, and 5) personal educational aspirations (Maimer 2003; Marin and Marin 1991; Mullen, Goyette, and Soares 2003; E. Ramirez 2012; Sutton Trust 2012). Although the literature presents these themes in a variety of contexts, this research primarily focuses on their application to Chicanos/as with farm working backgrounds and their pursuit of higher education.

Past research has focused on how social and cultural capital has contributed to the levels of educational attainment across populations. For example, Pierre Bourdieu’s (1993) social and cultural capital theory explains how individuals succeed in educational institutions. According to Bourdieu, the knowledge attained prior to entering an institution of higher education is an important indicator of educational achievement. Social capital is defined as the resources available to an individual based on group membership, relationships, or networks of influence and support (Bourdieu 1993). Bourdieu (1993) defined cultural capital as the accumulation of different forms of knowledge, skills, education, or advantage which gives a person higher status in society, including high expectations and aspirations.

Racial minorities, with the exception of some Asian-American groups, have the highest percentages of people living in poverty (Macartney, Bishaw, and Fontenot 2013), and are less likely to have access to social and cultural capital that benefit them while deciding to go to college (Maimer 2003). Research has found a significant relationship between socio-economic backgrounds and overall educational attainment. Research findings reported by the Sutton Trust (2012) found a strong correlation between individuals’ socio-economic status and university attendance. Individuals from a high socio-economic status are twice more likely to attend a university than individuals who come from a low socio-economic status (Sutton Trust 2012). Because Latinos/as, have the lowest per capita income and educational attainment (US Census 2012) they are less likely to have access to the same social and cultural capital that benefit those from higher socio-economic backgrounds (Maimer 2003).

In addition, several studies have emphasized the importance of accumulating cultural and social capital throughout a student’s educational career. For example, Stolzenberg (1994) argues that the aspiration to obtain a higher educational degree is not sufficient for college graduates to continue with their schooling. Although Stolzenberg (1994) focused on students who had already graduated college, he found that educational aspirations were not shaped after their post-secondary education; rather they were developed during their undergraduate experiences. Stolzenberg argues that, “the aspirations for post collegiate schooling either develop or are revised in college” (1067); his research suggests that social and cultural capital evolves in their college career. Similarly, the amount of exposure to academic resources throughout students’ primary and secondary education shapes their social and cultural capital (E. Ramirez 2011). Moreover, although Latinos/as may obtain social and cultural capital prior to attending a post-secondary educational institution, their relations are not necessarily all beneficial in a post-secondary educational institution. They face unique challenges because their social capital is valued according to their race, gender, and class (Collins 2003).

Furthermore, social and cultural capital along intersecting factors of race, gender, and class mediate the academic aspirations of all students, particularly those from marginalized backgrounds, such as migrant farm working students who face extraordinary barriers and deserve substantial interventions. Elvia Ramirez (2012) argues that for a Latino/a the chances of going on to a post-secondary educational institution depend on interconnected factors. Although “race, class, and gender [alone] may be salient in an individual’s experience and/or consciousness, all three forms of inequality are structured into society and impinge on women and men of all racial and ethnic and class backgrounds” (E. Ramirez 2012, 4). An individual
Pursuing higher education, particularly graduate school, is influenced by family background and social capital. Mare (1980) found that educational attainment and success is not random; rather, it is strongly related to family origins. This observation supports Bourdieu’s theoretical analyses of social and cultural capital, i.e., parents who possess more cultural and social capital are more likely to pass that information along to their children. Mare’s (1980) research supports the claim that a student’s social and cultural capital influences whether or not an individual will aspire to pursue a post-baccalaureate degree. Similarly, parents’ education levels influence recent high school graduates’ college choices.

Even when not taking social class and educational background into account, other factors are at play that affect a student’s ability to accept and retain knowledge. McInerney and Chandler (2012) argue that the curriculum in the classroom is often one-sided and skewed because current classroom practices “tend to marginalize or completely exclude the voices of the ‘other’ by way of privileging and socially reproducing the patriarchal, white normative perception of the world” (75). By presenting exclusive information in the classroom, a student may feel disconnected from the educational system. This disconnect can result in an unattractive social location (educational system) and, thus lower their educational aspirations. In addition to the lack of representation within the curriculum, researchers have found that spending time at school increases the opportunity to gain cultural and social capital. Robertshaw and Wolfe (1983) found in a longitudinal study that students who spent more time at school were also the students who achieved higher levels of education. The individuals who spent more time at school were able to expand their social and cultural capital. The social and cultural capital students obtained at school would increase the likelihood of students continuing with their education and were less likely to have a delay or interruption in their education.

In an effort to challenge the unequal representation of Latinos/as in higher education, federally funded programs such as the Upward Bound (UB) Program have been established (Maimer 2003). This program’s goal is to help students who come from a low-income family or who will be first generation college students succeed in precollege performance and ultimately in their higher educational pursuits (US Department of Education 2012). Maimer (2003) found in a cross-sectional study that first generation, low-income students enrolled in the Upward Bound program graduated from high school and were enrolled in institutions of higher education at a higher rate than the students not enrolled in UB. In addition, Maimer (2003) concluded that UB exposed students to cultural and social capital opportunities that the general population would not have access to, such as participation in summer residential programs at college campuses and exposure to university campuses. Maimer (2003) reported that the cultural capital transmitted by UB was important to the participants’
educational outcomes; however, social capital is particularly enhanced with parental discussions and involvement. This places a greater emphasis on parental involvement in a student’s educational career, yet this assumption makes the broad generalization that all parents possess the same social capital. Further, it does not elaborate the kind of parental support being offered, e.g., affective and/or academic. Programs that closely reflect the students’ needs are more effective in structuring academic success.

The College Assistance Migrant Program (CAMP) was created in 1972 by the US Department of Education to increase college enrollment and to ensure first year completion of undergraduate students in post-secondary educational institutions (Migrant Students Foundation 2012). CAMP staff carries out this objective by providing counseling, tutoring, skills workshops, financial aid stipends, health services, and housing assistance to eligible students during their first year of college (US Department of Education 2009). Adrian Ramirez (2012) found in a longitudinal study on CAMP students, that migrant students in the CSU system persisted at a higher rate in the first and second year of college than students who were not in the CAMP program. In addition, Adrian Ramirez (2012) found that CAMP “created a positive learning environment where migrant students felt a strong sense of community” (10). The CAMP program allowed migrant students to accumulate social and cultural capital from the staff and past CAMP participants that helped make new CAMP participants’ transition from a high school environment to a post-secondary educational institution. This notion of social support to foster educational aspirations is not supported by all; the education system in the United States continues to be informed by the ideology of hard work and merit. Although merit, drive, and hard work influence an individual’s success in not only education, but in all competitive areas, social factors also contribute to this success (Tierney 2007). Moreover, the unequal possession of social and cultural capital among different groups of people mediates their academic success.

This section explored literature about the influence of an individual’s socio-economic status, racial, and cultural differences that can impede or support an individual’s path towards a post-secondary education; institutional academic support; the encouragement and help of a family, counselors, teachers and/or a significant other; and personal educational aspirations. All of these factors can lead to frustration, low self-perception, reduced motivation, and eventually diminished college aspirations. Thus, understanding how high school graduates from farm labor backgrounds differ in aspirations and decisions to pursue higher education is important. This knowledge can help inform and guide constructive interventions that can increase the academic success of some of the most marginalized students in the nation.

Methods

This study utilized a qualitative approach to analyze data collected using in-depth interviews. Data for this study were collected from April 16, 2013 to May 15, 2013. This study conducted seven in-depth interviews lasting between twenty to thirty minutes each. All of the interviewees identified as Chicano/a or Latino/a, and had worked in agriculture. The sample frame for the study included two cohorts: The first cohort (Cohort A) identified as college students ranging from 18 to 25 years of age, who were currently attending Sacramento State. The Sacramento State student interviewees were undergraduates and had graduated from a California public high school. The second cohort (Cohort B) consisted of individuals who had graduated high school or had earned their GED but were not attending college, and were also between the ages of 18 and 25. This study used a purposive sampling method and several respondents were selected by a snowball sampling technique. The interviews remained flexible enough to capture the true experiences of the interviewees. The qualitative interviews intended to contextualize students’ experiences and search for an in-depth personal analysis of experiences that a quantitative research method could otherwise exclude and deem not important.

An advantage of using a qualitative technique was the ability to capture detailed experiences not captured by surveys. A qualitative method and a semi-structured interview guide allowed participants to elaborate on their responses. On the other hand, this method brings about disadvantages, such as getting an accurate account from the size of the sample group. The size of the sample was small, and participants were chosen using a snowball sampling technique. Therefore, results could not be generalized.

The study focused on the five factors discussed in the literature reviewed. These include: 1) an individual’s sense of ethnicity and their experiences with racism, 2) their experiences as self-identified farm workers, 3) their K-12 educational experiences related to college-bound courses and academic support, 4) support from close relationships, and 5) their personal educational aspirations. Questions focused on a respondent’s educational and occupational experiences, family’s level of participation in their education, and their motives behind their educational choices after graduating from high school (Please see Appendix A for semi-structured interview guideline).

Results

The following are the results of the interviews conducted in this research. The semi-structured interview concentrated on five variables/themes associated with Chicanos/as with farm working backgrounds and their decision to pursue a post-secondary education.
Experiences with Racism

Out of seven interviews, six participants said they had experienced racism at school. Two out of the seven recalled being called racial slurs, including “beaner” and “wetback.” More specifically, all six participants felt like they implicitly experienced racism. Three of the men interviewed stated they were discouraged to continue a higher education because many teachers labeled them “at-risk” or as “cholos” (gang affiliated). For example, one student from cohort A stated that he felt, “very discriminated against in Coalinga because [he was seen] as a rebel or a cholo.” Another student said that a teacher told him, “you ain’t gonna graduate. You’re gonna turn into a freakin’ gang member and you’re [going to spend your] life locked up.”

Moreover, all the participants said that they did not feel represented in the curriculum. For example, one student told a story about his world history class:

My teacher in high school was German... When we got to the section on US history, she began to start talking about Christopher Columbus and she only mentioned the good things that he did and what good contributions the pilgrims made. But after the class I asked her, “...weren’t the pilgrims [a] part of the reason why the Native Americans got killed?” and she asked me where I learned that. I told her, “there is a library near my house and I go there and I learn about these things.” Then I asked her “why are we not learning about these things?” and she told me, “it is not in the curriculum... it’s not relevant.”

Three students from cohort A felt that teachers and counselors held “lower expectations” for Latino/a students. Although some interviewees did not mention experiencing racism while in school, they did implicitly describe racist situations in which the white students were treated better. One student mentioned that her counselor continued to place her in “lower division classes,” until teachers would test her individually to move her to an upper level course.

Socio-economic status and occupational background

When participants were asked questions regarding occupational background all participants stated that they worked in agricultural jobs at a very young age (as early as the age of seven). Some participants continued to work in agricultural labor in the summer when they were not enrolled in college courses. For example, two students had worked during the summer of 2012 in packing houses and in the fields. One student said, “we would pack up the boxes, [that needed to be] delivered to the big city like San Francisco [or] Berkeley.” All participants reported agricultural labor as being difficult.

Although, none of the participants felt pressured to work full-time during their K-12 experience, four out of seven of the respondents occasionally would miss school to work. All students who missed school identified as male, and both male participants from cohort B remember missing school in order to work at restaurants.

Educational background and academic support

Three out of the four interviewees from cohort A reported participating in honors, college-preparation, and/or college-bound programs while in high school and the fourth participated in a Student Support Services program (SSS) at community college. Two participants from cohort A participated in the Advancement Via Individual Determination (AVID) program, Mathematics Engineering Science Achievement (MESA), Educational Talent Search (ETS) and/or Advancement Placement (AP) classes in high school. Another interviewee participated in the Gifted & Talented Education (GATE) program and an Upward Bound (UB) program their first year in high school and the last stated to not have received any information about 4-year universities until attending a community college. For example, one student mentioned that she had been a part of several programs in her first year of high school and had the opportunity to attend college courses prior to enrolling: “In the summer, [I] took classes at UC Davis, [and] my sophomore year I took classes at Woodland Community College.”

Out of the three interviewees from cohort B, none reported to have participated in any college-preparation programs while in high school. All reported that they had not been exposed nor informed about these types of programs while attending high school.

Encouragement and Support (i.e. family, counselors, and/or teachers)

All seven participants identified at least one individual that encouraged them to pursue a college degree. All students from cohort A, with the exception of one who did not receive mentorship until enrolling into a community college, identified at least one high school counselor or teacher that assisted them with questions regarding college. All students received mentorship from an individual (counselor or teacher) associated with structured programs including AVID, UB, AP courses, and SSS. Further, two out of the four students had support from siblings and/or uncles who had previously earned college degrees. Although all individuals in cohort B identified a teacher or counselor who encouraged them, none of the counselors nor teachers were involved in a structured college-bound program. Furthermore, both men interviewed as part of cohort B mentioned that although they received encouragement from school-related staff, they felt more pressure to work than go to school upon graduation. The woman interviewed did not identify pressure to work as a factor, but did mention that she felt pressure to stay home because she was the only woman in the family and feared to leave her mother alone with all the household responsibilities.

Aspirations to go to college

Although not all participants were currently enrolled in an institution of higher education, they all felt that getting an education was important for many reasons, including elevating the Chicano/a community and preparing for future
generations. Furthermore, none of the participants explicitly mentioned income (for themselves) as a motivation to continue to go to college. Rather, four out of seven participants mentioned that pursuing a higher education was important to their personal growth and the advancement of their communities. For example, one student said,

*I must be an open-minded individual in order to share this information with my family. It is important to get an education, but do it right. What good is it to get a degree and not know anything else outside my discipline. I need to grasp as much information as I can in order to educate not only myself, but others.*

**Discussion**

Prior to conducting the interviews, the researcher had two questions: 1) Are Latinos/as with farm working backgrounds who have had parental involvement in their primary and secondary education more likely to continue with higher education? 2) Are Latinos/as with farm working backgrounds that are enrolled in college-bound programs more likely to continue with higher education? Past research has focused on how parental involvement shapes students aspirations (Hanson 2002; Hossler and Stage 1992). Moreover, the current study found that encouragement and support (provided by family, counselors, and/or teachers) along with enrollment in college bound programs, have a profound effect on college aspirations among Chicanos/as with farm working backgrounds.

Ceja (2006) notes that Latinos experience low four-year university attendance rates and are also more likely to be first generation college students. The amount of social capital parents could pass on to the students; thus, is limited (Ceja 2006). For example, six of the seven participants reported having parents who had a high school diploma, GED or lower than high school education. Mare (1980) found that family background is an important indicator of an individual’s educational outcome. In another study, Sewell and Shah (1967) state that highly educated parents are positively and significantly related to parental encouragement, college plans, college attendance, and college graduation. Moreover, most participants in the current study described parental involvement, as well as receiving support from siblings and/or uncles who had previously obtained a college degree. While most respondents shared that their parents were willing to help them through school, their “parents lacked a formal understanding of the college choice process” which impeded the amount of help they could offer their child (Ceja 2006, 101). This lack of formal understanding is challenged by some interviewees when they state the reason their parents were not involved in their education was not “because they were bad parents but because they were always really busy working trying to make enough money to pay for the house and trying to keep food on the table.” In this case, social class was a major factor in parental involvement among Latinos with farm working backgrounds.

Conversely, Robertshaw and Wolfe (1983) attribute students achieving higher levels of education to the amount of time students spent in school. Although an individual may spend a longer amount of time in school, it this does not necessarily mean that the knowledge acquired is beneficial to a student’s self-identity and college aspirations. All seven respondents reported not being able to relate to the curriculum presented in the classroom. The students’ detachment from the curriculum is consistent with McKnight and Chandler’s (2012) findings in which they state that classroom curriculum is reproducing “the patriarchal, white normative perception of the world” by marginalizing or completely excluding the voices of the other (75). Some interviewees reported hearing information relevant to their life only when they had a Latino/a teacher, while another interviewee reported hearing more information presented in the classroom that was relevant to their life only after he had transferred to the university. McKnight and Chandler’s (2012) study illuminates the gaps between the one-sided curriculums taught in the public educational system and the large and growing diverse population of the US.

In an effort to try to close the educational gap amongst the different races and ethnicities, some programs have been established (US Department of Education 2013). All seven participants in this study identified at least one individual that encouraged them to pursue a college degree; however, only interviewees from cohort A reported that the individuals encouraging them to continue with higher education were part of a structured college preparatory program. Maimer (2003) found that individuals enrolled in college preparatory programs (such as Upward Bound) were more likely to be exposed to social and cultural opportunities than that of the general population. Coincidently, although six of the seven participants reported being involved in some sort of school related group (e.g., organization, club, program, or sport) only four of those interviewees continued on to an institution of higher education. The four interviewees who are attending an institution of higher education shared a commonality: participation in a college preparatory program prior to entering California State University, Sacramento. The findings reiterate the importance of college bound programs that have been highlighted in past research (Maimer 2003; Myers and Schrim 1999; Perna 2002) and the importance of continual funding of programs that assist individuals who come from disadvantaged backgrounds.

Elvia Ramirez (2012) argues that for a Latino/a, the chances of going on to a post-secondary educational institution depend on interconnected factors, such as race, class, and gender. The current study found intersecting factors in participants’ decisions to continue with higher education. Four of the seven respondents reported not being taken seriously because of their race. One
respondent stated: “I would ask a question and they would ignore me ... [but if a person of another race] would ask the same question they would answer their question but not mine.” Five of the seven respondents attributed socio-economic status (SES) as an obstacle in their educational career. Four of the former respondents reported having to miss school in order to work, while all five reported having to miss either high school or continuing with higher education because they felt they had to help their struggling families.

This strong sense of family unity or *familismo* (Marin and Marin 1990) can be problematic. Marin and Marin (1990) describe the strong feeling of loyalty, responsibility, and solidarity within the Latino family unit as causing discrepancies in Latino/a students’ educational aspirations. One respondent reported not wanting to continue with higher education because she was “the only girl [and] was not going to leave [her] mother alone!” Others reported having to take care of younger siblings instead of taking college courses during high school, and one interviewee reported abandoning his educational aspirations because he became the head of the household soon after graduating from high school. These overbearing factors are at times out of the students' control, but students and their families are still often blamed. Students are often, by no choice of their own, born into unequal social conditions created by unequal social relations (i.e., race, class, gender) and deal with their situations in the best way they can.

College bound programs and student support services were shown to be a factor in determining whether an individual continued on with higher education. However, these programs are often limited in space, only allowing a certain number of students into the program while turning away others. These programs also tend to enroll participants based on academic performance, which is problematic for it is through these college bound and college preparatory programs that participants often gain the social and cultural capital needed to succeed in institutions of higher education (Maimer 2003).

**Limitations**

This study consisted of a small and non-representative sample of Latinos/as. All of whom identified as being Mexican or Mexican American and had some history of laboring in agriculture. The participants for the study consisted of seven individuals who were separated into two different cohorts. Four of the seven were CSU Sacramento undergraduates whereas the remaining three participants were from the perimeters of Fresno County, which is located in central California. Due to time constraints, the researcher was unable to obtain the same amount of participants from the Fresno County cohort as the researcher did for the Sacramento State undergraduate cohort. The data collected is not generalizable to all Latinos/as with farm working backgrounds. The goal of this study was to identify factors as to why Latinos/as with farm working backgrounds decide to continue with higher education rather than focusing on Latinos/as in general. In addition, because the researcher has his own biases and opinions, the data being presented can be skewed or misrepresented.

Although this study sheds light on some of the factors that help shape the college aspirations of Latinos/as with farm working backgrounds, more research on this subject is needed. Future research would benefit from examining other variables such as gender and how it intersects with other factors to shape academic experiences and successes. Also, a comparison between family members (i.e., siblings), particularly between family members who pursued a college degree and those who did not could potentially provide a more comprehensive understanding of college aspirations. Furthermore, future studies should also focus on the way social structures impede the college aspirations among Latinos/as with farm working backgrounds.
References


6. Do you consider your parent’s occupation an agricultural job?
   ______ Yes ______ No

7. Did your family immigrate to the United States after the 1950’s?
   ______ Yes ______ No

If yes, what best describes your generational status?
(1) ______ Born outside of the United States
(2) ______ First-generation
(3) ______ Second-generation
(4) ______ Third-generation
(5) ______ Other

(Cohort A: Sacramento State Students)

RACE (IV):
1. Did you ever experience racism in school?
2. Have you ever been discouraged from participating or completing something because of your race?

GENDER (IV):
3. Did you ever have to take care of your siblings or other individuals at a young age?
4. Were you ever discouraged from continuing school because of your gender?

EDUCATIONAL BACKGROUND (IV):
5. Did you have all the necessary school materials growing up?
6. What was the ethnic demographic of your high school?
7. Did you find the curriculum being presented at school relevant to your life? (i.e., your history, culture?)
8. What were your feelings regarding the school environment? (Did you ever feel that you were not wanted?)
9. Did you believe everyone was treated the same in school?
10. Were you involved in any organization or programs during your high school educational life?
11. Did you ever take any college courses while you were in high school?
12. Where you involved in any college bound programs?

OCCUPATIONAL BACKGROUND (IV):
1. Are you currently employed? If so, where? If not, why not?
   a. at what age did you begin to work?
2. Have you ever worked in the agricultural business?
   a. If so, when was last time you worked in the agricultural business?
3. Where you at any moment the head of the house hold? (The only person at home paying the bills?)
4. Did you ever have to miss school in order to work?

ASPIRATIONS TO GO TO COLLEGE (DV)
1. Were there any individuals that encouraged you to continue with higher education?
2. If so, who and how did they motivate you?
3. Can you remember the moment you decided to continue with your higher education?
4. How important is higher education to you?

(Cohort B: General Population)

RACE (IV):
1. Did you ever experience racism in school?
2. Have you ever been discouraged from participating or completing something because of your race?

GENDER (IV):
1. Did you ever have to take care of your siblings or other individuals at a young age?
2. Were you ever discouraged from continuing school because of your gender?

EDUCATIONAL BACKGROUND (IV):
1. Did you have all the necessary school materials growing up?
2. What was the ethnic demographic of your high school?
3. Did you find the curriculum being presented at school relevant to your life? (i.e., your history, culture?)
4. What were your feelings regarding the school environment? (Did you ever feel that you were not wanted?)
5. Did you believe everyone was treated the same in school?
6. Were you involved in any organization or programs during your high school educational life?
7. Did you ever take any college courses while you were in high school?
8. Where you involved in any college bound programs?

OCCUPATIONAL BACKGROUND (IV):
1. Are you currently employed? If so, where? If not, why not?
2. At what age did you begin to work?
3. Have you ever worked in the agricultural business?
4. If so, when was last time you worked in the agricultural business?
5. Where you at any moment the head of the household? (The only person at home paying the bills?)
6. Did you ever have to miss school in order to work?

ASPIRATIONS TO GO TO COLLEGE (DV):
1. Were there any individuals that encouraged you to continue with higher education?
2. If so, who and how did they motivate you?
3. Did you consider pursuing higher-education? Why/why not?
4. How important is higher education to you? Did you ever have to take care of your siblings or other individuals at a young age?
5. Were you ever discouraged from continuing school because of your gender?

EDUCATIONAL BACKGROUND (IV):
1. Did you have all the necessary school materials growing up?
2. What was the ethnic demographic of your high school?
3. Did you find the curriculum being presented at school relevant to your life? (i.e., your history, culture?)
4. What were your feelings regarding the school environment? (Did you ever feel that you were not wanted?)
5. Did you believe everyone was treated the same in school?
6. Were you involved in any organization or programs during your high school educational life?
7. Did you ever take any college courses while you were in high school?
8. Where you involved in any college bound programs?
US Foreign Direct Investment and Mexican Immigration

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Abstract

The purpose of this study is to show the correlation between foreign direct investment from the United States to Mexico and the effects it had on Mexican immigration to the United States during 1990 to 2000. The case study shows that neoliberal policies, like foreign direct investment, have failed to establish a stable economy in Mexico due to the unequal distribution of foreign direct investment funds within Mexico. As a result of this failure, immigration increased to the United States due to neoliberal policies in Mexico conditioned by the United States.

Introduction

From 1990 to 2000, the United States saw an enormous wave of Mexican immigration. In 1991, 370,000 Mexicans immigrated to the United States. In 1995, that number jumped to 570,000, almost doubling. From 1996 to 2000, a similar trend occurred from 490,000 to 770,000 immigrants in the beginning of the 21st century (Pew Hispanic Center 2013). The question in everyone’s mind was why was there such an increase of Mexican immigration to the United States? Immigration from Mexico to the United States has been a topic often misunderstood by scholars, politicians, and ordinary citizens. The most accepted view regarding Mexican immigration is Push-Pull theory, which suggests that people independent of external forces choose to emigrate from Mexico, a developing unstable nation, to the United States, a developed stable nation (Barajas 2009). Push-Pull theory is a commonly used theory in the United States because of its simplicity and common sense core. A second view, the historical structural perspective, sees the emigration of Mexican citizens to the United States as a complex topic dealing with several factors like US political and economic influence over Mexican politics. As explained by Garcia Bedolla, “One important and often overlooked structural constraint related to immigration patterns is the US political and economic involvement in the country of origin” (2009, 50). During this period, foreign direct investment by American corporations increased significantly in Mexico from 2,549,000,000 dollars in 1990 to 9,526,290,000 dollars in 1995 and reached 18,110,008,381 dollars in 2000 (Secretaria de Economía 2013). Foreign direct investment is one important way in which the United States has been able to influence Mexican politics (Garcia Bedolla 2009). In order for Mexico to receive any investment, Mexico had to open its market to American businesses, something that did not occur in Mexico until the 1982 Debt Crisis (Steger and Roy 2010).

The historical structural perspective focuses on the explanation of exploitation that takes place between nations and classes. The Neo-Marxist approach of World-Systems, explains it as the unequal exchange of surplus value and products between the United States (the core) and Mexico (semi-periphery); (Wallerstein 2004). It is through the unequal exchange between the United States and Mexico that best explains why there was such an increase in the number of Mexican immigrants to the United States from 1990 to 2000. World-Systems theory looks at immigration as a process that occurs for the benefit of the United States since capitalist systems travel through a cycle of economic downturn that can be overturned through cheap, dependable, and exploitable labor from the developing world (Cheng and Bonacich 1984). World-Systems also points to the exploitation of the developing nations by the developed nations through the unequal exchange that leads to continual dependence (Wallerstein 2004). The movement of Mexican immigrants from 1990 to 2000 can be explained by the unequal exchange between the United States and Mexico, which benefitted the United States at the expense of the Mexican laborer once in the US labor force.

The significance of a structural analysis on Mexican immigration provides a greater understanding of Mexican immigration by explaining how US foreign economic policy influences immigration as much as individual choice. The study on foreign direct investment, from its origin and evolution, to whether it enhances or undermines economic development in less-developed countries, is a standard part of international political economy. However, the relationship between foreign direct investment and immigration has been studied much less; this research will contribute to the study of foreign direct investment and immigration. Finally, the evolution of the World-Systems theory of unequal exchange, from raw materials for manufactured products to the unequal exchange of foreign direct investment for immigration labor, argued in this present article, is a unique contribution to the study of Marxism.

This research supports its argument in five parts: the following Literature Review section analyzes the relevant theoretical approaches to studying foreign direct investment and immigration. The Methodology section uses a linear regression to establish a correlation between foreign direct investments and Mexican immigration from 1990 to 2000. Additionally, it also uses a case study on secondary sources of foreign direct investment and immigration to explain the correlation, while adding a qualitative explanation to foreign direct investment in Mexico and how it conditions immigration to the United States. Then, the
Results section will outline the findings of the multiple methods leading to the Discussion section that explains the nexus of foreign direct investment -- immigration-exploitation. In this section, three key points (the United State's involvement with the immigration process, unequal exchange between the United States and Mexico, and the exploitation of Mexican laborers in the United States) are outlined by the theoretical framework of this article with an emphasis on the case study of exploitation of Mexican immigrants in the California agricultural industry. The driving question behind this research is -- does foreign direct investment correlate with Mexican immigration patterns to the United States from 1990 to 2000?

**Literature Review**

Migration of people across lands has occurred since the evolution of the human species. In the present 21st century, theories have developed to explain why people choose to migrate from their home countries to new and at times different, host countries. Push-Pull theory, associated with neoliberalism, focuses on the individual as the primary agent and the sole decision maker. Push-Pull theory explains that rational individuals migrate from their home countries because of negative "push" factors; they are then "pulled" into host countries by positive factors. Structural theory, associated with World-Systems, emphasizes the relationship of the receiving and sending countries. According to the theory, people migrate to specific countries due to the relational ties that those countries hold with their home countries. In Latin America, the United States has had a strong presence both politically and economically. Mexico is a clear example of such influence, especially during the late 1980s and 1990s.

Neoliberal economics looks at the benefits that both the Global North and the Global South receive when they interact in the free market. International economic relations for neoliberals are a positive-sum gain for both the North and South since each one receives indispensable products that are important to their growth (Cohn 2005). The core tenets of the neoliberals are financial liberalization, competitive exchange rates, trade liberalization, promotion of foreign direct investment, privatization of state enterprises, deregulation of the economy, and protection of private property (Steger and Roy 2010). Through the implementation of the tenets, a neoliberal argues that developing nations from the Global South can achieve independence and economic stability. For a neoliberal, the Global South is dependent and underdeveloped because of irrational policies that promote protection of the domestic market and thus produce firms that do not need to innovate since they have no competition (Cohn 2005). Looking at Mexico before President Miguel de la Madrid (1982-1988) and President Raul Salinas (1988-1994), Mexico was a strongly protectionist country; the government played a major role with multiple government enterprises and protected its industries from foreign firms. Trade barriers and tariffs made it difficult for foreign companies to grab hold of the Mexican market. During this time, Mexico was going through an economic downturn; high inflation and slow growth led the way to the 1982 Debt Crisis that prompted Mexico to default on its loans. Once in office, President Salinas moved Mexico to the far right by accepting the Washington Consensus, a set of agreements that nations must approve before receiving loans from the United States, in exchange for bailout loans. The Washington Consensus forced Salinas to end Mexico's protectionist position and open up Mexico's domestic market to foreign competition. Later on, Mexico would take an International Monetary Fund (IMF) bailout of $40 million in exchange for austerity measures that ended social programs for Mexico's poor communities (Steger and Roy 2010). Ultimately, Mexico did stabilize using the tenets of the neoliberalism, but at a high cost to the working and poor classes.

Push-Pull theory focuses on a micro level analysis of why people migrate to different countries. Rational individuals and families ultimately make the decision to leave their home countries and move to wealthier developed countries. Micro level analysis of migration looks solely at individuals whom realize that in their current state of affairs they lack wealth, jobs, social programs, and necessary goods like food. Push-Pull theory explains this point as the push, people realize that they have no prospects of a better life and so they decide to leave (Barajas 2009, 28). The focus of Push-Pull theory is in the current state of affairs that migrants face in their home countries without analyzing the historical connections between the two nations. In developing countries people have very few opportunities to have a stable life since there are few social resources available to the public. Thus, people look to developed countries like the United States to migrate in search of jobs, economic stability, and social services. For a Push-Pull theorist these conditions are the pull, "...individuals realize that there are more jobs, higher wages, social services, political freedoms, and so forth in America (the pull)" (Barajas 2009, 28). Rational individuals analyze the current circumstances that they face in their home countries and come to realize, that according to Push-Pull theorists, they can migrate to the United States for a better state of affairs in which they can create a stable life for themselves and their families.

Push-Pull theory's simplicity has not only made it popular but faulty as well. Push-Pull theory lacks a macro level analysis of why migrants’ home countries, especially Latin American countries, lack social services, jobs, and political freedoms. Push-Pull theory lacks a historical analysis of why people migrate to a specific country. As explained by García Bedolla, “in popular discourse, immigration is described as a personal decision made by an individual or family, with little consideration of the macroeconomic context that influences that decision” (2009, 50). The theory does not account for the negative effects left in Latin America by the colonial period. Colonizers extracted raw materials...
from Latin America, which helped Europe develop while impoverishing Latin America. Today, Latin America depends on the United States and Europe to manufacture Latin America's raw materials into finished commodities; then Latin America buys those finished commodities at double the price of what the United States and Europe purchased the raw materials. The open door policies of neoliberalism have created poverty and dependence of Latin America on the United States and Europe. For example, “The 1994 North American Free Trade Agreement (NAFTA) formalized ‘free trade’ between the United States, Canada, and Mexico yet particularly disadvantaged Mexico’s domestic industries in manufacturing and agriculture” (Barajas 2009, 31). The open door policies of neoliberalism have negative effects on the Mexican and Latin American economies, small Latin American farm workers are put out of employment by the subsidized cheap commodities of American farm workers, Push-Pull theory ignores such historical ties; however, the historical connections of receiving and sending countries are important since they can help explain why people migrate in such large numbers to a given country. For example, “They (neoliberals) fail to provide a sufficient explanation of mass migration and to elaborate the historical-structural relationships between the sending and receiving societies” (Barajas 2009, 28). The United States has and continues to be involved in Latin American affairs influencing and molding the societies of Latin America. In return, Latin Americans are negatively affected forcing some to migrate to the United States. Such limits of Push-Pull theory are explained and addressed by Structural theory. 

Structural theory, an alternative to Push-Pull theory, focuses on the historical ties of the sending and receiving nations. Under Structural theory, the level of analysis is a macro analysis; policies enacted by developed nations usually have negative effects on the economies of the developing nations (Barajas 2009). Such effects displace workers of the developing nations forcing them to migrate into the specific country that displaced them. The historical ties involved between Latin America and the United States are capital imperialism of the United States over Latin American nations. The neoliberal policies of the United States have created conditions for the involvement and intervention of US forces, economic and military, in the affairs of Latin American nations. For example, Barajas explains that Structural theory “highlights the causal relationship between capital mobility and labor migration, including how military interventions, labor recruitment, and foreign investment displaces people from their homelands and directly contributes to large-scale migration of both capital and workers” (2009, 29). Mass migration occurs with respect to policies that impoverish Latin American nations. Latin Americans are forced by those policies to leave their homelands and migrate to the specific country that is involved with the impoverishing of their nations in search for stable jobs and lives.

Migration of individuals is not a random act by people from developing nations; they are not able to pick up their goods and move to a developed nation whenever they please. People are forced to migrate out of their home country in search of wealth to be able to feed their loved ones. Structural theory’s analysis of the historical/relational ties allows one to notice the inequalities created by the policies of the neoliberal nations. For instance, “Neocolonized nations produced for the neocolonizers, respond to their consumption needs, borrow credit/capital from them to produce for them, and continuously fall deeper into debt while creating wealth for the neocolonizer elites and the neocolonized intermediaries” (Barajas 2009, 30). Imperial powers continue to dominate world political affairs through a new form of domination. Developed nations continue to have influence over developing nations by intervening in the internal affairs of those developing countries. In the Western Hemisphere, the United States claimed that it had the right to intervene in Latin American affairs for the national security and interest of the United States. For example, during the early 1900s, the Monroe Doctrine prohibited any European country from colonizing Latin America and the Roosevelt Corollary claimed that the United States would intervene in Latin American affairs for the purpose of US national security (Garcia Bedolla 2009). The dominance of developed nations over developing nations continues to produce unjustified displacement of workers who have no social resources available to them. Workers are forced to migrate in search of those social resources in the nation that displaced them. As a result of Latin American migration to the United States, the United States has been able to produce wealth by exploiting laborers of their surplus value. Thus, the United States continues to create wealth while Latin American nations remain in poverty.

The United States’ direct involvement with Latin American affairs has had an impact with mass migration of labor to US societies. In Mexico during the Porfiriat period, the United States invested heavily in the reconstruction of the Mexican economy. For instance, “By 1900 US companies owned 80 percent of Mexican railroads, 75 percent of mining and 50 percent of oil fields” (Garcia Bedolla 2009, 52). The United States was directly involved in the economic affairs of Mexico, running the important industries that the Mexican economy could have used to lift itself from poverty. However, the direct involvement of the United States created displaced workers who looked to the United States for work and stability. A similar trend occurred in Central America as well as in the Caribbean. As a result, Central Americans, Caribbeans and Mexicans migrated in mass numbers to the United States in search of economic justice and a stable life (Garcia Bedolla 2009). United States’ intervention has created conditions for Latin American migration; the neoliberal policies of the United States invite cheap labor from Mexico and Central America to the American work force.
To expand on the structural theoretical framework, Marxism and Neo-Marxist literature focuses on the relations of the different classes within a society and the global community. For Marx, the working class is subject to exploitation by the capitalist class, who controls the production forces. The expropriation of surplus labor value is the ultimate form of exploitation (Marx [1848] 1994). For Wallerstein, such a process of exploitation also occurs on a global scale through unequal exchange. Through unequal exchange, core states gain access to periphery and semi-periphery markets enabling exploitation on a larger scale (Wallerstein 2004). Contrary to the neoliberal belief of positive-sum gain, the benefits that both developed and developing nations gain when they interact through free trade that is not regulated by governments (Cohn 2005). Expropriation of surplus labor value and unequal exchange theory provide the theoretical framework used in this article to explain Mexican immigration and provide a window into the lives of the exploited. Ultimately, North-South relations are a key point in the examination of Mexican immigration as a byproduct of Mexican-American economic interdependence.

World-Systems theory looks at the global economy and North-South relations as the main structures in which exploitation of the periphery and semi-periphery occur by the core. Periphery and semi-periphery are developing nations located in the Global South. These nations are dependent on core nations since they do not obtain the means of production to create the necessary goods to sustain themselves (Wallerstein 1974). By contrast core nations are fully developed countries found in the Global North that are independent (Wallerstein 1974). Both the Global North and Global South are within a capitalist world-economy, which is “...a large geographic zone within which there is a division of labor and hence significant internal exchange of basic or essential goods as well as flows of capital and labor” (Wallerstein 2004, 23). The world-economy is a capitalist system because the accumulation of capital is given priority above all else (Wallerstein, 2004). Through the economic interaction of the core states and the periphery states the process of unequal exchange occurs in which core states gain surplus value from the periphery that is then subject to continued dependence. For instance,

Once we get a difference in the strength of the state-machineries, we get the operation of ‘unequal exchange’ which is enforced by strong states on weak ones... Thus, capitalism involves not only appropriation of the surplus-value by an owner from a laborer, but an appropriation of surplus of the whole world-economy by core areas (Wallerstein 1974, 65).

The Global North has been able to expropriate surplus value from the Global South through the economic interactions that favor the North over the South. The unequal exchange has manifested itself in Mexico through the exchange of loans for the restructuring of the Mexican economy to model a neoliberal economy. Prior to 1990, the Mexican economy went through a process of economic cycles that led to the Debt Crisis of 1982 due to the government taking loans from banks for development. In return, the Mexican population received a debt that could not be paid creating the debt crisis in which Mexico’s way out was to accept an austerity loan. The austerity loan forced the opening of the Mexican economy in exchange for monetary support, creating competition within Mexico and displacing laborers due to cheaper products from the United States (Steger and Roy 2010). This research argues that unequal exchange has evolved from this monetary-structuring face, to the unequal exchange of foreign direct investment for raw labor. After the opening of Mexico’s market, foreign direct investment from American companies flooded Mexico at the same time that immigration from Mexico to the United States increased. Mexico during 1990 to 2000 received foreign direct investment from the United States and the United States has in exchange received cheap labor from Mexico.

Marx’s theory of exploitation shows how Mexican laborers have been exploited throughout the history of US-Mexican relations. The expropriation of surplus labor value by the capitalist class over the working class is manifested through the transaction of wages for labor and the output of capital. For example, Marx writes that wages are the money that a capitalist gives to a worker in exchange for the worker’s labor, labor then is a commodity (Marx [1848] 1994). A worker sells his labor to the capitalist who then pays for that labor commodity that will produce capital for the capitalist. Marx further noted that for the laborer, the wages paid to him enables him to live for another day, half of that day spent laboring for his continuity as a laborer (Marx [1848] 1994). On the other hand, the capitalist receives the creative ability of the laborer, his labor power. For instance, “...the capitalist receives in exchange for his means of subsistence labor, the productive activity of the worker, the creative power whereby the worker not only replaces what he consumes but gives to the accumulated labor a greater value than it previously possessed” (Marx [1848] 1994, 257). From the interaction of the capitalist and the worker, the capitalist is able to maintain the worker as a laborer by paying him a wage for his labor and in return, the capitalist receives the wage and more from the labor of the worker. This is Marx is the greatest form of exploitation. The worker is only paid for his labor up to a certain amount. The labor of the worker however produces for the capitalist what he has paid for and in addition, surplus value in which the capitalist has full control of while the worker has no say. This is known as the expropriation of surplus labor value (Marx [1848] 1994). Mexican laborers are subject to this form of exploitation once they are in the US labor force. Mexican laborers are paid low wages and in return, their labor produces large amounts of value for American businesses.

The historical structural literature provides a clear understanding of why Mexican people immigrate to the United States. World-Systems theory provides a critical
view of the role the United States has had on the immigration of thousands of people to the American workforce through the unequal exchange of foreign direct investment for raw labor. The expropriation of surplus labor value shows how American businesspersons have exploited Mexican laborers who produce capital for their continual existence. Neoliberalism cannot provide a clear explanation of the immigration phenomenon that has affected the United States, on the contrary their tenets state that immigration from Mexico should stop with the implementation of neoliberal policies. The Neo-Marxist and Marxist literature provide a theoretical framework to examine and explain the Mexican immigration of the 1990s to 2000.

Methods

Why does Mexican immigration flow to the US? The research question is interesting for the reason that immigration patterns can be traced to external factors that correlate with the decisions people make when emigrating from their home country to a new country. This research will focus primarily on the World-Systems theory, which states that developed countries dominate developing nations for the purpose of receiving surplus value and becoming dominant core nations (Cohn 2005). The present study uses a multi-method approach—a linear regression to establish significance between the independent and dependent variables and a case study to document specific examples of the relationship between foreign direct investment and Mexican immigration. The focus of this research is the study of multinational corporations and their use of foreign direct investment in one or more countries, as well as immigration of Mexicans to the United States. Multinational corporations are described as “...firms that control productive assets in more than one country. Parent firms in the home countries of multinational corporations (MNCs) acquire foreign assets by investing in affiliate or subsidiary firms in host countries” (Cohn 2005, 313). These corporations invest in other countries’ firms to gain profits for themselves while investing in the infrastructure of the host country. There are two primary ways in which MNCs invest in other countries, the first is through foreign direct investment, and the second is portfolio investment. For the purpose of this study, the research will focus on foreign direct investment. Direct investment pertains to the notion that the corporation that invests in a host country gains the majority control and management rights over the productive assets of the corporation in the host country (Cohn, 2005). The study of MNCs in Mexico will take place from 1990 to 2000. The study of the MNCs will be through secondary sources that look at where the investment goes, to what type of production, and the geographic location of the investment.

The linear regression model was chosen since the study of foreign direct investment and immigration is a one-way case. That is, the amount of foreign direct investment correlates with the amount of immigrants emigrating from Mexico to the United States. That is to say, the amount of immigrants emigrating to the United States does not dictate the amount of investment the US sends to Mexico, the causal arrow only goes one way. The linear regression model is also applicable to this study since the dependent variable is at the interval level. Both the independent and dependent variables are numbers that are in order and they have exact values. This is important since the regression can only work when the variables are strictly numbers with value. Using data from The World Bank Group (2013), the amount of investment by the United States in Mexico during 1990 to 2000 (independent variable) was entered into Statistical Product and Service Solutions (SPSS). For the dependent variable, Mexican immigration, data for the same years were retrieved from the Pew Hispanic Center (2013). The SPSS system ran the test with the dependent and independent variables.

The case study will show foreign direct investments’ impact on the Mexican society. The case study should indicate if there are positive or negative effects; the sectors of the Mexican economy in which foreign direct investment has gone; and if employment opportunities have been created. The case study will also look at immigration, the patterns of immigration, which people immigrate, and from what parts of Mexico; as well as what job prospects immigrants encounter once in the United States and what jobs they leave behind. For the case study, the research explored secondary sources written on the subject of investment, the geographic location receiving the investment, that is, if the investment is concentrated in the northern or southern regions of Mexico, and what type of industries receive the investment, whether it is banks, textile or agrarian firms. Navigating through the web, articles were found that documented US foreign investment in Mexico. The articles point out that firms and regions receive unequal shares of foreign direct investment.

The main hypothesis is that as US investment increases, Mexican immigration to the United States will correlate. The hypothesis might be correct since Mexican immigration has been increasing from 1990 up to 2000, at the same time that US investment increased during the same period. Under the tenets of the World-Systems theory, people immigrate to the country that is sending the investment since it creates a pathway to that country. The firm brings with it representatives of the home country, which is often a capitalist nation, that requires cheap labor for the creation of surplus value within its own country (Cheng and Bonacich, 1984). Mexico is a developing nation that has come to depend on the US market for economic growth and stability; however, the United States has also come to depend on the Mexican laborer who has been exploited working in the agrarian and construction industries of the United States. Under NAFTA, new investments have entered Mexico causing displacement of low and middle class
A strong independent variable is highly significant with a p-value below .001. The results explain why Mexican immigrants migrate. The results also show that the independent variable, Foreign direct investment accounts for 76.6 percent of the variation in the dependent variable. The linear regression results came out positive and support the main hypothesis. The correlation between foreign direct investment and Mexican immigration is positive. The positive correlation supports the main hypothesis that as foreign direct investment increases, so does Mexican immigration from Mexico to the United States. The case study results show that foreign direct investment is concentrated by region and in economic sectors. From 1990 to 2000, the main center for foreign direct investment was in central Mexico and in the northern states. The dataset is strong but it has some limitations due to the nature of studying private MNCs. The strengths of the dataset are that there are no missing data for both the dependent and independent variables. For the linear regression, the dataset is strong since the data are in interval form. Interval data allow SPSS to operate complex regressions that can show if the variables used correlate with each other, how significant the independent variable is, and how much of the variation is being explained. The correlation pertains to the idea that the independent variable is influencing the action of the dependent variable; in this case, that foreign direct investment influences the flow of immigration from Mexico to the United States. The significance pertains to whether the independent variable being used in the regression is applicable to the dependent variable. Finally, the variation shows how much of the dependent variable is being explained by the independent variable. The limitations came in the case study; MNCs are private entities that do not have to publicly display their finances or actions. As explained by Cohn, “As private enterprises, MNCs are reluctant to provide information about themselves, and they are adept at obscuring their activities” (2005, 314). This is a limitation for the case study since there is not much public data on the investment and activities that MNCs are performing in Mexico. Another limitation is that the numbers gathered for immigration are also limited since countries do not document illegal immigration. There are only estimated numbers by the United States and other agencies on how many immigrants enter the United States each year. The number of immigrants is also an aggregate number; it does not distinguish between a laborer and a highly skilled laborer. This is important since the research can be much more detailed in exploring a specific group of immigrants like laborers.

**Results**

The linear regression results came out positive and support the main hypothesis that as foreign direct investment increases so does Mexican immigration. The case study results show that foreign direct investment has been concentrated in particular sectors and regions in Mexico. Due to the limited sources of information on multinational corporations and immigration, the study looked at the period 1990 through 2000. The linear regression results show a strong R square at 76.6 percent. The R square explains the amount of variance in the dependent variable that is explained by the independent variable. Foreign direct investment accounts for 76.6 percent of the explanation of why Mexican immigrants migrate. The results also show that the independent variable is highly significant with a p-value below .001. The results further show that for every one dollar-unit increase in foreign direct investment, there is an increase of immigration flows from Mexico to the United States by 2.661E-005. The correlation between foreign direct investment and Mexican immigration is positive. The positive correlation supports the main hypothesis that as foreign direct investment increases, so does Mexican immigration from Mexico to the United States.

The strongest sector that received foreign direct investment was in the manufacturing and financial sectors (Nunnenkamp, Alatorre Bremont, and Waldkirch 2007). The manufacturing sector shows conflicting effects in Mexico, this sector receives one third of the foreign direct investment, and however, it has done little in employment opportunities. This is a trend that appears throughout Mexico, the majority of employment comes from sectors that receive little to no foreign direct investment (Nunnenkamp, Alatorre Bremont, and Waldkirch 2007). Mexico’s labor force is 50.1 million and by occupation 13.7 percent are in agriculture, 23.4 percent in industry and 62.9 percent in services, services account for: financial, specialized, technical, education, medical, personal, public administration and defense, (Central Intelligence Agency 2013). Foreign direct investment has had positive growth in the Mexican economy. For instance, The FDI/GDP ratio rose from 1.4 percent in the 1980-1985 periods to 1.8 percent in 1986-1993 and 3.4 percent in 1994-2000, while the share of FDI in gross fixed capital formation increased from 3.2 percent to 9.1 and 16.3 percent, respectively, for these periods (Mattar, Moreno-Bird, and Peres 2002). Mexico imports metalworking machines, steel mill products, agricultural machinery, electrical equipment, car parts for assembly, repair parts for motor vehicles, aircraft, and
aircraft parts, while exporting manufactured goods, oil and oil products, silver, fruits, vegetables, coffee, and cotton. Its primary export partner is the United States with 78.8 percent of exports sent to the United States and its major import partner is the United States at 49.7 percent (Central Intelligence Agency 2013). The results show that foreign direct investment is concentrated by region and in the top 500 firms. The investment is concentrated in sectors of the Mexican economy producing mainly exports to the United States market. Foreign direct investment is not correlated with employment opportunities in the sectors that receive the most investment, but it has produced economic growth for Mexico.

Discussion

American foreign direct investment in Mexico, from 1990 to 2000, has caused disturbance in the social and economic lives of everyday Mexicans. US-Mexican relations mirrors a North-South relation, in which the United States has been able to influence Mexican politics and gain access to a market of cheap, dependable, and exploitable labor with a surplus value gain through an open border policy. Foreign direct investment (FDI) has been concentrated in the top 500 firms, producing inequality among the recipients and non-recipient firms, firms that do not receive FDI (Hamilton 2011). Foreign direct investment has also been concentrated geographically in north and central Mexico, neglecting the southerners who are unsupported by the Mexican government since the transition to neoliberal policies (Secretaria de Economía 2013). Those who are displaced are then forced to migrate within Mexico and ultimately to the United States where they are exploited due to their legal status producing a surplus value for American industries, approximately 15 percent of Mexico’s labor force transferred to the United States in which Mexican immigrants contribute nine percent to the American labor output (Canales 2013). Ultimately, the unequal distribution of foreign direct investment has allowed the United States to prosper by creating three conditions within the Mexican society. First, neoliberal policies have displaced laborers in the southern and western parts of Mexico, forcing them to migrate north in search of jobs. Second, urban jobs are scarce because industries that have received foreign direct investment have produced little employment and within those firms that did receive investment, the manufacturing sector is the one who has employed the most, particularly southern women. Finally, those laborers who were unable to find jobs in Mexico were then obligated to immigrate north to the United States in which the unequal exchange occurs and the exploitation of Mexican labor takes place.

The liberalization of the Mexican economy under President Raul Salinas during the late 1980s allowed foreign capitalists to exploit the cheap labor within the Mexican society. Foreign direct investment concentrated in the northern and central regions of Mexico brought profits and cheap labor for foreigners who employed displaced laborers in the southern and western regions of Mexico. For instance, “Behind the laissez-faire rhetoric, Mexico’s neoliberal were pursuing a large-scale program of government social engineering aimed at forcing Mexico’s rural population off the land and into the cities, where it could provide cheap labor for the foreign investment that the new open economy would attract” (Faux 2003, 3). The concentration of investment and the end of governmental support for small and medium sized farms alienated laborers of the south forcing them to migrate in search of jobs to sustain themselves and their families.

In 1994, the northern state of Chihuahua received 308.4 million dollars in foreign direct investment, Mexico City received $7.6 billion, and the southern state of Oaxaca, on the other hand, only received $100,000 (Secretaria de Economía 2013). The disproportionate share of foreign investment within Mexico produces instability in the development of the regions forcing laborers to migrate where they can find opportunities to work and survive. As noted by Marx, “...a class of laborers, who live only so long as they find work, and who find work only so long as their labor increases capital” (Marx [1848] 1994,164).

Within Mexico, the working class became mobile in order for the working class to produce cheap labor where needed. The development of the neoliberal economic policies in Mexico has contributed to the exploitation of Mexican laborers by displacing southern workers from their traditional jobs. Women in particular migrated north from the southern state of Oaxaca to work in the maquiladora industries. For example, in the northern region of Mexico the maquiladora industry, part of the manufacturing sector, employed southern women paying them approximately three to five dollars a day (Gaspar de Alba 2003, 4). These women have faced inequality, mistreatment, and exploitation. The number of Mexican women migrants increased to 28 percent during this period to the United States in which they can expect a rise in their wages by 4 dollars (Cerrutti and Massey, 2001). In many cases these woman have to turn to prostitution in order to maintain themselves (Gaspar de Alba 2003). The maquiladora industry is responsible for the migration of hundreds of women from the southern states to the north of Mexico in which these women are exploited for their labor. The disproportionate shares of foreign direct investment in Mexico destabilized southern workers who migrated north due to the fact that they must find work in the sectors and regions that allow them to maintain their families and themselves.

The failure of the neoliberal policies by the Mexican government produced a society of unemployment and economic instability for Mexican workers. NAFTA along with many other neoliberal policies of the Mexican government were intended to bring economic stability through job creation and an open door policy. However, it has become clear that these policies failed to reach the masses and only helped to enrich the elites of both nations. As discussed by Faux (2003), neoliberal policies were introduced to Mexico so that the income gap of Mexico’s
upper class and lower classes would reduce. The same applied for the income gap of the southern and middle states in Mexico. Yet the opposite occurred, the rich became richer from corrupt banking maneuvers, which occurred after the privatization of Mexico’s banking system (Faux 2003). The neoliberal policies have done the opposite of what most proponents hoped it would do. The Gini Coefficient, which measures poverty levels, in Mexico during the 1990s to 2000 was 51.1 percent in 1992, 48.5 in 1996 and 51.9 in 2000 (The World Bank Group, 2013). The laborers and lower classes did not receive economic stability; the income gap did not close and the exploitation of the masses continued, while the rich elites became richer.

Employment in the sectors receiving foreign investment is poor and defeating the overall purpose of putting Mexicans to work in Mexico and ending immigration. As explained by Nunnenkamp, Alatorre Bremont, and Waldkirch (2007), foreign direct investment is heavily concentrated in sectors of the Mexican economy that contribute little to the overall employment. The manufacturing and specifically financial service sectors receive the majority of the direct investment and together these sectors account for 13.7 percent of the formal employment (Nunnenkamp, Alatorre Bremont, and Waldkirch 2007). Foreign direct investment has not been able to produce Mexican jobs to sustain Mexican laborers. Neoliberal economic policies for both Mexico and the United States were supposed to help with the ever-growing immigration phenomenon that was creating social hostilities in the United States. As noted by Faux, “If NAFTA were to create more jobs in Mexico, fewer Mexican workers would leave. When people can earn a decent living in their own country, they would generally rather stay put” (Faux 2003, 1). In the end with no governmental support and a poor employment growth by the sectors that received the bulk of the foreign investment, working and lower class Mexicans have to look to the United States for economic support.

The “unequal exchange” between the United States and Mexico occurs once the Mexican immigrant has entered the United States labor market. Once in the labor market, the majority of Mexican immigrants work in either agriculture or construction. Approximately 14 to 18 percent of Mexican immigrants are employed in the agriculture sector and 7 to 8 percent in the construction sector (Giorguli and Gaspar 2008). Only 0.2 to 0.8 percent of Mexican immigrants are employed in executive, professional or technical positions, while sales, administrative assistants, and office jobs makeup 0.5 to 1.7 percent of employment for Mexican immigrants (Giorguli and Gaspar 2008).

The United States receives cheap, dependable and exploitable laborers, while Mexico receives the foreign direct investment that has done little for the nation as a whole. As noted above, foreign direct investment in Mexico has created an unstable society by displacing workers and not creating employment opportunities for the growing Mexican labor force. The contrary occurs in the United States with the arrival of the displaced Mexican immigrants. American capitalists are able to exploit the Mexican laborers through the expropriation of surplus labor value. As noted by Marx, capitalists appropriate surplus value from the laborer when capitalists profit from the costs of labor and sell finished products at a higher price. The worker has no word or control over the capital he has produced and is therefore robbed of his creation (Marx [1848] 1994, 258). The expropriation of surplus value manifests itself in the United States through the jobs and wages Mexican workers receive. The following case study further examines this occurrence.

Historically, the United States has come to depend on the cheap labor of immigrants, especially in agriculture during both of the World Wars. From 1990 to 1994, a family from the state of Michoacán, located in the western region of Mexico, was employed in the agriculture sector in the Central Valley in California. During these four years, they worked in the asparagus, cherry, onion, apricot, and tomato fields. During the cherry season, a workday consisted of 6 hours, they took home $80 working in the cherry fields; the dynamics of the work were a box of 24” x 36” x 10” tall had to be filled to receive $4.50 for the one box. When the box is full it contains about 30 pounds of produce and at the store 1 pound of cherries were sold for 80 cents. Ultimately, this family as well as all of the other 300 workers was appropriated of $19.50 by the capitalists in the cherry fields. The cherry season lasted for 3 weeks in which they worked every day. For three weeks, this family took home $1680; while their cost of living was $600 a month for rent, $400 a month for groceries per month and $200 for other expenses. In the end from the cherry fields, they maintained $480 for themselves and, enough for the capitalist to maintain them as laborers during the working season. In the tomato fields a day for them consisted of 8 hours of labor, they took home $90. The dynamics of the tomato season consists of three months and a half, a pay of 90 cents for two, five gallon tubs. For those three and a half months, they received $9,450 of which they kept $5,850 due to their cost of living. The two, five gallon tubs converted to around 40 pounds of produce and at the store a pound of tomatoes were sold for 50 cents equaling $20 dollars for the capitalists. This family, along with the rest of the Mexican immigrant laborers, were exploited, robbed of their creations that were produced by their under paid labor power.

Conclusion

Within Mexico, the failure of the neoliberal policies to create jobs through foreign direct investment forced Mexicans to immigrate to the United States, where many are alienated and exploited in low paying jobs that do not match their qualifications. The North-South relations of the United States and Mexico
have contributed to the economic advantage of the United States through the unequal exchange of foreign direct investment for immigrant labor. The United States has benefited from cheap, exploitable, and dependable labor that the Mexicans bring over to the US society creating large sums of capital particularly within the agriculture sector. Even though the Mexican elites benefited from the liberalization of the Mexican economy, the common Mexican laborer faced economic hardship and displacement. Overall, the unequal exchange by the United States with Mexico has created an unstable society for the southern and western Mexicans, while benefitting American capitalists whom appropriate surplus labor value form the cheap, dependable and exploitable Mexican immigrant.

Mexican immigration during 1990 to 2000 has been a result of US economic involvement in Mexico. Through the opening of the Mexican economy, after the 1982 debt crisis that forced Mexican elites to obtain an IMF bailout and agree to the Washington Consensus, governmental support ended for thousands of Mexican workers. The end of governmental support contributed to economic hardship that increased with the introduction of NAFTA and the neoliberal economic policies adopted by the Mexican government. The free trade policy between Mexico and the United States furthered the economic hardships of Mexican workers displacing them from their traditional work sectors, forcing them to emigrate within Mexico in search of new jobs. During this time, foreign direct investment from US multinational corporations entered into the Mexican market, in particular in the central and northern Mexican regions. However, this investment did little to create the sufficient amount of jobs required for the number of displaced workers. Those displaced and who were unable to reenter the work force then looked to the United States, who theoretically does not allow illegal immigration but in practice depends on the cheap, dependable, and exploitable labor that comes with illegal immigration. Analyzing Mexican immigration through a historical structural perspective, the United States has maintained dominance over Mexico through the unequal exchange of monetary benefits, which did little for the Mexican people, for raw labor that produces surplus capital. Furthermore, Mexican immigrants once in the United States are subject to exploitation. Through the examination of Mexican laborers in the agriculture sector of central California, one can get a clear picture of how the expropriation of surplus labor value occurs. Mexican immigration is not a process of individual decision-making; it is a process of external forces exercising their powers over a political process that is occupied with the creation of capital for elites instead of protecting the fundamental foundation of any nation, its workers.

References


