The Penn State McNair Journal

Summer 2007, Volume 14

THE PENN STATE MCNAIR JOURNAL

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McNair Scholar Articles

WELCOME

Since 1991, the Penn State McNair Scholars Program has enriched the lives of students at Penn State. The McNair Program holds a very special place in our lives, as well as in the lives of the faculty and staff who work with our students. This publication celebrates their achievements and we offer it to our readers with pride and pleasure.

This is the fourteenth issue of the Penn State McNair Journal. We congratulate the 2007 Penn State McNair Scholars and their faculty research advisors! This journal presents the research conducted in the summer of 2007 by undergraduate students from Penn State who are enrolled in the Penn State McNair Scholars Program.

The articles within this journal represent many long hours of mutual satisfying work by the Scholars and their professors. The results of their research are published here and have also been presented at various research conferences around the country. We are especially proud to see how these students have grown as researchers and scholars. The hard work, dedication, and persistence required in producing new knowledge through research is most evident in these articles.

We very much appreciate the guidance, expertise, caring and patience of our fine group of Penn State faculty research advisors. For their ongoing support and assistance, we thank Graham Spanier, President of Penn State University; Rodney Erikson, Provost of Penn State University; Eva Pell, Senior Vice President of Research and Dean of the Graduate School; and Evelynn Ellis, Senior Director of the Office of Graduate Educational Equity, the administrative home of the McNair Scholars Program.

We are also fortunate to have the support and encouragement of many faculty and staff members who have worked with our students as social mentors or who have presented workshops and seminars on the many aspects of graduate and faculty life. You give the most precious of gifts to our students – your time in volunteering to support, encourage and nurture our Scholars' hopes and dreams.

Teresa Tassotti　　　　　*Curtis Price*
Project Director　　　　　**Academic Coordinator**

TRIO PROGRAMS ON THE NATIONAL LEVEL

Since their establishment in the mid-sixties as part of Lyndon Johnson's War on Poverty Program, the federal TRIO Programs have attempted to provide educational opportunity and make dreams come true for those who have traditionally not been a part of the educational mainstream of American society. The TRIO programs are funded under Title IV of the Higher Education Act of 1965. While student financial aid programs help students overcome financial barriers to higher education, TRIO programs help students overcome class, social and cultural barriers to higher education. There are eight TRIO programs, which include the original three – Upward Bound, Talent Search and Student Support Services. The additional programs are Educational Opportunity Centers, Upward Bound Math & Science Centers, the Ronald E. McNair Post-Baccalaureate Achievement Program, a dissemination program, and a training program for TRIO staff. McNair programs are located at 188 institutions across the United States and Puerto Rico. The McNair Program is designed to prepare participants for doctoral studies through involvement in research and other scholarly activities.

TRIO PROGRAMS AT PENN STATE

The 11 TRIO Programs at Penn State comprise six of the nine TRIO programs. There are two Educational Opportunity Centers, one in Philadelphia and the other serving southwestern Pennsylvania, two Talent Search Programs serving western Pennsylvania and the city of York, Ronald E. McNair Scholars Program, four Student Support Services Programs, Upward Bound, and Upward Bound Math & Science. These programs annually serve more than 6,000 students, from 6th graders through adults, all with clear potential for academic success. The programs operate at the following Penn State campuses: University Park, Wilkes-Barre, Greater Allegheny, and the Pennsylvania Institute of Technology. The programs also operate in communities across the state, often linking with middle schools, high schools, and community agencies. The programs focus on helping students overcome economic, social, and class barriers so that they can pursue education beyond high school.

MCNAIR SCHOLARS PROGRAM AT PENN STATE

Designed for low-income and first-generation college students, and students from groups underrepresented in graduate education, the McNair Scholars Program at Penn State encourages talented undergraduates to pursue the doctoral degree. The program works closely with these participants through their undergraduate career, encourages their entrance into graduate programs, and tracks their progress to successful completion of advanced degrees.

The goal of the McNair Program is to increase graduate degree attainment of students from the above-mentioned underrepresented segments of society. McNair Scholars are presented with opportunities to study and do research in the University's state-of-the-art facilities in order to hone those skills required for success in doctoral education. Through both academic year and summer program components, McNair Scholars are required to complete a series of steps that lead to their application and enrollment in a graduate program of their choice.

Since 1991, the McNair Scholars Program at Penn State has helped 162 students earn their baccalaureate degrees. Of these graduates, 133 or 82 percent have gone on to graduate school at institutions across the country and overseas. As of September 2007, 25 or 15 percent have earned their doctoral or professional degrees and another 60 or 37 percent have earned their master's degrees only. Currently, there are 56 or 35 percent of alumni who are still enrolled in graduate programs. Among the institutions McNair alumni have attended or now attend are: Boston University, Cornell, DePaul, Harvard, Howard, Indiana University-Bloomington, John Hopkins, New York University, Ohio State, Penn State, Purdue, Stanford, UCLA, University of California-Berkeley, University of California-Davis, University of Chicago, University of Maryland-College Park, University of Michigan, University of North Carolina-Chapel Hill, and University of Pennsylvania, to name just a few.

Summer 2007 McNair Scholars and Program Staff

Standing (left to right): Teresa Tassotti (Program Director), Judy Banker (Staff Assistant), Luis Ocampo, Patrick Reck, Shanya Cordis, Jennifer Mulcahy-Avery, Dan Zaccariello, Scott Test, Benjamin Ogrodnik, Curtis Price (Academic Coordinator)

Sitting (left to right): Angelica Smith, Katherine Wheatle, Fawn Patchell, Aimy Wissa, Lauren Kessler, Anjana Patel, Sue Annie Rodriguez

ABOUT RONALD E. MCNAIR

Dr. Ronald Erwin McNair, the second African American to fly in space, was born on October 21, 1950, in Lake City, South Carolina.   In 1971, he received a Bachelor of Science degree, magna cum laude, in physics from North Carolina A&T State University. He continued his education at the Massachusetts Institute of Technology (MIT) where, in 1976, he earned his Ph.D. in physics.

While at MIT, McNair performed some of the earliest development of chemical and high-pressure CO lasers. He went on to study laser physics at E'cole D'ete Theorique de Physique in Les Houches, France. He was well published and nationally known for his work in the field of laser physics through the Hughes Laboratory.

In 1978, McNair realized his dream of becoming an astronaut when he was selected from a pool of several thousand applicants to be included in the first class of thirty-five applicants for the space shuttle program. Ronald McNair and six other astronauts died on January 28, 1986 when the space shuttle *Challenger* exploded after launching from the Kennedy Space Center in Florida.

McNair was an accomplished saxophonist; held a sixth-degree, black belt in karate; and was the recipient of three honorary doctorates and a score of fellowships and commendations. He was married to the former Cheryl Moore and is the father of two children, Reginald Ervin and Joy Cheray. After his death, Congress approved funding to honor the memory of McNair by establishing the Ronald E. McNair Post-Baccalaureate Achievement Program, which became the sixth program funded under the TRIO Programs umbrella.

"Historians, who will write about McNair, the man, will discover that there was much more to him than his scholastics achievements. Friends who knew him, say he walked humbly and never boasted about his achievements. They say his commitments were to God, his family and to the youths he encouraged to succeed."
 (Ebony, May 1986)

McNair Alumni on the Move

We congratulate our recent graduates and are very proud of their accomplishments. We also extend congratulations to those Penn State McNair alumni who have earned their graduate degrees as well as those alumni currently enrolled in graduate studies.

At the graduate level...

Juan Abreu (PSU 2002)	J.D., Rutgers University
Taimarie Adams (PSU 2003)	J.D., Harvard University
Karla (James) Anderson (VSU 1999)	M.S., Central Michigan University
Michael Benitez (PSU 2001)	M.Ed., Penn State University
Angelo Berrios (PSU 2000)	M.Ed, Joseph's University
Aaron Brundage (PSU 1995)	M.S., Penn State University
	Ph.D., Purdue University
Jose Buitrago (PSU 1995)	M.L.A., Harvard University
Sherese Burnham (PSU 1999)	M.S., University of Central Florida
Sofia Cerda-Gonzalez (PSU 1999)	D.V.M., Cornell University
Debbie Charles (PSU 2001)	M.S., University of Maryland-College Park
Catherine Crawford (PSU 1996)	M.Ed., Central Michigan University
Trinaty Crosby (PSU 2005)	M.S.W., Howard University
Evelyn Cruz (VSU 1996)	M.S., University of Virginia
Natasha Deer (PSU 1995)	M.A., Florida State University
Alicia DeFrancesco (PSU 1997)	M.B.A., Babson College
Lurie Daniel (PSU 2000)	J.D., New York University
Jorge Delgado (PSU 2004)	M.S., Purdue University
Eve Dunbar (PSU 1998)	Ph.D., University of Texas-Austin
Carol Elias (VSU 1997)	M.Ed., Virginia State University
Mark Elwell (PSU 2002)	M.S., Cornell University
Max Fontus (PSU 1999)	Ph.D., Indiana University-Bloomington
Michael Godeny (PSU 2002)	Ph.D., University of Florida
Antoinette Gomez (PSU 1994)	M.S., Clark-Atlanta University
Cristina Gonzalez (PSU 1999)	M.D., Albert Einstein Medical School
Sherie Graham (PSU 2002)	M.S., University of Michigan
Derek Gray (VSU 1998)	M.A., SUNY-Albany
Mark Harewood (VSU 2000)	M.S., Webster University
Atiya Harmon (PSU 2002)	M.S., University of Pennsylvania
Janet Harris (PSU 1996)	M.Ed, Duquesne University
Angela Hess (PSU 1998)	Ph.D., University of Iowa
Priscilla Hockin-Brown (PSU 1996)	M.S., Michigan State University
	Ph.D., Rutgers University
Dustin Holloway (PSU 2002)	Ph.D., Boston University
Marissa (Graby) Hoover (PSU 2000)	M.S., Temple University
Meng He (PSU 2002)	M.A., American University
Jeffrey Himes (PSU 1997)	M.S., West Virginia University
Alisa Howze (PSU 1994)	Ph.D., Texas A&M University
Andrea Jones (VSU 1998)	M.P.A., Virginia State University
Michelle Jones-London (PSU 1996)	Ph.D., Penn State University
Leshawn Kee (VSU 1998)	M.A., Regents University
Haroon Kharem (PSU 1996)	Ph.D., Penn State University
Carrie (Hippchen) Kuhn (PSU 2001)	M.A., Stanford University

Judy Liu (PSU 1995)	M.S., University of California-Berkeley
	Ph.D., University of California-Berkeley
Charmayne Maddox (PSU 2004)	M.Ed., Penn State University
Debra Marks (VSU 1996)	M.S., University of Virginia
Leanna Mellott (PSU 2000)	Ph.D., Ohio State University
Robert Miller (PSU 1999)	Ph.D., University of Kentucky
Bethany Molnar (PSU 1998)	M.S., Northeastern University
Nicole Morbillo (PSU 1998)	Ph.D., New York University
Ndidi Moses (PSU 2000)	M.A., Penn State University,
	J.D., University of Connecticut
Hui Ou (PSU 2005)	M.S., Cornell University
Mark Palumbo (PSU 2000)	M.S., Wright State University
	Ph.D., Wright State University
Franche Pierre-Robinson (VSU 2002)	M.Ed., University of Illinois-Chicago
Caryn Rodgers (PSU 2000)	Ph.D., St. John's University
Lilliam Santiago-Quinones (PSU 1998)	M.Ed., Bowling Green State University
Thomas Shields (PSU 1998)	M.A., Penn State University
Christie Sidora (PSU 2000)	M.A., Duquesne University
Melik Spain (VSU 1996)	M.S., Virginia Tech University
Anthony Spencer (PSU 1999)	Ph.D., Northwestern University
Shawyntee Vertilus (PSU 1998)	M.P.H./M.D., New York Medical College
Patrice White (VSU 2001)	M.S., University of Maryland-College Park
Romon Williams (VSU 1995)	M.S., Wake Forest University
Wendy Williamson (PSU 1995)	M.B.A., Penn State University
Kenya Wright (VSU 1997)	M.S., North Carolina State University
Mimi (Abel) Hughes (PSU 2002)	M.S., University of California-Los Angeles now pursuing Ph.D. at same institution
Heneryatta Ballah (PSU 2004)	M.A., Ohio State University, now pursuing Ph.D. at same institution
Laurian Bowles (PSU 1999)	M.A., University of London, now pursuing Ph.D. at Temple University
Latia Eaton (VSU 2003)	M.S.W., University of Baltimore now pursuing second masters at St. Mary's Seminary
Felecia Evans-Bowser (PSU 2002)	M.S., Texas Tech University, now pursuing Ph.D. at same institution
Natasha Faison (PSU 1999)	M.S., Penn State University, now pursuing Ph.D. at Eastern Michigan University
Tiana Garrett (VSU 2001)	Ph.D., University of North Carolina-Chapel Hill now pursuing MPH at same institution
Lanik Lowry (PSU 2002)	M.S., University of Maryland-College Park now pursuing second masters at same institution
LaShawne Long-Myles (PSU 2001)	M.Ed., Xavier University now pursuing Ph.D. at Georgia State University
Angel Miles (PSU 2003)	M.A., University of Maryland-College Park, now pursuing Ph.D. at same institution
Rashid Njai (PSU 2000)	M.P.H., University of Michigan, now pursuing Ph.D. at same institution
Robert Osmanski (PSU 1995)	M.S., Penn State University, now pursuing second masters at Bloomsburg University
Tracie Parker (VSU 2003)	M.A., Ohio State University, now pursuing Ph.D. at same institution
Zakia Posey (PSU 1999)	M.S., Michigan State University, now pursuing Ph.D. at same institution

Kristin Rauch (PSU 2004) M.S., University of California-Davis now pursuing Ph.D. at same institution

Steven Thompson (PSU 1997) M.S., Indiana University-Purdue, now pursuing Ph.D. at Clemson University

Anthony Paul Trace (PSU 2004) M.S., University of Virginia now pursuing Ph.D at same institution

Kahlil Williams (PSU 2001) M.A., University of Pennsylvania now pursuing Ph.D. at same institution

At the undergraduate level...

Mohamed Faacy Farook (PSU) December 2006
Tamara Fleming (PSU) December 2006
Saalim Carter (PSU) May 2007
Dipnil Chowdhury (PSU) May 2007
Alana Curry (VSU) May 2007
Oneximo Gonzalez (PSU) May 2007
Renee Killins (PSU) May 2007
Chong Mike Lee (PSU) May 2007
Elizabeth Medina (PSU) May 2007
Michael Mollenhauer (PSU) May 2007
Shartaya Mollett (PSU) May 2007
Milton Newberry (PSU) May 2007
Courtnee Evan-Spino (PSU) May 2007
Joshua Walker (PSU) May 2007
Robert Allen Young (PSU) May 2007

On to graduate school in Fall 2007...

Saalim Carter now pursuing graduate studies in History at the University of Chicago
Dipnil Chowdhury now pursuing graduate studies in Systems Engineering at the University of Pennsylvania
Alana Curry now pursuing graduate studies in Veterinary Science at the Tuskegee Institute
Oneximo Gonzalez now pursuing graduate studies in Biomedical Engineering at the University of Pittsburgh
Renee Killins now pursuing graduate studies in Interdisciplinary Life Sciences at Purdue University
Chong Mike Lee now pursuing graduate studies in Biochemistry, Microbiology and Molecular Biology at Penn State University
Shartaya Mollett now pursuing graduate studies in Social Work at the University of Pittsburgh
Joshua Walker now pursuing graduate studies in Atmospheric Sciences at the University of California-Davis
Robert Allen Young now pursuing graduate studies in Social Work at the University of Pittsburgh

In graduate school as of Fall 2007…

Felix Acon-Chen (PSU 2005)　　　　Stevens Institute of Technology (Mechanical Engineering)
Luis Agosto (PSU 2005)　　　　　　University of Pennsylvania (Virology)
Omotayo Banjo (PSU 2004)　　　　　Penn State University (Media Studies)
Jennifer Carman (PSU 2000)　　　　Strayer University (Health Administration)
Andra Colbert (VSU 2005)　　　　　Johns Hopkins University (Education)
Michael Collins (VSU 2005)　　　　Howard University (Medicine)
Latoya Currie (VSU 1999)　　　　　Virginia Commonwealth University (Education)
Jennifer Geacone-Cruz (PSU 2002)　Bunka So-en Daigaku University (Fashion Design)
Kathy Goodson (VSU 2005)　　　　　University of Maryland-College Park (Biochemistry)
Maria Gutierrez-Jaskiewicz (PSU 2005)　University of California-Berkeley (Middle East Studies)
Dennis Harney (PSU 1993)　　　　　Univesity of Pennsylvania (Governmental Administration)
Juliet Iwelumor (PSU 2006)　　　　Penn State University (Biobehavioral Health)
Jessica Lewis (PSU 2003)　　　　　Colorado Technical University (Business)
Lourdes Marcano (PSU 1995)　　　　University of Tennessee (Business Administration)
Edward Mills (VSU 2003)　　　　　University of Illinois at Urbana-Champaign (History)
LaShauna Myers (PSU 2003)　　　　University of Pennsylvania (Higher Education)
Nikkia Ogburn (VSU 1997)　　　　　Longwood University
Julio Ortiz (PSU 2002)　　　　　　Penn State University (Information Science Technology)
Tiffany Polanco (PSU 2004)　　　　Rutgers University (Animal Science)
Natalie Ragland (PSU 2001)　　　　Ross University (Veterinary Medicine)
Kenya Ramey (VSU 2006)　　　　　Temple University (African-American Studies)
Cavin Robinson (PSU 2002)　　　　DePaul University (Philosophy)
Sassy Ross (PSU 2001)　　　　　　New York University
Adriana Segura (PSU 2006)　　　　Northwestern University (Medicine)
Kedesha Sibliss (VSU 2003)　　　　Howard University (Medicine)
Kashra Taliaferro (PSU 2003)　　　University of Maryland-College Park (Education)
Selima Taylor (PSU 2004)　　　　　New York University (Health Science Administration)

Historical Analysis of Japanese Colonization in the Dominican Republic

Shanya Cordis, McNair Scholar, Penn State University

Faculty Research Adviser: Dr. Almeida Jacqueline Toribio
Professor of Linguistics and Spanish Linguistics
The College of Liberal Arts
Penn State University

Abstract

Throughout the history of the Dominican Republic, conflict with the neighboring nation of Haiti has led to the implementation of various foreign policies. Analysis of the diplomatic and cultural relationship between the Dominican Republic and Haiti during the rule of Generalissimo Rafael Leónidas Trujillo Molina provides the political and economic basis for Japanese colonization. This study is a thorough historical analysis of the motivating factors for Japanese migration to the Dominican Republic and the significant contributions imparted by the Japanese on the cultural and agricultural spheres of the Dominican Republic.

Introduction

This study is part of a larger project on the linguistic and cultural impacts of Japanese colonization in the Dominican Republic. This segment analyzes the cultural, economical, and political impacts of the systematic colonization of Japanese migrants that occurred from 1954-1960 under the dictatorship of Generalissimo Rafael Leónidas Trujillo Molina. Following WWII, Japan suffered an economic depression in which food shortages and a high unemployment rate were met with unsuccessful attempts at economic recovery. Examination of this catalytic event demonstrates the correlation between migration to the Dominican Republic and Japan's national economic and political crisis. Analysis of the political and economic basis for intentional recruitment of the Japanese is tied to an exploration of the historical conflict between Haiti and the Dominican Republic. Throughout this discursive analysis of the diplomatic and cultural relationship between Haiti and the Dominican Republic, the concept of race according to the Dominican and Haitian cultures is thoroughly dissected. The placement of Japanese colonies along the border as a human "buffer zone" against Haitian expansion demonstrates the racist nature of President Trujillo's immigration policy as well as the enmity between Haiti and the Dominican Republic. The economic and cultural impacts of Japanese immigration to the Dominican Republic can be traced to this unusual historical event.

The ultimate goal of this treatise is to understand the cultural/political bond and how this correlates with the policy-making decisions of a nation. Further research will focus on the linguistic impacts of cultural preservation and cultural assimilation has among Japanese colonists.

Timeline of Conflict: Haiti and the Dominican Republic

Throughout the history of the Dominican Republic and its Haitian counterpart, conflict concerning definitive demarcation of not only geographical significance but also cultural distinction defined the complex relationship between the neighboring nations. Thoroughly integrated, the sociopolitical relationship between the Dominican Republic and Haiti has contributed to subsequent institution of policies and laws attempting to promote nationalistic desires for improvement in infrastructure. Analysis of the origination of the complex relationship between the Dominican Republic and Haiti oftentimes focuses through a simplistic lens, thereby excluding significant factors that contributed to the sociopolitical discord between the two nations. The two countries occupying a part of the same island "[have] been fraught with a history of antagonism through which no civil dialogue can occur" (Matibag, 2003, p. 1). Limiting the scope of interactions to antagonistic ethno-historical lines contributes to the reductionist paradigm, or a one-dimensional framework that eliminates the possibility of a non-polarized fluid relationship. To avoid a simplistic examination of the linkage between the contrasting countries, a thorough investigation of the interrelatedness between nationalistic desires for colonial independence and the geopolitical significance of location in the struggle for cultural and political independence is essential. This foundation is necessary in developing an adequate historical analysis of selective immigration under the leadership of Generalissimo Rafael Leónidas Trujillo Molina.

Nationalistic desires for colonial independence began to fester during the 1800s, culminating in Haitian slave revolts that resulted in the death of 40,000 mulattos and French colonists. After continuous subjugation and mistreatment, the Haitian slaves of the French colony, under the leadership of Toussaint L'Overture, led a fervent revolt that resulted in Haiti's subsequent Declaration of Independence from France. This hard-won autonomy had significant consequences for their Spanish-ruled counterparts:

> The second of the major conjuncture is figured in the event and consequences of the Haitian Revolution; that is, the revolution that founded the Republic of Haiti but also drew the colony of Santo Domingo into a complex dialectic of identifications, separations, and instantiations with relation to its agnate territorial neighbor. (Matibag, 2003, p. 9)

The Haitian Declaration of Independence signified a shift in the relationship between Haiti and the Dominican Republic. During the 14 years of revolution that eventually led to the emergence of Haiti as an independent nation, a see-saw relationship was established between the neighboring nations in which "the increase in the one colony's autonomy was perceived by many as posing a threat to that of the other" (Matibag, 2003, p. 54). The national destiny of one nation became tied to the national destiny of the other. Emboldened by their Hispaniola neighbors, the Dominicans fought and won independence from their Spanish subjugators in 1821. In spite of a forthright declaration as a sovereign nation, the Dominican Republic was invaded by Haitian forces. A twenty-two year occupation ensued with Haiti intent on cultural domination, and an extension of Haitian sovereignty. In 1844, the Dominican Republic reasserted its independence from both Spain and Haiti. In the following years, however, raids carried out by Haitian troops and hopeful expansionists persisted along the borderlands, which further exacerbated the growing seeds of animosity between Haiti and the Dominican Republic.

To defend themselves against the Haitians, the Dominican Republic resorted to a brief reannexation with Spain. The Haitians fervently opposed this reannexation, having since recognized the interdependent relationship between the two countries:

> None will contest that Haiti has a major interest that no foreign power establish itself in the eastern part [of Hispaniola]. When two people inhabit the same island, their destinies in terms of foreign initiatives are necessarily interdependent. The survival of one is intricately linked to the survival of the other; each is duty-bound to guarantee security of the other (Matibag, 2003, p. 120).

In contrast to the reductionist paradigm, the struggle for independence in Haiti signified the increase in momentum for the establishment of a self-sufficient nation no longer dependent on slave labor. After Haiti and the Dominican Republic declared independence, an underlying movement occurred by which focus shifted from ousting their European occupants to asserting their independence from the bordering nation.

One major source of conflict between the two nations is the issue of border line demarcation which signifies a geographical point of division as well as a cultural separation: "The events of the third major conjuncture were the post-revolutionary struggles to define national identities within the insular space" (Matibag 9). Historically, border lines are areas of cultural overlap and political instability where national identity becomes blurred. Such lack of clarity is tolerated only when a state or nation is immature and the power of the central authority is weak. In order to establish sharp contrast between two states, policies concerning border demarcation were characteristically nationalistic (Augelli, 1980, p. 19). With the insular nature of conjoining nations, the border line signified the demarcation line between two distinct cultures:

> Competing claims on the island's territory have contested time and again the reach of political jurisdictions, the rights of territorial domains, and the legitimacy of property titles. Patriotic and ethnocentric definitions of national and cultural identity have been formulated with reference to the border. (Matibag, 2003, p. 13)

Haitian excursions across the border continued to exacerbate the long-standing enmity between Haiti and the Dominican Republic. Scarce lands, poverty, and a lack of natural resources in a country where the economy primarily depends on agriculture forced migration to Haitian cities and the Dominican Republic. Haitian laborers sought available jobs in the Dominican Republic, where a thirty percent unemployment rate persisted. These Haitian workers provided cheap labor under conditions similar to that of slavery. Economic distrust between these nations significantly contributed to racial tensions and cultural antagonism. In particular, *la mentalidad de la frontera*, or 'border mentality,' expressed the Dominicans' rejection of Otherness elsewhere in Haiti, while ignoring Otherness within unity, or the Dominican Republic. This polarizing mentality simplified the tension between the two countries by offering a black and white viewpoint of the origination of the sociopolitical conflict apparent on the insular level.

Of striking significance is the Haitian-Dominican frontier, a borderland where relations between divided lands was thoroughly established fostering a interstitial region for cultural interaction: "yet culture itself, as with Haitian culture or Dominican culture… is a phenomenon that originates in and inhabits an interstitial zone, one in which boundary crossing repeatedly negates delimitation, where demarcations are erased only to be reinscribed (Matibag, 2003, p. 14). The distinct peoples of Haiti and the Dominican Republic created linkages of communication, kinship, alliance, and custom that yielded noteworthy cultural and linguistic manifestations. In an attempt to maintain cultural and sociopolitical differentiation, the Dominican Republic implemented policies and laws that prohibited Haitian border-line crossings and immigration.

Dominican ethnocentric attitudes became institutionalized by policies aimed at preventing the spread of Afro-cultural practices and customs and further intermingling of the Dominican and Haitian cultures. These policies aggravated the existing racial and cultural prejudices, oftentimes reinforcing sentiments of superiority among Dominicans. Dominicans' fear, bordering on hatred, was deeply rooted in linguistic and cultural differences between the neighboring entities. Haitians, predominantly of African ancestry, maintained many of their African cultural traditions like voodoo. Greatly outnumbered, the Dominicans feared a cultural subjugation as well as a political union with what was referenced to as the "Black Republic" (Asagiri 2000). Exposure to Haitian influence gradually eroded traditional Hispanic customs and Hispanic character from both the border landscape and its Dominican inhabitants. The inhabitants along the border consisted of undiluted Haitians, and *rayanos*, or 'frontier people,' representative of both cultures (Matibag, 2003).

 In 1925, to prevent "[the] ceaseless absorption of black blood" and to assure "the maintenance of the purity of [their] Catholic faiths," the Dominican government passed the first law authorizing the establishment of 'farmer families of white race' along the Dominican frontier" (Asagiri, 2000, p. 337). Under the thirty-two year rule of the Dominican dictator Generalissimo Rafael Leónidas Trujillo Molina, efforts to reassert Dominican sovereignty on the island of Hispaniola, particularly along the border lands, were rigorously pursued. Trujillo's resolve to reaffirm Dominican national sovereignty was apparent in subsequent governmental policies enacted:

The existence and functioning of all the components of a nation are manifested largely by its sovereignty-what I [Trujillo] have always considered the most vital of a country's attributes. Sovereignty resides in the ability of a Nation to decide for itself-without being swayed by outside pressure or influence-not only the nature of its internal regime but also its destiny. (Trujillo, 1960, p. 11)

Improvements in border land infrastructure were implemented to encourage "Dominicanization," or settlement along the Dominican-Haitian border. Key to the Dominicanization policy was the reorganization and creation of colonies along the border. To evade international condemnation, this policy began to shift towards selective immigration after the massacre of nearly 20,000 Haitians over the span of two days in early October 1937, "a massacre…of such stupendous dimensions that it has still not been assimilated into the nation psyche" (Matibag, 2003, p. 140). Haitian by descent, language, or culture, many of the victims were born in the Dominican

Republic. The massacre was carried out by members of the police and the army at different locations along the border. Evidence indicates that the action was a planned rather than a spontaneous outbreak of violence, with orders originating from the dictator Trujillo himself. To avoid international sanctions, Trujillo implemented a selective immigration policy initially aimed at allowing European foreigners to settle throughout the Dominican Republic. While simultaneously fostering economic growth and improvement, Trujillo sought to combat Haitian influence in the Dominican Republic in order to maintain a purity of culture and language.

Initial Dominican immigration policies focused on the recruitment of wealthy, educated immigrants to improve "the development and economic progress of the country" (Peguero, 1990, p. 97). The Dominican government was more concerned with the expansion of capital and the establishment of the Dominican economy rather than the encouragement of laborers to permanently settle. Because of racial tensions and economic recession, the Dominican Republic shifted its focus to immigrants who would contribute economically and culturally. In a document addressing the agricultural crisis of the Dominican Republic, the urgency for foreign workers in the agricultural department was highlighted with the stipulation that immigrants belong to the white race. Trujillo sought to secure his country against what he perceived as a sociopolitical threat posed by Haitians. In doing so, Trujillo hoped to create a sovereign "Caribbean nation." Trujillo heightened antihaitianismo, or antihaitianism, by normalizing the long-standing animosity between Haitians and Dominicans by elevating it to the status of ideology.

Haitians became the scapegoat Trujillo needed to establish absolute dictatorial power. Trujillo depicted Haitians as inferior, dangerous usurpers. Infractions committed by Haitians were "the violation of the sanitation law, violation of the immigration law, gambling, violations of property, practice of witchcraft and robbery (Matibag, 2003, p. 146). Thus, the massacre that occurred along the border was justifiable under the pretense of national security, where genocide was neither condoned nor condemned by the Dominican government. However, not all Haitians and Dominicans remained silent. Numerous protests transpired against the manipulation of racial ideology that focused on racial traits as the explanation for violence:

> It is doubtful…that the difference of race suffices to explain the explosion of hate that made the region of Dajabón-Montecristi the theater of a bloody orgy. I prefer to believe that that people exasperated by the distress to which the dictatorship of Trujillo has reduced it has acted on the same obscure motives that pushed, in the south of the United States, a pack of "poor whites" to lynch a black, and in Hitler's Germany a ruined petite bourgeoisie to mistreat a Jew. The dominant classes and the dictatorship agree to support, to provoke those sentiments that divert from them, in the manner of a lightning rod, the fury of the wretched. (Matibag, 2003, p. 150)

The "dominant-class" and the dictatorship gained support by ostracizing members of the Haitian culture. Ironically, Trujillo enacted laws that permitted Dominican sugar companies to contract Haitian and West Indian workers with the agreement that this black labor was temporary. They were to return home once the season ended.

Despite various improvements in the infrastructure of the Dominican government, restrictions instituted under the Trujillo dictatorship resulted in the loss of freedom. Through the utilization of a "secret police" or the Military Intelligence Service (SIM), countless individuals—Dominican citizens or otherwise—were murdered or simply 'disappeared.' Any perceived threat to national security or the absolute power of Trujillo was swiftly dealt with. Trujillo's dictatorship emulated that of a highly personal concept of leadership predominantly practiced throughout Latin America: caudilloism. A country ruled by a caudillo typically resembles a large hacienda in which its leader plays the role of national patrón, oftentimes owning large land holdings and controlling many businesses. Nepotism is enthusiastically embraced, with the family of the caudillo positioned to socially and economically benefit, frequently sharing the wealth and spoils of the caudillo: "The caudillo is usually viewed as a great national father who must take care of his humble children and who must exercise tutelage over his ignorant people" (Wiarda, 1968, p. 14). A true caudillo, Trujillo maintained his power through control of the armed forces, and his domination of the various components of the government. The Dominican Party (Partido Dominicano), led by Trujillo, exercised absolute power, becoming the only legal political party in the country.

Recruitment and Settlement: Japanese Colonization

In order to "protect the country…from losing its characteristics of a purely Hispanic people" (Matibag, 2003, p. 154), Trujillo invoked the principle of racial purity of light-skinned Dominicans as the ideal depiction of the Dominican culture. Beginning in 1939, to prevent Haitian penetration, to divert international scrutiny, and to perpetuate the idea of racial purity, the Dominican Republic became refuge to 3,056 Republican refugees of the Spanish Civil War. The majority arrived between November 1939 and May 1940. Following the Spanish refugees were Jews fleeing the Holocaust in Central Europe, many of whom reached the Dominican shore between 1941 and 1944. Their numbers were estimated at around 700. An additional 4,466 Spaniards arrived between 1955 and 1959. George Warren, a member of the Council Committee of Political Refugees, discerned that "Trujillo, interested in favorable press in the United States, was able to exploit the immigrants in order to establish himself as an humanitarian and to erase the memories of the Haitian incident" (Peguero, 1990, p. 101). Despite Trujillo's hope that these immigrants would permanently settle throughout the Dominican Republic, particularly along the border, the European immigrants viewed the Dominican Republic as a temporary stop to their ultimate destinations elsewhere in Latin America (Asagiri, 2000).

As a result, Trujillo shifted his selective immigration policy to Japanese immigrants whom he hoped would enhance native agriculture by demonstrating advanced methods of cultivation and animal husbandry. There is speculation that Trujillo may have also been influenced by his father's admiration for the Japanese. Trujillo's father was markedly impressed by the Japanese military prowess exhibited during the Russo-Japanese War. Admiring of the Japanese culture, he named his daughter Japonesa or 'Japanese female.'

Diplomatic relations between the Japanese and Dominican governments were minimal in the 1930s: "In pre-World War [II] years, even the commercial ties were so slight that the two governments ignored formal diplomatic relations and entrusted the issues arising from trade to honorary Consuls" (Peguero, 1990, p. 98). However, Trujillo's offer in 1954 to accept Japanese settlers was the opportunity Japan needed in order to initiate economic recovery.

Following WW II, Japan underwent a forced repatriation of nearly 7 million Japanese from former colonial territories. Suffering from food shortages and a high unemployment rate, Japan sought economic relief through emigration of its citizens to other countries, specifically Latin America. To facilitate emigration, the Federation of Japan Overseas Associations (FJOA) was created in the emigration section of its Ministry of Foreign Affairs.

By 1959, 37,257 Japanese had immigrated to various countries throughout Latin America. Of these, 82 percent immigrated to Brazil; Paraguay and the Dominican Republic followed with 11 and 4 percent respectively. The remainder settled in Bolivia and Argentina. Negotiations between Japan and the Dominican Republic were first explored in 1954. At that time, official and semi-official missions were sent out from Japan to survey those Latin American destinations with settlement possibilities for Japanese emigrants. Tsukasa Uetsuka led the mission that went to the Dominican Republic. Following negotiations with President Rafael Trujillo, the discussion "resulted in a promise that the Dominican Republic agreed to give Japanese immigrants full rights, financial assistance and housing. Uetsuka returned to Japan with word that 5,000 farmer families could migrate there" (Peguero, 1990, p. 98).

Additional agreements were reached that established mutual responsibilities between the Japanese and Dominican governments. The Dominican government agreed to provide: 1) a furnished house per family; 2) 300 *tareas* of land per family [One acre is equal to approximately six *tareas*]; 3) sixty cents per day for each family member; 4) government tax exemption for the items that the immigrants would bring from Japan. The Japanese government was responsible for: 1) selection of the immigrants; 2) transportation cost, roundtrip; 3) supervision of the facilities and colonial sites (Peguero, 1990).

To encourage emigration to the Dominican Republic, advertisements appeared in Japanese newspapers, alluding to a Caribbean paradise made even more alluring by the favorable incentives offered by the Dominican government. Noburu Uda, one of the first settlers, contributed to the depiction of the Dominican Republic as land of limitless opportunities. Uda described his new home as being a paradise in which "the houses were neat, complete with furniture, cooking utensils and linen. Working conditions were good, and the food was cheap and plentiful" (Peguero, 1990, p. 99). The recruitment of potential emigrants was extremely selective. Family groups with no fewer than three males between the ages of fifteen and fifty qualified for the journey. Single people were restricted from selection, while a brother or other relative could be include as a member in order to meet emigration requirements. Emphasis was placed on laborers, in particular farmers and fishermen.

Dominican preparation for the Japanese settlers' arrival included the placement of colonies throughout the Dominican Republic, with the establishment of the majority of the colonies along the Dominican-Haitian border. This reaffirms the sociopolitical belief that Trujillo not only sought to "whiten" the Dominican race but also to erect a buffer zone against potential Haitian penetration into the Dominican Republic. Of the eight colonies to which Japanese were assigned between 1956 and 1959, six were located near the Haitian border. La Vigía and Pepillo Salcedo were located along the northern border; La Altagracia and Agua Negra were located along the southern border; La Colonia and Plaza Cacique were established within the Cordillera Central, one near Jarabacoa, and the other on the southern outskirts of Constanza. Upon arrival in July 1956 in Ciudad Trujillo (currently known as Santo Domingo), each family was assigned to a

colony with specific instructions for what crop they were to cultivate. With the assignment of these families, large-scale Japanese emigration came to an end in 1959. The main incentive for many of these settlers was potential for economic benefit. Once the Japanese economy began to recover, emigration to Latin America declined (Asagiri, 2000; Peguero, 1990).

Shortly after assignment to the selected colonies, serious problems led to rising dissatisfaction among the Japanese settlers. Colonists complained that the Dominican government failed to provide the promised amount of land. Crop failures were attributed to inadequate systems of irrigation and poor quality soil. Difficulties arose in cultivation of the crops assigned by the Dominican government. Fishermen sent to Pepillo Salcedo discovered that they lacked the proper equipment necessary to fish in the open Atlantic. In the isolated colonies, promises of medical facilities and schools were unfulfilled (Asagiri, 2000). In light of such serious grievances, the majority of the colonies were abandoned. Most of the Japanese settlers migrated to the colonies of La Vigía, Constanza, and Jarabacoa. This placed further strain on the limited resources of those colonies. Dominican citizens began to resent the economic progress of some Japanese settlers. It appeared to many Dominican peasants that these foreign settlers were receiving large plots of land and an abundance of governmental support. To the contrary, the Japanese settlers failed to receive any support from the Dominican government.

Prior to his assassination on 30 May 1961, President Trujillo was preoccupied with threats from foreign-based political dissidents, increased political tension with the United States, and sanctions imposed by the Organization of American States due to his cooperation in the attempted assassination of President Romulo Betancourt of Venezuela. The Japanese government continued to believe that the complaints of the Japanese colonists derived from lack of effort and ingenuity to improve their situation (Asagiri, 2000). The lack of response from the Japanese government and the absence of Dominican support led many of the colonists to evacuate from the Dominican Republic. Relocation and repatriation of Japanese began in October 1961. By May 1962, 672 Japanese had returned to Japan and 377 had relocated in South America, mainly in Brazil. Of the original 1,319 Japanese emigrants in the Dominican Republic, 276 remained. By 1971 the number of Japanese increased to 574, an increase attributed to natural increase, the occasional arrival of immigrants from Japan and intermarriage with Dominicans who, with their offspring, were included in the count of Japanese (Asagiri, 2000, p. 348). Between 1971 and 1991, Japanese permanent residents totaled 831, an increase of 45 percent.

The Impacts of Japanese Settlement in the Dominican Republic

Regional and urban-village shifts contributed to an overall increase in the number of Japanese families in Constanza and the "districts" of Santo Domingo, La Vega, and the South. Relocation to Constanza in particular occurred because of the increase in expansion of irrigated land. Relocation affected the generation gap between the younger generation of Japanese, many of whom left for urban centers throughout the Dominican Republic, and the aging population that remained in the colonies.

Agricultural impacts can be clearly observed in the singularly successful cultivation of fruits and vegetables in Jarabacoa and Constanza. The products: potatoes, tomatoes, beets, carrots, cabbage, lettuce, onions, garlic, and strawberries, revolutionized the quality of production domestically. In the western Cibao, the Japanese contributed significantly to the development of

improved varieties of rice and improved methods of cultivation, which has led to the Japanese operation of five rice mills (Asagiri, 2000). Cultural impacts are also observed. In keeping with maintenance of the Japanese language and traditions, Club Japones was established in Constanza; an organization devoted to the preservation of the Japanese culture in second-third generation Japanese. Despite the unfavorable conditions of the provisional sites for the Japanese colonists, the contributions of subsequent generations have significantly altered the Dominican society. Although many of Trujillo's expectations for the Japanese colonists fell short, his hope that they would contribute to the agricultural sphere of the Dominican economy was ultimately achieved.

Discussion

As this research study is a preliminary effort to provide a basis for future research, its significance is apparent. This research study provides a historical analysis of the motivations for Japanese colonization in the Dominican Republic. Providing a historical basis allows for a broader understanding of the political and economic climate of the Dominican Republic under the thirty-two year leadership of Rafael Leónidas Trujillo Molina. Such an understanding of the historical climate will serve as the basis for future investigations into the cultural and linguistic ramifications of Japanese colonization in the Dominican Republic. Primary research in the Dominican Republic will analyze the language behaviors of the *Nisei* (second and third generation Japanese). Of particular interest are the community-internal and -external attitudes and identities that are implicated in language and cultural maintenance and loss. The structural outcomes of language contact will also be investigated in order to determine how the Japanese and Spanish varieties of the Nisei differ from the monolingual varieties of the sending community in Japan and in the surrounding Dominican community in the Dominican Republic.

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Correlation of Nucleate Boiling Data for Downward Facing Surfaces With and Without Coatings

Luis Ocampo, Jr., McNair Scholar, Penn State University

Faculty Research Adviser: Dr. Fan-Bill Cheung
Professor of Mechanical and Nuclear Engineering
College of Engineering
Penn State University

ABSTRACT

Downward-facing boiling data gathered in the Subscale Boundary Layer Boiling (SBLB) facility were analyzed in this study. The objective is to investigate the efficacy of using vessel coating for the enhancement of boiling heat transfer on surfaces having the same geometry as a typical nuclear reactor vessel. Two types of boiling data were studied, one for the case with coatings and the other without coatings. Correlation equations were obtained for both types of data using the least-square technique. It was found that vessel coating could significantly enhance boiling heat transfer and as such, it can be used for effective cooling of the reactor vessel under severe accident conditions.

INTRODUCTION

In-vessel coolability of core melt is an important issue in addressing a postulated inadequate core-cooling event in nuclear reactors. In such an event, a significant amount of core material can become molten and relocate downward into the lower head of the reactor vessel as happened in the Three Mile Island Unit 2 accident.[1] To assure long-term retention and cooling of the core melt within the reactor vessel, new safety measures have been implemented. Passive cooling consists of flooding the reactor cavity and removing enough decay heat to cool the molten material in the lower head of the reactor. Thus, thermal failure of the reactor vessel can be prevented and the core melt will remain in-vessel.

In this study, downward-facing boiling data gathered in the Subscale Boundary Layer Boiling (SBLB) facility were analyzed. The analysis serves to investigate the efficacy of using vessel coating for enhancement of boiling heat transfer on surfaces of the same geometry as a typical nuclear reactor vessel.

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LITERATURE REVIEW

Boiling Phenomena Observed on an Upward Facing Surface

Heat transfer associated with the change of phase from the liquid to the vapor state is called boiling and it is sustained as heat continuously transfers from a solid surface, this allows for large heat transfer rates as temperature varies on a small scale. The boiling process characterizes itself by the formation of vapor bubbles, which grow and subsequently detach from the surface.[2] This process can be calculated using the Newton's law of cooling for which the heat transfer coefficient changes as the dynamics of the bubble formation affects the surface's liquid motion. The process can also be examined with the boiling curve, which displays the heat flux against the change in the excess temperature. The boiling regimes include free convection, nucleate, transition and film each of these is a function of the excess temperature.

The boiling curve is a function of pressure and is unique for each pure substance. For water at one atmosphere, free convection boiling exists when the excess temperature is less than or equal to 5°C. The *onset of nucleate boiling,* ONB, is the boundary point between the free convection and nucleate regimes; it is at temperatures below this point that bubble inception would not occur and free convection effects determine the fluid motion. The convection coefficient depends on whether the flow is laminar or turbulent and it varies as the excess temperature is raised to the one fourth or one third power.

Nucleate boiling exists in the range of temperature between the ONB and the point where *critical heat flux* is reached which is approximately 30°C. In this range there exists both the *isolated bubbles* and *jets and columns* regimes. In the former regime, most of the heat exchange is through direct transfer from the surface to liquid in motion and not through the vapor bubbles rising from the surface.[2] The latter regime is characterized by having the vapor escape as jets that merge into parts of the vapor, it is at this point that increasing excess temperature activates more nucleation sites and the increment of bubble formation causes bubble interference and coalescence. In this regime, there exists a point at which the convection coefficient changes from being at its maximum to decreasing as the excess temperature increases, this increase in temperature exceeds the reduction in the convection coefficient which allows for the heat flux to continue increasing.

Transition boiling also termed unstable film boiling or partial film boiling occurs between the *Critical heat flux* point and the *Leidenfrost* point, which is the point where the heat flux is minimum. In this region, a vapor film begins to form on the surface but it still varies to nucleate boiling. Since the conductivity of the vapor is less than the thermal conductivity of the liquid, the convection coefficient decreases as the excess temperature increases therefore decreasing the heat flux.

Film boiling begins at the *Leidenfrost point* where the surface is already covered by a vapor blanket. In this regime heat transfer takes place by conduction and radiation through the vapor. Heat flux increases as the excess temperature is increased thus making radiation through the vapor film more significant.

In order to analyze nucleate pool boiling, it is necessary to predict the number of surface nucleation sites as well as the rate at which at each site bubbles are originated. The first and most widely used correlation for nucleate boiling was developed by Rohsenow[3] which applies only for clean surfaces but is very useful to estimate the excess temperature from the knowledge of surface heat flux. While it is desirable to operate near the critical heat flux point it is still

necessary to keep in mind the dangers of dissipating heat beyond this point. An expression that approximates the heat flux under these conditions was obtained by *Kutateladze* and *Zuber*, which is independent of surface material and is weakly dependent upon the heated surface geometry.[2] Regardless of the geometry, critical heat flux strongly depends on pressure and it has been demonstrated experimentally that the peak flux increases with the increment of pressure up to one third of the critical pressure, which then falls to zero at the critical pressure level.

In film pool boiling, a continuous vapor film blankets the surface at temperatures beyond the Leidenfrost point and there is no contact between the liquid phase and the surface. The condensation theory plays a big role on establishing a correlation because the base film boiling correlations are based on the theory due to the fact that the stable film of vapor allows a resemblance to the conditions of laminar film condensation, however this does not hold true for small surfaces. It is not until the surface temperature reaches over 300°C that radiation heat transfer across the vapor film becomes significant.[2]

Some of the parametric effects on pool boiling include the gravitational field, liquid subcooling and solid surface conditions. Overall pool boiling has low gravity effects and the correlations confirm the dependence on $g^{1/4}$, although for nucleate boiling, heat flux is nearly independent of gravity. Near the onset of nucleate boiling, evidence shows that gravity can influence bubbled-induce convection. Subcooling means that the liquid in the system is maintained at a temperature below the saturation temperature; in the natural convection regime the summation of the excess and the subcooled temperatures is raised to the five-fifths power and in nucleate boiling this is negligible while in film boiling the heat flux is increased strongly with the increment of the subcooled temperature. Surface roughness has a negligible effect on minimum and maximum heat fluxes, but increasing the surface roughness can increase the heat flux largely in the nucleate boiling regime because the surface provides vapor traps that increase the sites for bubble growth. However after prolonged boiling the effects diminish.

Boiling on a Downward Facing Surface

Cheung et al[7] developed a subscale boundary-layer boiling (SBLB) test facility to investigate the critical heat flux (CHF) and the pool-boiling phenomena on the outer surface of a simulated reactor pressure vessel (RPV) lower head. The SBLB was developed using a scaling analysis consisting of a high-heat-flux level hemispheric vessel fully submerged in a pressurized water tank with a condenser unit. All the important characteristic time ratios were preserved in the facility so the entire process was simulated properly and therefore the same effects will occur as in a full-scale reactor.

The experiment was done under both saturated and subcooled conditions a two-phase liquid-vapor boundary-layer flow was found to develop on the vessel outer surfaces as a result of the boiling process.[4] Saturated boiling formed bubbles in the bottom region of the vessel that were elongated and resembled a pancake shape with a 10 to 60-mm diameter; the bubbles in the upper portion were similar to spheres but having a much smaller size. At departure, the elongated vapor bubbles from the bottom region flowed upward along the heating surface carrying away the growing bubbles in the downstream locations. Therefore the nucleate boiling process depended strongly on the upstream flow conditions in the two-phase boundary layer. Subcooled boiling decreased the size of bubbles and increased the bubble growth and departure. The vapor

bubbles located at the bottom center region shrank quickly after departure, and the size of them depended on the level of subcooling.

High-heat-flux levels produced a cyclic vapor ejection process in the bottom region of the vessel; the elongated vapor bubbles were squeezed up against the wall by the local buoyancy force and then grew rapidly on the heating surface. The individual nucleation sites were feeding the envelope of each large vapor mass, as the large mass grew to a critical size, it was ejected violently upward in all directions. This ejected vapor mass formed a ring as it traveled radially upward with a new vapor mass starting to grow inside the ring.[4] The vapor mass continued to break off into several large vapor slugs due to the diverging area of the vessel. These slugs carried away local vapor bubbles but tended to bypass the large vapor slugs growing on the heating surface in the downstream locations.

As the heat-flux level was closer to the local CHF limit, the cyclic ejection of the vapor masses became explosive and highly chaotic and the characteristic frequency of the ejection cycle tended to increase slowly. At a closer view, a thin liquid film beneath each elongated vapor slug was seen; the micro-layer was growing on the heating surface. The liquid film fed the small vapor masses generated at nucleation sites to the large vapor slug, and it was this film under the large vapor slug that prevented local dry-out of the heating surface. The characteristic frequency near the local CHF limit was approximately 4 Hz for saturated boiling. This implies that the vapor ejection cycle lasted about 0.25 s. For 90% of this time, the vapor slug covered the heating surface. The local boundary-layer thickness as well as the local liquid and vapor velocities increased considerably from the bottom center to the upper edge of the vessel. As a result, the rate of nucleate boiling was highly non-uniform on the outer surface of the vessel; the lower portion data was quite different from those for the upper portion. The maximum nucleate boiling heat flux near the bottom center was only 0.4 MW/m^2 for saturated boiling and in the upper portion the highest was approximately 1.4 MW/m^2 with 10°C subcooling.

Guo and El-Genk[5] studied pool boiling curves of a flat disk for inclinations of various angles (0° to 90°) by quenching with saturated water at near atmospheric pressure. Although the study was not using hemispherical surfaces, it still helps understand the changes of heat flux, quenching time and vapor film development. The study was done using a copper disk with a 12.8-mm thickness and a 50.8-mm diameter, which was insulated with marinite on the sides and at the back surface and house in a Bakelite skull. The disk was submerged 57-mm below the water level of a large Pyrex beaker and heated to 533-539 K before quenching.

The time that it took to quench the entire surface however, increased as the inclination decreased. The time needed to quench a downward facing surface having an initial wall superheat of 160 K is six times that for a 5° inclination and 23 times that for a 90° inclination.[5] At high wall superheats, downward facing surfaces develop a thick wavy but stable vapor film on the disk's surface with vapor escaping from its edges. As the temperature decreases, the vapor film becomes more stable and the vapor escape frequency decreases. At minimum film boiling, the vapor film acts like a mirror and vapor no longer escapes, eventually the film collapses as the wall superheat becomes very low.

The study also presented that the critical heat flux and minimal film boiling heat flux increased with increasing angle of inclination. However for downward facing surfaces, both heat fluxes are significantly lower than those for inclination angles.

Data Reduction Techniques

      The presentation of data as a set of discrete points using a smooth continuous function is a problem of often interest in engineering. Curve fitting is based upon a function f(x), x is the independent variable and f(x) is a dependent variable such as a material property, a heat flux, etc. The two basic approaches to curve fitting are an exact fit and a best fit. The first approach is appropriate for data with high-level accuracy such as material property data. The second approach is more useful for a large number of data points because it approximates the curve and minimizes the given data.

      Interpolation is used to determine the dependent variable f(x) at any value in the data points and extrapolation is used to determine f(x) outside the given data range. Both are used to fit an exact curve to a finite number of discrete points to then apply a mathematical operation to the smooth curved. Exact fits in engineering are mainly composed of an approximating polynomial, which passes through each data point and yields an exact value. A polynomial of degree n is used to describe linear, quadratic, or cubic equations and so on. Larger points require higher order of polynomials and the coefficients vary in size depending on the independent variable. Lagrange interpolation is another method for exact fitting; it uses a special form of interpolating polynomial called the Lagrange polynomial. It is applicable to an arbitrary distribution of the x variable, and it does not require the system of equations in order to solve it.

      Another form of the polynomial for interpolation is Newton's divided-difference polynomial, which is used for any arbitrary distribution of data points. It resembles a Taylor series expansion because the terms of the equation represent higher-order derivatives that are successively added to increase accuracy. When dealing with spaced data, Newton's interpolating polynomial can be rewritten as the *Newton-Gregory forward interpolation formula* or the *Newton-Gregory backward interpolation formula* using this formula to plug in the data of a forward difference table will yield the interpolating polynomial. The choice of which formula to use comes from the value of *x* in relation to the given data points, whether it is closer to x_o or x_n.

      The procedures for extrapolation are very similar to interpolation; the same approaches listed above can be used depending on the data but the element of uncertainty must be considered when looking at the final polynomial since extrapolation is based on estimating.

      Interpolating polynomials used to yield piecewise exact fit to the data are called spline functions. The method consists on using a thin, flexible strip to draw a smooth curve through the data distribution. On higher order polynomials the methods mentioned previously yield equations of higher degrees that oscillate and/or are wiggly which leads to ill-conditioning and computational difficulties. Therefore it is more common to use the spline functions to get a better approximation over significantly wide data ranges.

      Certain data for various applications often contains a significant amount of associated error, for such instances, it is not recommended to use a spline function but rather use an interpolation method that provides a best fit to the given data by minimizing the difference between the given values of the dependent variable and those obtained from the approximating curve.[6] Linear regression yields a straight line that provides a best fit to a given data set. For data that is poorly represented by straight lines, the method of mth-order polynomial is used, but it is generally restricted to small values of the order m to avoid extensive calculations to determine the coefficients. Least squares is not restricted to polynomials for curve fitting, it can also be applied to other forms with constant coefficients. This includes linearization, which is the process to curve fit nonlinear data by suitable transformations to apply linear regression.

In engineering applications it is often found that some functions depend on more than one variable. Curve fitting is carried out with only one independent variable, taking the other variable at specified values and thus generating a number of curves that fit the data. This process is more convenient than seeking a single function that represents the entire dependence on various independent variables. For such cases, exact fitting and best fitting may be used. A best fit is often more appropriate than an exact fit because of the amount of error that may be involved in the experimental data.

DATA ANALYSIS AND CORRELATION

Review of Experimental Method for the SBLB Data

The system was composed of a water tank, a condenser, segmented and continuous downward facing hemispherical vessels for steady state and quenching experiments, data acquisition software and a photographic system.

Water Tank and Condenser

A cylindrical tank equipped with a reflux condenser was manufactured to conduct all experiments at a gauge pressure of up to 138 KPa. The tank had a diameter of 1.22 m and a height of 1.14 m, the wall thickness was 6.35 mm and for the bottom and top tank covers the thickness was 12.7 mm. The tanks were made of carbon steel because it was strong to sustain the high pressure and the cost was reasonable for the budget, also this is the same material used for most commercial-sized reactor vessels. To protect the tank from corrosion, the interior surface was fully polished and then coated with high-temperature corrosion- and moisture-resistant durable paints. Two large windows were placed on opposite sides of the tank to allow observing of the whole surface and for additional lighting. Both windows were made with acrylic plexiglass of 25.4 mm and 12.7 mm thickness.

The guidance mechanism allowed the tube connected to the test vessel to slide vertically. It was sealed tight with o-rings squeezed against the tube by tightening the outer nut of each ring. The heating of the water was done with three immersion heaters that had a total power of 36 KW, each heater had its own power line connected to individual power supplies of 240 V and maximum capacity of 50 A. three thermocouples were placed at various locations, at the water surface, at the bottom of the tank and in the middle of the tank.

The condenser was made of cylindrical pipe with a diameter of 0.355 m. The opening for the water vapor was of 76 mm in diameter and the housing for the entire condenser was tilted downward to direct the flow towards the 25 mm pipe and avoid disturbance from the condensate on the water surface (See Figure 1). The helical coil inside the condenser was made out of soft copper tubing with an outer diameter of 12.7 mm and a thickness of 1.588 mm. The water flow rate was estimated to be 0.18×10^{-3} kg/s and the length was calculated to be 10 m.
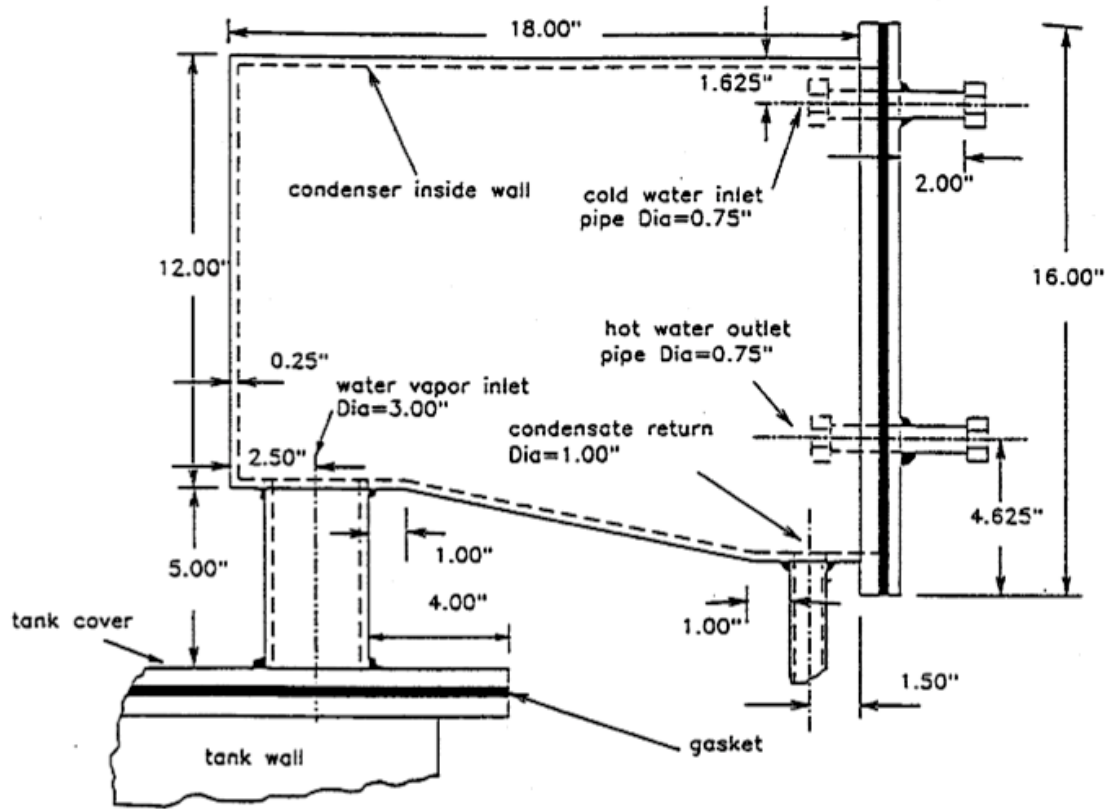
Figure 1. Schematic of the Condenser Housing

Segmented Hemisphere

The segmented hemisphere was composed of five segments all with a wall thickness of 12.7 mm made of stainless steel. An insulating layer made of high temperature silicon rubber material was used to minimize heat transfer between the segments and prevent any leaks (See Figure 2). The cover of the vessel was connected to a flange that was welded to the top segment and was fastened with four screws. To make this connection leak tight, an o-ring was placed between the cover and the flange. The segmented hemisphere had 25 thermocouples of 1.016 mm in diameter but with different depths. These steady-state temperatures recorded by the thermocouples were used to determine the local boiling coefficient on the outside of the surface. The top segment had two thermocouples 180° from each other, segments 2, 3 and 4 had five each and the bottom segment had eight.

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Figure 2. Side View of the Segmented Hemispherical Test Vessel

Continuous Vessels for Steady-State Experiments

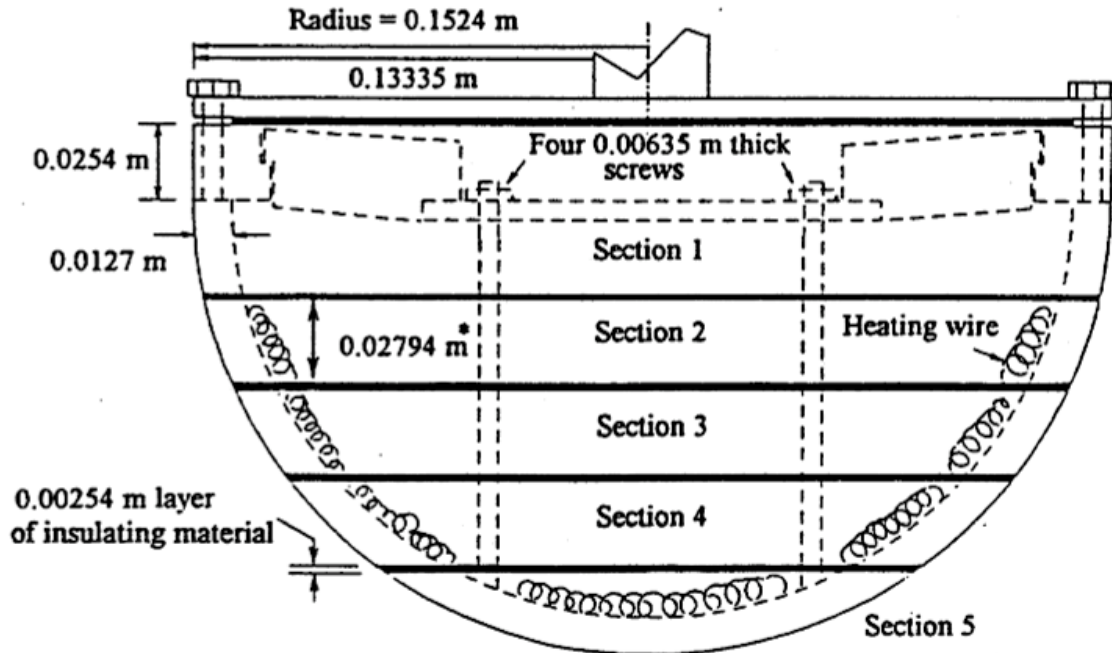The nichrome coil was installed using Plaster Pairs to control the wire spacing on the surface of the vessel by creating a mold first. The circuit began at the bottom center of the mold and then the wire was wrapped around the nails to from the first loop, the process was continued until the wire length was reached. Circuits were done until the surface was covered with the nichrome coil making sure that wires were not touching each other. The wire was then moved to the back of the vessel making sure the shape was untouched a thin layer of high-temperature cement called OB600 from Omega Engineering, Inc. was applied to the surface so the wire did not touch the metal, then it was applied to attach the wire to the surface of the vessel; this was necessary to prevent short circuits.

Continuous Vessels for Quenching Experiments

To investigate the spatial variations of the boiling curve along the outer heating surface, continuous hemispherical vessels made of aluminum and toroidal vessel made of carbon steel was used to conduct the quenching experiments. Thirty gauge K-type were placed along an arc that started at the bottom center and ended close to the upper edge of the vessel. Three other thermocouples were equally spaced on the circumference half way between the bottom center and the equator to check the uniformity of the heating of the hemisphere. Thermocouples were placed in holes of 1.59 mm in depth and diameter and using an aluminum-zinc based solder.

Data Acquisition System

The temperatures at various locations in the vessel were monitored using a personal computer and a data acquisition system. Two Strawberry Tree ACPC-16 boards were installed inside the PC, each containing 16 digital input/output channels and 16 analog input channels. The highest sampling rate possible was dependent on the resolution chosen. In the steady state experiments, high sampling rates were not important, therefore the highest "low noise resolution" was used to help minimize the effect of the interference from the AC power line and the nichrome coil used to heat the vessels. In the quenching experiments, using a high sampling rate was important especially when the time constant of the vessel was low.

A program called DATACOL for transient quenching and steady state experiments was written in compiled BASIC to monitor the thermocouple signals. At the beginning of the program, the resolution, the number of thermocouples to be traced, and the type of sensors used were declared. Then the program performed a calibration of all the analog input channels. The driver of the board used the method of reading all the thermocouple signals multiple times while storing the readings in memory and at the end all the data was put into a single file. During the quenching experiments, it was necessary to heat the vessel before quenching it into the water bath. Therefore, a second program called TEMPDIS was written to monitor the vessel temperature while it was being heated, the program displayed the temperatures at various locations on the screen. It also scanned all the thermocouples once during a specified time period. Then the temperatures collected were displayed on the screen before the thermocouples were scanned again.

Review of Experimental Procedure for the SBLB Data

The tank access-hole cover and the sliding mechanism were removed form the tank assembly to mount the vessel to the vertical sliding mechanism. Then the thermocouple wires and the power supply were inserted inside the stainless steel pipe used to vertically position the vessel. Before mounting the components back to the assembly, the heating surface was polished with #220 emery paper and then cleaned thoroughly with acetone. After putting the vessel together, a hose containing a filter to get rid of unwanted particles was connected to a tap water supply to level the water inside the tank to 0.838 m. When the water level was reached, three immersion heaters were turned on and after four hours the water was heated to saturation temperature. Then the water was heated once again for 15 minutes to degas the water. Lastly the heaters were turned off to cool the water down.

A pump was used to filter the water one more time and to get rid of particles that precipitated during the eating process. Once the filtering process was done, the heaters were turned on again until the desired temperature was reached. This temperature was kept by turning one of the heaters on and off for small amounts of time.

Quenching Procedure

The thermocouples attached to the inside of the vessel were connected to the data acquisition system. The program TEMPDIS was used to monitor the heating of the vessel by displaying the temperatures of every location of all thermocouples. The heating was continued until 350˚C were reached, since higher temperatures would lead to melting of the solder that held the thermocouples in place.

After removing the cover underneath the vessel and setting the computer to begin collecting data, the vessel was submerged in the water bath and DATACOL was activated. The stopper on the stainless steel pipe was previously set to let the vessel submerge to 0.304 m.

Steady State Experimental Procedure

After mounting the vessel, the thermocouples and the power supply were connected to the variacs and the data acquisition system. Every variac circuit was equipped with an ammeter to determine the power supplied to each circuit. The vessel was submerged to 0.304-m below the water level. Next, the power to the variacs was turned on to give the desired heat flux at the surface, also the program TEMPDIS was being run to track the temperature variations. These readings were used to determine if the system reached steady state, at this point TEMPDIS was terminated and DATACOL was executed to scan all thermocouples.

Types of SBLB Data to Be Analyzed

Quenching Experiments

The quenching experiments were done using a high-speed video system and a high-speed camera to record and photograph the events. The video recording was viewed in slow motion to take a closer look to the characteristics of the transient two-phase boundary layer.

When a superheated flat plate, disk or surfaces of low curvature facing horizontally upward is suddenly quenched into a saturated liquid, film boiling of the liquid first takes place around the hot object. As the solid temperature drops below the minimum film boiling temperature, transition boiling occurs. On the surface of the object, the activities of vapor film breakdown and release increase progressively in time, and at the peak of these activities, the critical heat flux is reached. Beyond this point, the solid object cools off quickly and approaches the liquid temperature, marking the end of the quenching process. In this study, larger and downward facing surfaces were used which changes the effects of boiling. Changes in the boiling regime from film to transition and then to nucleate did not take place uniformly over the external bottom surface of the hemispherical vessel during the quenching process. Rather, transition from film to nucleate boiling first occurred at the upper edge of the vessel. It then propagated downward along the curved heating surface, and eventually reached the bottom center of the vessel (see Figure 3).[7]
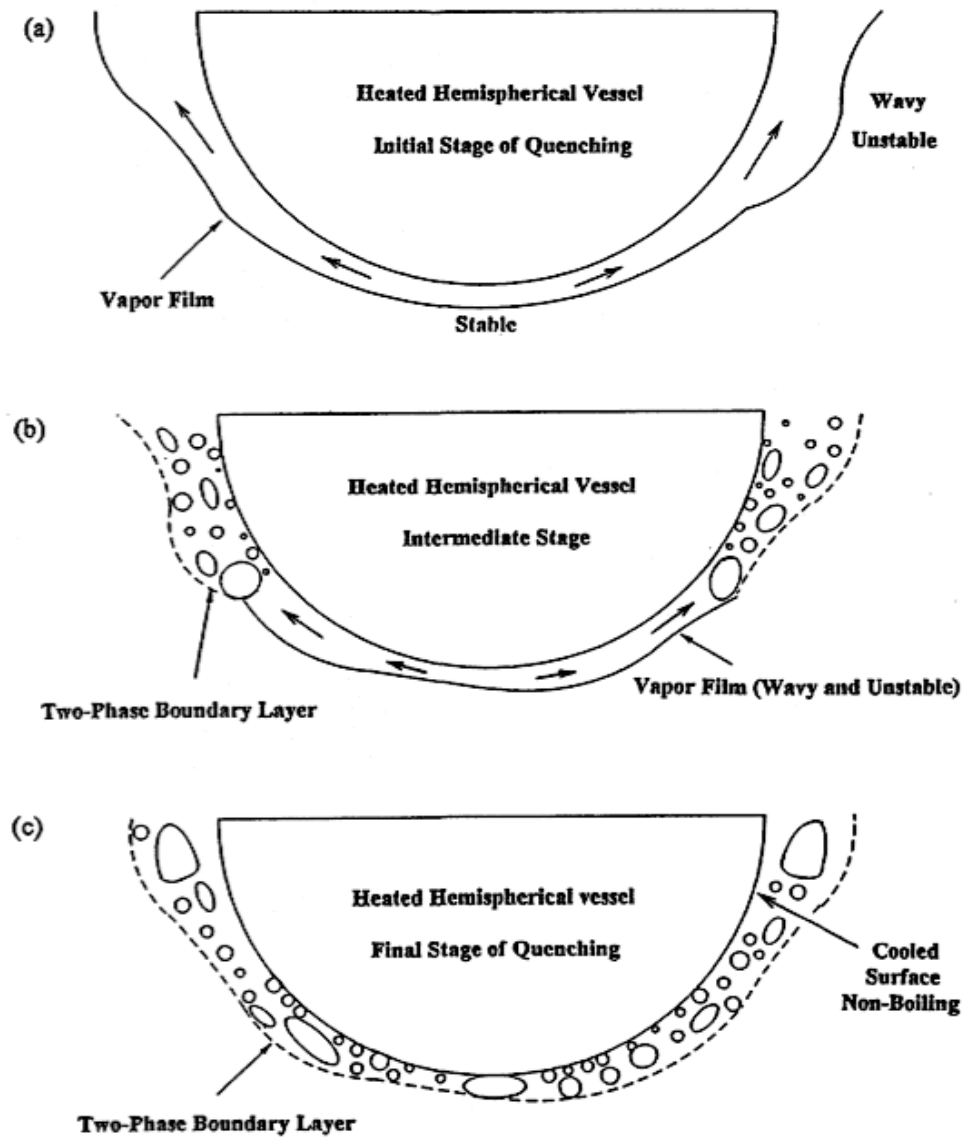
Figure 3. Schematic of the Two-Phase Boundary Layer Configuration in the Three Sequential Stages of Quenching.

Steady State Experiments

For saturated boiling, the vapor bubbles in the bottom center region were much larger than those in the upper portion of the vessel with the entire surface heated at the same power level. The bubbles around the bottom center were elongated and had the shape of a pancake, whereas those in the upper portion were almost spherical. After departure, the large vapor bubbles from the bottom center region gradually transformed into the shape of a spherical cap while washing away the growing bubbles in the downstream location.

RESULTS AND DISCUSSION

Using the least square technique, a correlationequation was found for each set of data to find an appropiate representation of all the readings taken (See Figures 1 and 2).

Noncoated

Theta = 0
$q'' = 0.0056 \Delta Te^{1.3142}$

Theta = 18
$q'' = 0.0071 \Delta Te^{1.27}$

Theta = 36
$q'' = 0.0044 \Delta Te^{1.4035}$

Theta = 56
$q'' = 0.0018 \Delta Te^{1.7283}$

Figure 4. Set of Equations for Each of the Measured Angles for the Non-coated Vessel

Coated

Theta = 0
$q'' = 0.0196 \Delta Te^{0.8848}$

Theta = 14
$q'' = 0.0506 \Delta Te^{0.6663}$

Theta = 42
$q'' = 0.0204 \Delta Te^{0.9193}$

Theta = 60
$q'' = 0.1775 \Delta Te^{0.4654}$

Figure 5. Set of Equations for Each of the Measured Angles for the Coated Vessel

The local boiling heat fluxes are plotted against the excess temperature local wall superheat. To get a full spectrum of the non-coated data, every point for all angles is plotted on a log scale vertical axis (See Figure 6). It can be seen that the nucleate boiling rate tended to increase as the change in temperature moves upward from the bottom center toward the equator of the test vessel.
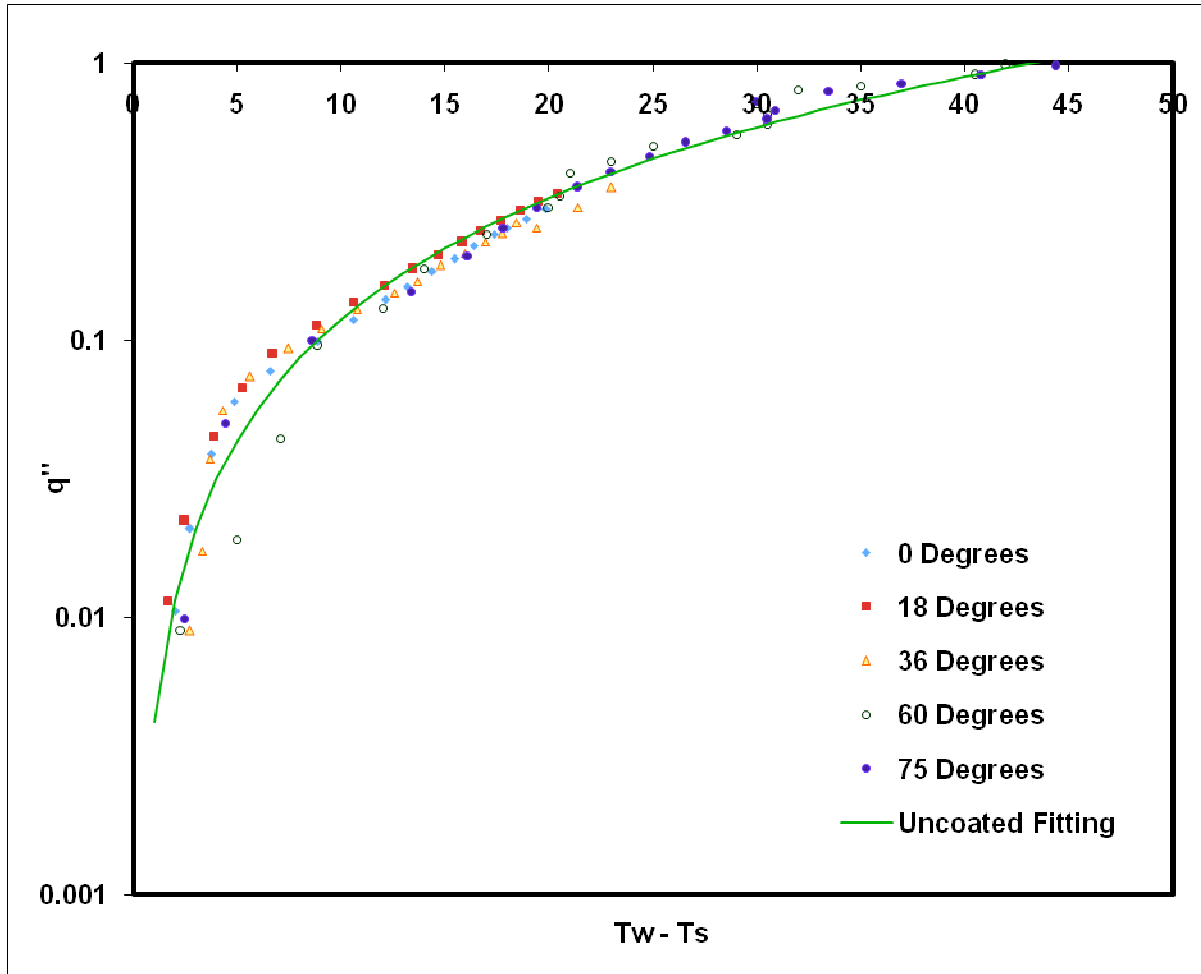
Figure 6. Distribution of the Correlation of Excess Temperature vs. Heat Flux for Non-coated data

Comparing the coated data with the non-coated data displays the enhancement in boiling heat transfer. Depending on the angular position of the vessel, enhancement in boiling heat transfer of up to 100% can be obtained by using surface coatings. At 0 degrees, a small difference is shown (See Figure 7) when comparing the two correlations of data.

Figure 7. Correlation of Excess Temperature vs. Heat Flux between 0 Degrees Coated and 0 Degrees Non-coated Cata

Figure 8. Correlation of Excess Temperature vs. Heat Flux between 14 Degrees Coated and 18 Degrees Non-coated Data

As the angle of inclination increases, the difference between coated and non-coated vessels becomes more evident (See Figures 8 and 9). The biggest difference in the correlation between excess temperature and heat flux can be seen when comparing the bigger angles; a coated vessel at an angle of inclination of 56 degrees has a much higher correlation than a non-coated vessel at 60 degrees (See Figure 10).
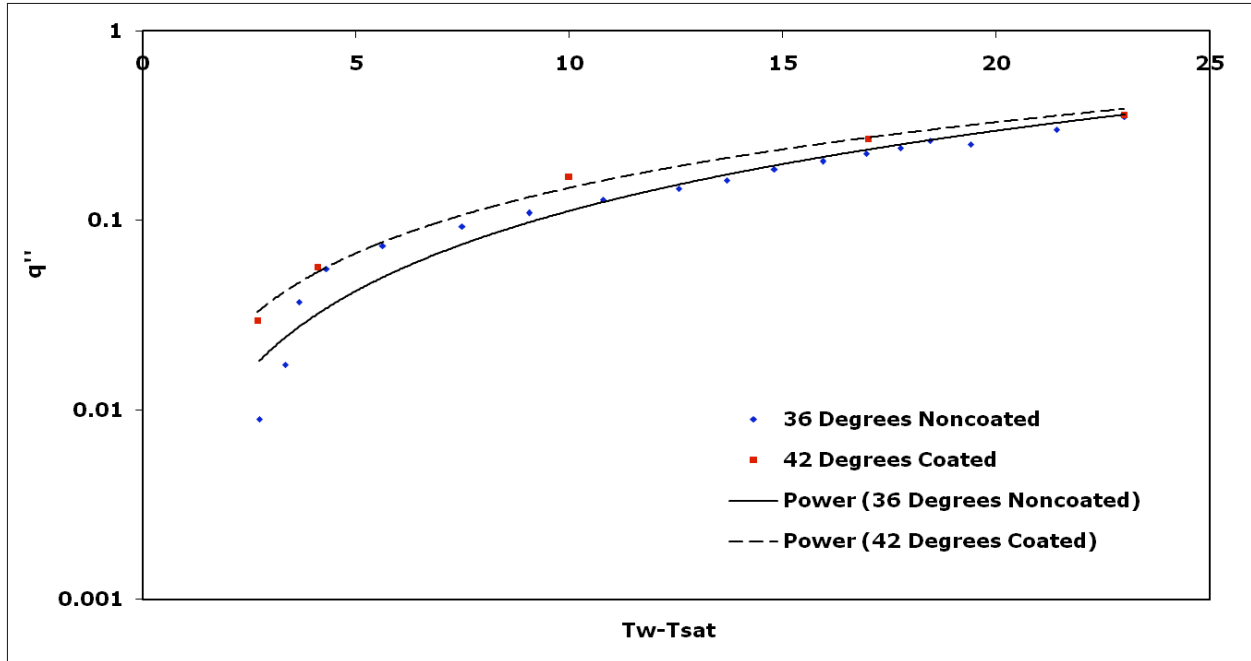
Figure 9. Correlation of Excess Temperature vs. Heat Flux between 42 Degrees coated and 36 Degrees Non-coated Data

Guo and El-Genk[5] demonstrated that the critical heat flux decreases with decreasing inclination; in this study the same can be seen when comparing all the distributions of the data. The study done by Brundage[8] demonstrated that the excess temperature relating to the critical heat flux varied from the bottom to the top location, the current data shows that the higher the inclination, the higher the heat flux.
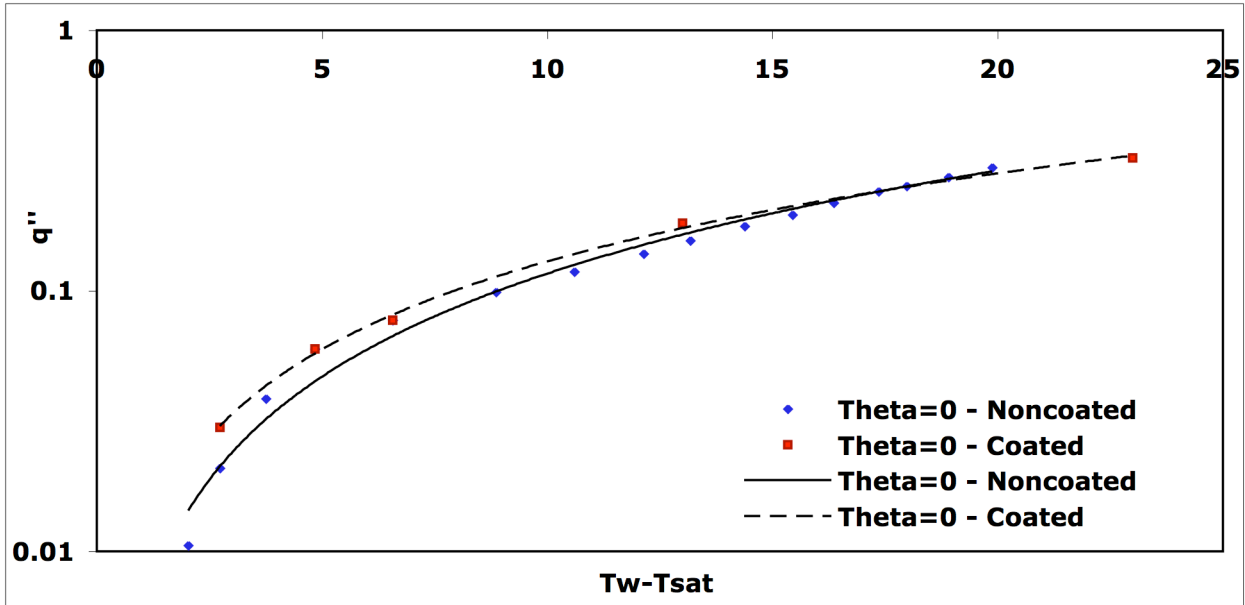
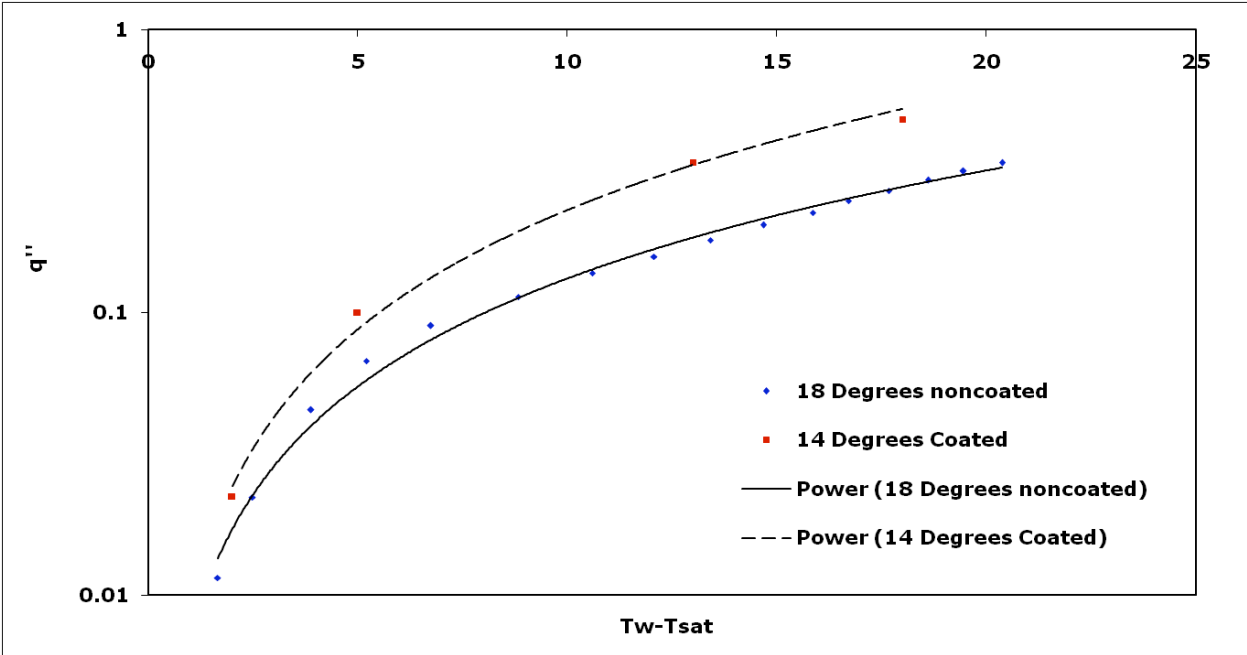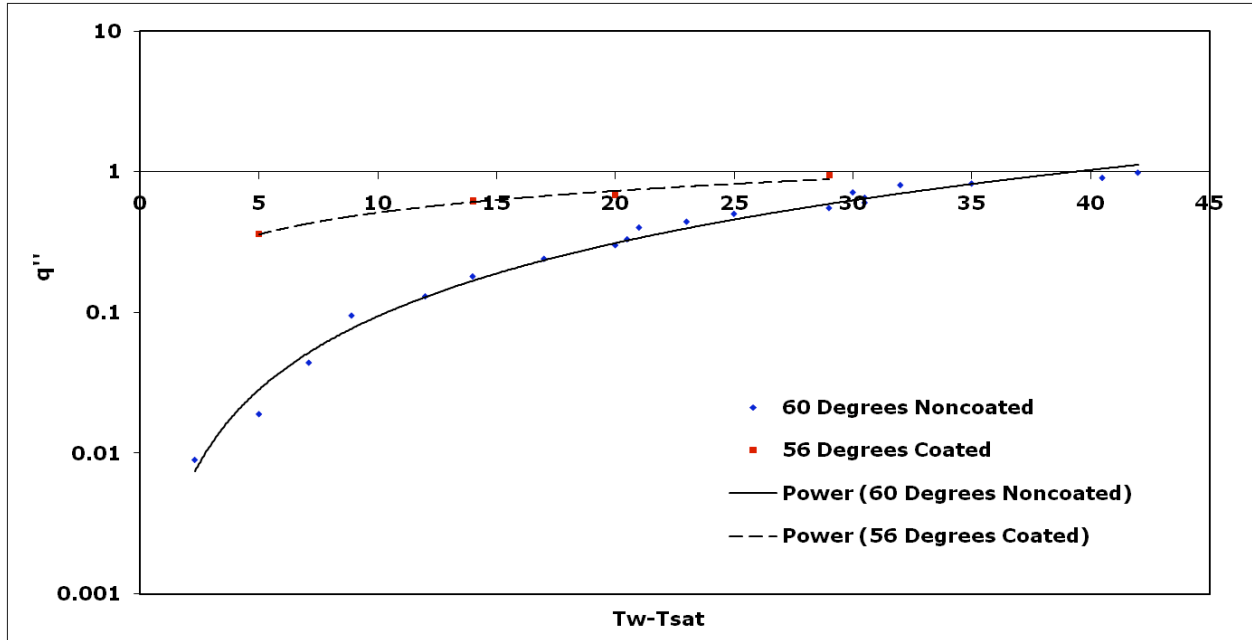**Figure 10. Correlation of Excess Temperature vs. Heat Flux between 56 Degrees Coated and 60 Degrees Non-coated Data**

CONCLUSION

Under all cooling conditions, the nucleate boiling heat fluxes observed for the cases with coating were consistently higher than the corresponding cases without coating. Depending on the angular position of the vessel, enhancement in boiling heat transfer of up to 100% can be obtained by using surface coatings. The largest difference in the correlation between the local heat flux and the excess temperature can be seen at higher angular positions. The use of surface coatings is a viable technique for enhancing the cooling of the reactor vessel under accident conditions. The cooling enhancement method under consideration is entirely passive and as such it is not subjected to human error. Should an unlikely event of core-meltdown happen; the reactor vessel could be cooled effectively to prevent melt-through of the reactor vessel by the molten core material.

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The City, The Country, and The Sexualization of Space in American Cinema and Television

Benjamin W. Ogrodnik, McNair Scholar, Penn State University

Faculty Research Adviser: Kevin Hagopian, Ph.D
Senior Lecturer in Media Studies
College of Communications
Penn State University

Abstract

From hillbilly horror to middle class prestige films, the American media often renders rural space as the space of socio-sexual transgression. Recent scholarship in Queer Media Studies suggests that this repeated "Othering" of the rural derives from "metronormativity," a discursive regime organized around a cultural rural/urban divide that gives rise to compulsory idealizations of metropolitan space while essentializing non-urban spaces into a narrow set of geographical stereotypes. In my project, I examine media representations of queerness dominated by city spaces, the cinematic creation of a metronormative frame, and forms of pro-rural media that counter urban sexualities.

Introduction

"The performance of identities is spatially contingent."
- David Bell & Gill Valentine[i]

With the advent of social construction theory, and the crucial insight of queer studies that understands sexual identities as discursively produced and not biological formations, we conventionally think of sexual subjects as belonging to certain spaces; yet, as Halberstam (2003) shrewdly notes in a reflection on the status of contemporary U.S.-based critical theory, "there has been very little attention paid to date to the specificities of rural queer lives" (162). A survey of queer media produced over the past century would appear to buttress that statement, as the slow emergence of queerness in American cinema and television betrays a striking urban bias that organizes depictions of gays, lesbians, and queers around city spaces that are prominently situated in America's collective consciousness: Los Angeles, New York City, San Francisco. However, only within the past decade has the aspect of sexual space itself – that is, "space" sexed in terms of cultural geography, regional identity, and national community – emerged as a legitimate object of study in the academy. In what follows, I attempt to address and supply this critical void by probing the question of space in relation to sexuality within the realm of media studies. To do so, I begin with the stark trends in representations of spatial queerness that characterize the present day mediascape in American society.

Since the late twentieth century, movies and television have continued to idealize metropolitan spaces as the most vital and "authentic" place for queer (i.e., non-straight) individuals to develop social networks and actualize themselves as sexual beings[†]. While non-hegemonic representations of cityscapes certainly do exist in the media (and shall be addressed later), I argue that the overwhelming majority of cinematic cities participate in this trend primarily by projecting a false social unity onto fictionalized urban landscapes, and that these idealized projections appear most prominently, though not always, in two forms[ii]. Within mainstream representations, for example, there exists one type that features a proto-Modernist obsession with figuring the urban as an all-encompassing social community[iii]. It is frequently implied that the "glamorous and sexy" City (which is almost always coded as having a White, upper-middle-class, homogenized social body) should thus be the central space informing a person's life narrative. The city in this conception exists as a static Utopia, while "Other" places (small towns, suburbs, and rural parts) have no real value or use. Often they are altogether absent unless manipulated toward a forward movement into the city. In turn, the absence of non-urban areas reinforces the presumed normalcy of the city, as well as the unjustified abnormalcy (i.e., the hostility, bigotry, and cultural provincialism) of regional spaces and populations[iv].

I call this the fantasy model, or "Gay Village" model (in this discussion of queer representations) of the cinematic city. This city emerges quite often in popular gay and straight-oriented television shows such as *The L Word* (2004), *Sex and the City* (1998), and *Frasier* (1993), as well as in critically acclaimed filmic adaptations like *Angels in America* (2003). It is situated on a coastal axis[††], presumably in order to play up and into the idea that East and West coast cities lord over America's cultural capital. In these fictionalized spaces, narrative devices and formal traits work in tandem to create a seemingly frozen, purified world where the main concerns of its elite inhabitants are always commercial, social, and private in nature, instead of culturally, racially, or geo-politically situated problems. This model lends itself to Bell's conception of "metrosexuality," specifically "metrosexual" queer subjectivity, which can be briefly described as a sexually ambiguous, effeminate male who embraces an urban lifestyle based around conspicuous consumption. The danger in the promotion of this imaginary lies in its implicit erasure of queerness in the urban subject. "Queerness," defined here as a practice that resists moves toward normalization, now becomes commodified and depoliticized, rendered into something trendy to sustain a commercial lifestyle. So rather than metropolitan queerness being imagined as a potentially subversive sexual subculture, holding the power to redefine dominant sex-gender systems, we are simply left with an uncomplicated, urban-inflected form of "homonormativity." Homonormativity is Lisa Duggan's designation for gay/lesbian-oriented "politics that do not contest dominant heteronormative assumptions and institutions but upholds and sustains them." Homonormativity, I should add, corresponds with and also embodies contemporary "gay globalism" ideology. Symbolized in the iconic rainbow flag, which derives

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[†] For additional scholarly work on this phenomenon that considers the context of media representations of queerness produced and consumed during the latter half of the twentieth century, refer to Bell and Valentine (1995); Howard (1999); Phillips, Watt, and Shuttleton (2000); and Benshoff and Griffin (2006).

[††] The concept of *bicoastiality*, which refers to the cultural fixation on major coastal cities located on the East and West of America's borders, particularly New York City and San Francisco, is explored with some detail in Herring's (2007) forthcoming essay on anti-urban queer print culture scenes which developed in rural America after Stonewall.

from major cities in the U.S., globalism calls for the effacement of regionalized sexual differences with the imposition of metropolitan gay norms, like coming-out, and urban-centric activist strategies likes "Gay Pride Parades, demonstrations, forming gay/lesbian religious organisations, and electing pro-gay or gay candidates" (Davis, 1995; Sinfield, 2000). This is often seen as culturally imperialistic in the non-Western world, particularly within non-metropolitan areas, where such practices could prompt social alienation or at worst provoke violence from others. Accordingly, the fantasy model can be read with a postcolonial lens as a reductive consolidation of urban American sexualities that threatens the livelihood and sex-gender systems associated with a significant portion of the global audience that it implicitly seeks to recruit.

On the other extreme, witness the more nuanced and self-reflexive yet complementary "gay ghetto" model, which unfortunately appears with much less frequency. Here, we encounter different kinds of queer subjectivity located on the periphery of a hostile, heterosexed city[†]. For this reason, the stability and diversity of the community remain unstable and are often contested as much from within as from without. These depictions seem to in some ways challenge images of fantasy cityscapes, portraying what Davis has identified as post-Stonewall political realities that complicate contemporary gay/lesbian/bisexual aspirations of creating an urban "liberated zone" (1995: 284): the dispersal of progressive politics from the city, socioeconomic inequalities within gay and lesbian movement, and recurring forms of heterosexist violence. Yet, while the "gay ghetto" city should be noted for offering a potentially critical interpretation of urban gay and lesbian identities, it remains flawed for concerning itself with hegemonic urban sexualities at the expense of marginalized sexualities from the countryside and elsewhere. In this way, it reinscribes what Halberstam points out as the problematic assumption in which "erotic dissidents require urban space because in rural settings queers are easily identified and punished," a belief that further implies "while rural communities invest heavily in all forms of social and sexual conformity, urban culture thrives upon social and sexual difference" (2003: 162). Moreover, whereas gay village cities in the media organize sexual citizenship around an ethos of consumption and fashion wherein urban space becomes affirmative, a spectacle to be consumed, the gay ghetto by contrast creates a defensive vision of queer space, a walled city where gays retreat, while offering the audience the ideal of the politicized gay/lesbian citizen. This not only polarizes dominant depictions of gay sexuality as either activist or depoliticized subjectivities, but also sacrifices productive forms of micro-level cultural politics to favor a nationalizing, collectivist agenda that, while placing tremendous faith in the liberal nation state, leaves itself vulnerable to all the procedural difficulties and problematic exclusions plaguing other oppressed groups enmeshed in
histories of "identity politics," making reactive versus productive programs for the future.

I use these spatial categories to call attention to what Halberstam (2003) has termed "metronormativity," a discursive regime in the U.S. in which the city becomes positioned at the top of an imagined spatial hierarchy in part through the production and consumption of a rural-to-urban migration story[v]. According to Halberstam's formulation of the story, "the rural queer, within this standardized narrative, emerges from the dark night of a traditional and closeted

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[†] Many urban-identified, urban-centric queer studies scholars, such as Hubbard (2001) and Warner (1998), argue that in spite of visibility and the existence of gay commercial establishments, cities are still predominantly sexed as "straight" by corporate advertising, homophobic law enforcement, and other powerful institutions of heteronormativity.

world and blooms in the sunshine of modern gay urban life" (163). She adds that the migration narrative transforms into a coming-out narrative as well, in which the small-town queer leaves the phobia and oppression of a non-urban setting to achieve sexual enlightenment in the city by turning into a visibly "out" sexual being. Metronormativity in this form can be especially counterproductive for sexual dissidents (gays, lesbians, transsexuals, and so on), partly because as soon as the space of utopian city emerges as the end-all, be-all land of sexual exploration and self-actualization, it effectively camouflages the economic and social hierarchies therein. Herring (2006) has extended Halberstam's original concept on this point by uncovering the aspects of racial normativity, socioeconomic norms, and aesthetics that attend the migration narrative. In effect, we see in metronormativity the privileging of Whiteness, the enforcement of narratives of socioeconomic uplift, and the dependency on fashion through manner and dress. This now-standard urge to "live in a city and let go of one's home" thus involves indirect compliance with many real-life anti-queer, urban-based power structures, including the normative biases of individuals who rally around the city as a refuge. "Taken as story, style, or both," Argues Herring, "metronormativity buttresses the narratives, customs, and presumptions of many modern U.S. urban gays and lesbians while it simultaneously enables these gays and lesbians to govern the aesthetic, erotic, material, and affective imaginaries of many modern queers, irrespective of 'country,' 'town,' or somewhere in between" (2007: 344). In this way metornormativity can be seen as a power discourse as well; at once generative for gay and lesbian city-dwellers on one hand yet repressive for non-urban subjects on the other.

But even with these two complex theorizations, the social impact of this spatial ideal still remains somewhat obscure. We must therefore remind ourselves of what is at stake in maintaining rural spaces as "Other" than urban spaces. Because metronormative discourse frames all life along a linear path moving in one direction toward the city, we must realize that, as a consequence, alternative spaces, particularly rural ones, are camouflaged in the process, pushed aside, and become unimaginable in terms of providing a spatial context to have a worthwhile existence in. That this effectively forecloses the legitimacy and potential queerness of rural-based practices and identities[†] in advance should force us to seriously consider the value of maintaining the same media representations of queer life in metropolitan spaces from the perspective of homophobic discourse. I thus maintain that the previously described hegemonic models of the cinematic city not only participate in a system of metronormativity, functioning to overpower the possibility of imagining life-affirming spaces beyond the urban, but they also engage in a very obscure, but no less harmful and pervasive system of heteronormativity that profits from cinematic representations of binaristic sexual spaces. In other words, I want to suggest that straight culture is deeply invested in preserving spaces in terms of gay versus straight through metronormative reductions because its own continued existence depends upon such binaries and stable identity categories.[vi]

Oppressive class divisions and the deracinating standards of Whiteness and sex-gender conduct tied to city life must not be overlooked as well in the simplified, gay-oriented fantasies of the city-as-sexual-Utopia. For many sexual dissidents of color or of low economic class, the real-life city can be far more hostile than the rural places that are so frequently dismissed in cinema and television. Many cities are racially segregated, and their purported communities and safe houses for gays and lesbians have been constantly scaled back and relocated by city officials. We should also recall that the significant cultural differences that constitute rural and

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[†] For more on the sexual lives of queers in rural America, see Howard (1999).

urban sexualities tend to disappear in the media world. Discussing the difficulties facing gays when they trade rural life for city life, Rubin notes that "instead of being isolated and invisible in rural settings, city gays are now numerous and obvious targets for urban frustrations […] The specter of the 'homosexual invasion' is a frequent scapegoat which deflects attention from the planning commission, the political establishment, and the big developers" (1984: 24-5). Therefore the migratory impulse in metronormativity can wind up creating nothing more than a destructive situation that leads to dislocation and alienation among queers where there was either little negative affect, like powerlessness, or none at all to begin with.

The effects of such a pattern have been closely documented by Weston (1998), whose anthropological research focuses on the so-called "Great Gay Migration" that occurred in the U.S. around the seventies and eighties. By Weston's account, the historical conflation of the city and the homosexual gave rise to a widespread displacement of suburban and rural gay populations. She notes that "countless individuals launched themselves upon a quest for community," moving into cities like Los Angeles or New York City in hopes of actualizing themselves in affirmative social quarters. Needless to say, not everyone found paradise in the city; many returned home, after being marginalized by the class, gender, and race-based stratifications which they encountered in their new social environments. While Weston's interviewees claim in their personal testimonies to have left their homes on their own accord in order to find freedom from stereotypically conservative, small-town forms of oppression, her investigation suggests that, in reality, these migrants actually internalized the belief that their hometowns were inadequate and repressed only after encountering and consuming urban-based forms of homosexuality through books, movies, or television that had encouraged rural-to-urban movements by identifying the entirety of gay culture with the Big City.

As I hope I've indicated in these preliminary remarks, the implications of metronormative tendencies in US-based media representations are urgent and in many cases have life-and-death consequences such that we as critics must begin to consider sexuality and space together, lest we remain complicit in the ideological framework, which clearly has some contradictory, destructive power and also implicitly defines life for a number of people. Even so, it must be said that the downright hegemonic fixation on metro-life and "bicoastiality" – that is, on major urban regions like L.A., S.F., and N.Y.C. – has not at all extinguished the existence of anti-urban subcultural media. More likely is that this bias has merely accelerated the development of counterpublics and alternative forms of queer identity that continue to thrive below the radar. In fact, there may be a useful paradox in this situation, one to which scholars of Foucauldian discourse can attest: as a power discourse, metronormativity indeed continues to grow more pervasive and coherent and identifiable; yet, at the same time, its ambiguities, contradictions, and hidden violences are made all the more obvious and intolerable through its very prominence, triggering the counter-production of resistant forms to destabilize it. That is to say, no matter the extent of its hegemony, other possibilities (identified or not) can be sought out for oppressed Others because its status is always unstable.

My reason for addressing two types of sexualized city spaces in television and movies earlier is to question the cultural function of the city-as-Utopia and the countryside-as-closet as two parts of the selfsame sexual imaginary operating in queer culture and in mainstream heteronormative culture. Moreover, I wish to ponder the social ramifications of unselfcritical urban queerness in the context of a cultural rural/urban divide in American society, and I want to discuss the implications of metronormativity as it pertains to the legitimacy of scholarly

knowledge, especially of the kind that seeks to enumerate the diversity of sexualities, identities, and genders free from destructive biases.

In terms of organization, my critical focus first turns to the formation of the metronormative frame in the media, where I analyze the narrative and formal mechanisms particular to cinema and television that assist in creating and circulating metronormative discourse. Then, I move into a discussion on the complex typologies of critically rustic queer media. By way of conclusion, I revisit and extend the core arguments of this research and assess the sociology of theory in relation to urban biases, and lastly finish by suggesting some possible areas of study for interested scholars.

Central to my project, then, is the premise that models of sexual space in movies and television generally have been and are increasingly expressed by a metronormative "frame" – that is, an urban-biased way of seeing and valuing the world produced through Otherized rural spaces and idealized cities, and a spectatorial gaze constituted and replicated through the formal specificities of each medium and/or the dictates of story and plot. Of the many formal qualities that give rise to cinematic metronormativity, I focus on three: the cinematic apparatus (or "gaze"), mise-en-scene, and the character-driven narrative mechanisms of perspective, focalization, and address. I do this partly for the sake of scope, but also because these elements establish the core of an interpretive map, which, I believe, deserves particularly intense scrutiny. As current research suggests, a metornormative frame carries over from our filmic experiences, becomes performed in real-life as a value system, and overlays itself onto geographic spaces and material bodies, designating some sexual subjects as knowable and legitimate while others are not quite so similarly categorized, to say the least. Meanwhile, the overall effects in this process continue to be the ongoing legitimation of U.S.-based sexualities that are tied to real and imagined urban spaces in America; the subsequent formation of power that upholds urban sexualities and norms as desirable and necessary through pro-urban institutions and media; and the concurrent exclusion and suppression of non-normative lifestyles, stylistics, and sexual practices that are outside the metropolitan "center," yet which in many ways paradoxically enable its continued existence.[vii]

Along with identifying the metronormative frame, I am interested in seeking out instances and processes which seem to subvert or de-essentialize the hegemony of sexualized metropolitan areas. To this end I orient the bulk of my project toward rural-centric, or "critically rustic" cinema and television; that is, I pay special attention to media texts which somehow appear to aesthetically or politically disidentify with or problematize the dominant spatial logic structuring the American mediascape at large[viii]. For purposes of organization (and future study), I assign a wide variety of movie genres and TV programs with these preoccupations to three "nonce" categories: rural retrofuturism, rural magic realism, and revisionist hillbilly horror. My rationale in doing so is that these selections reflect what I believe constitute three distinctive conceptual parts in a growing counter-discourse within American media, which may have commonalities in terms of theme, tone, and subject matter, but are not necessarily governed by genre or production. They additionally offer counterpoints to traditionally urban-identified social practices (for example, rural camp) and undermine conventional models of sexual space (fantasy/ghetto cities). I maintain the importance of archiving these micro-strategies of "metro-subversion" as a way to engender new modes of seeing and recovering non-urban stylistics and alternative sexual imaginaries beyond the City.

Given the wide-ranging interdisciplinarity of this project, as well as the current lack of adequate theorization in this specific area, my research methodology has been called a case of "theoretical bricolage" (Hagopian). Indeed, throughout I tend to draw heavily from cultural geography, narrative theory, and postmodernism. Yet the locus of my work can only be described as "Queer Media Studies:" a title that refers to a scholar-fan's passion for studying cinema and television, coupled with profound respect and personal investment in 1990s queer theory. And while my emphasis remains media spaces, I do hope that the coming analysis makes evident the applicability and wide-ranging influence of metronormative and anti-metronormative perspectives as maps for reading other spheres of culture and invites more research in the future.

The Formal Construction of the Metronormative Frame

"Power isn't localised in the State apparatus
and nothing in society will be changed if the mechanisms
of power that function outside, below and alongside
the State apparatuses, on a much more minute and
everyday level, are not also changed"
- Michel Foucault[ix]

Perhaps by virtue of their sheer ubiquity and influence over society, dominant discourses tend to be difficult to identify and locate, in contrast to the relative ease of picking out the innerworkings of minority discourses. Indeed, the French philosopher Michel Foucault, the great thinker of power and its various formations, once argued that part of the reason power is so prevalent is simply because "power is everywhere," and especially indicative of its extent is when its structure seems built into "the order of things," or the natural world itself. Therefore, in this section, when I discuss the existence of a metronormative "frame" – that is to say, an urban-inflected ideological framework, that over time has reached the level of a power discourse for classifying and creating meaning in the world – we should not assume that the frame is always readily identifiable in every circumstance. However, that should not devalue the importance of pursuing the power discourse in question; as we've seen in the realms of critical race theory and feminist studies, often times structures of oppression and relations of power seem to be invisible because their very enabling mechanisms have deeply infiltrated our cultural institutions, our social groups, and even our psyches; under such circumstances, our task as critics is to be even more committed to thorough analysis.

In what follows, I take up a formal discussion of metronormative media, with the aim of exposing what makes it so omnipresent, yet simultaneously so difficult to perceive. My overarching objective in doing so is to lay down the theoretical groundwork to stimulate the burgeoning research field organized around the study of urban/rural sexualities. Admittedly, my method here is far from comprehensive, especially since I'd like to offer several smaller, adaptive theories about sexual space rather than give a grand theory that would resist modification in the future. Throughout, I rely upon formal analysis, though my project has interest in context and narrative as well. Formal analysis allows the analyst to unpack dominant discourses' inner-workings at the level of a text in order to see what specific devices enable the production and circulation of meaning. Unlike some research conducted in cultural studies, this

attention to form enables the scholar to avoid theoretical pitfalls that endanger the particularity of media objects. Formal analysis therefore understands that a medium such as film or television operates in a radically different fashion than literature, music, or dance. Such awareness toward specificity is particularly urgent in the case of this project, because metronormative discourse accrues power and constitutes itself by performing generalizations that consolidate differences into harmful homogeneities. To dismantle the structure of metronormativity, then, we need to mobilize around specificities of medium, space, and sexuality; failing that, we only perpetuate metronormative biases we seek to undo.

During this section, we will see how the concealment of metro-biases in a medium's basic characteristics (e.g., setting, frame, narrative) occurs beyond most audiences' recognition, while noting that the specific formal qualities of T.V. and cinema tend to intersect and synchronize at the same time, camouflaging the crucial processes of exclusion and mystification in a text while heightening spectatorial pleasure and a viewer's emotional investment in characters, story, and so on. Accordingly, my formal analysis uses an intersectional approach toward understanding each component, recognizing for example that the gaze depends on mise-en-scene in creating particular identifications, or that setting needs perspective to be convincing for certain audiences. With that said, we begin an account of cinematic metronormativity first by looking at the way in which we as spectators are "urged" to look at certain sexual spaces, as it is through this specific relation that the metro-normative frame works strongest and conceals itself most effectively.

 As media scholars are at pains to remind us, consumers of T.V. and cinematic images receive different types of lens for perceiving places and people each time they watch a movie or television show. These lenses come from the specific ways that the cinematic, or televisual, apparatus frames the action of characters within a narrative. Laura Mulvey (1988) offered a foundational, but controversial, theory about the production and effect of such cinematic modes of seeing. Borrowing from psychoanalysis and feminism, Muley theorized the concept of "the gaze," stating that the cinematic gaze, by virtue of being placed and configured in a male-dominated industry for male-dominated audiences, worked as a mechanism in the service of patriarchy. To this end, argues Mulvey, the gaze is always gendered male, and the object of the gaze female; therefore, the cinematic medium actively undermines the agency of women in society, transforming female actors into fantasy objects for a masculine spectator's consumption. Mulvey's groundbreaking work, which prompted many more critical forays into the hidden infrastructure of visual mediums, has nonetheless been rightly criticized through the years by many film studies scholars for being reductive, sexually essentialist, excessively narrow in focus, and heteronormative, as well as harmfully binaristic in terms of failing to consider transgendered modes of spectatorship, a point on which Jose Esteban Munoz adds: "Psychoanalytic theorizations of cross-gender identification such as Mulvey's never challenge the normativity of dominant gender constructions" (1999 :27).

Yet, in spite of its problems, Mulvey's formulation of the gaze has remained the starting point for queer media studies scholars interested in ways that the media relates to non-straight subjectivity, such as through the encouragement of cross-identification and the creation of gender-bending queer desire. Clover (1995), hooks (1992), and Straayer (1996), respectively, build on Mulvey's primary understanding of the gaze by suggesting that the gender, race, and sexuality of the gazer is never fixed in media, and that different genres provoke potentially queer spectatorial positions of gazing that require fluid, back-and-forth identifications with male and female characters (see, for example, Clover's astute account of the slasher film). While these and

other critics continue to find liberatory and subversive potential within the gaze, mainly concerning forms of deterritorialized identitarianism, I am more interested in the ways the apparatus informs and possibly deforms the production of spatial identities in the realm of non-normative sexuality. Indeed, the metro-camera Romanticizes urban sexual space in a variety of ways, depending upon the sexual ideology that informs the camera-eye. Some heterosexual texts, like Woody Allen's *Manhattan* (1979), charm the city, while others condemn urban life as a cesspool of queer depravity but also contradictorily stylize cityscapes as home to disaffected straight masculinity (particularly in film noir). To address the role of the gaze in maintaining images of sexual space, I extract concepts from Mulvey's findings and put them to work in recent texts that center on queerness.

Within gay/lesbian mainstream media, for example, a spatialized gaze facilitates the sexually essentialist connection between urbanity and homosexuality, a connection that subtextually manifests itself in depictions of fantasy cities. This conflation of gay identity and the city occurs through a process similar to that of Mulvey's formulation of the masculine gaze, triggering its analogous implications of objectification and domination. But the metronormative gaze has important differences. For example, according to Mulvey, the female character is encoded with "to-be-looked-at-ness," making her an object, a thing for the masculine gazer, thereby displacing any subjective agency from the female character in advance. To my reading, a metronormative gaze in gay/lesbian media operates in a somewhat similar fashion, except with the effect and implication in reverse, serving to entrap, instead of empower, a media text's imagined audience. We shall start examining this process in the context of fantastic queer cities.

Both city-dwellers and the city itself in the Gay Village model frequently undergo a process of media objectification, as the frame and camera lens, plus the elements of cinematography, work to render an urban gay imaginary as a space of glamour and sophistication, of "to-be-looked-at-ness" that is at once trendy and desirable and consumable for the spectator's voyeuristic gaze. While encoding this "to-be-looked-at-ness," the gaze of the frame tends to perceive the Gay Village, paradoxically, as an *urban pastoral*, or a city-as-landscape, using a combination of aerial shots of the city (calling to mind travel brochure imagery) juxtaposed with flattering close-ups of specially selected city inhabitants, as in *Angels in America* (2003) so as to give a sense of the city as a space of spectacle, cut off from histories of oppression or modern-day social injustices. These cinematographic choices are then compounded by various forms of mise-en-scene which literally emplace an elite homosexual class at the center of the universe by pushing the city's queer discontents out of the camera's frame, away from the spectator's gaze. The outcome of such representations, as we will see, is the creation of a segregationist outlook toward different sexual spaces and a "negative"/"positive" Romanticization of the urban that, despite any outstanding criticisms directed toward cities within a work, still upholds the deeply anti-queer view that "city residence is a precondition to homosexual identity."

Witness the movie-musical *Rent* (2006), whose pastoral conventions seek to remake AIDS-stricken New York City of the 1990's into a "timeless abstraction," a place that "evade[s] time, history, and material political realities through a retreat into a phantasmatic ideal space which is pre-cultural, if not pre-social, and often, by implication, superior and preferable" (Shuttleton, 2000: 128). But ironically, at first glance, one would be more inclined to read *Rent*'s city as a "deadspace" than an urban pastoral, since the mise-en-scene repeatedly gives us the telltale signs of corruption and contagion as opposed to abstraction and liberation. For instance, there's the profusion of material evidence that indicates a decaying cityscape.

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Again and again, the design of the setting highlights the unidealized, non-bourgeois aspects of the Big City: vandalized buildings, fire barrels, police cars, and wandering homeless people who populate the downtown streets. In addition, the aesthetically-realistic costuming of the city artists and the homeless offers a sense of verisimilitude, rather than one of artifice, with which to frame a bleak picture of living a hand-to-mouth existence in America's largest city. How is it, then, that *Rent* stands as an example of urban pastoralism in the queer media, especially with such outwardly critical mise-en-scene?

Indeed, at the outset, it seems that the protagonists would be threatened by this hostile urban landscape, living "dirt broke, hungry, and freezing" as they are; but, in fact, the film's metronormative gaze precludes that reading in advance, suggesting a rather contrary conclusion that, not unlike the idealized countryside of the pastoral myth, the corrupted city of *Rent* provides pleasure and spectacle in spite of harsh material realities; that, in actuality, the city emboldens resistance to oppression instead of further marginalizing minority groups within it. Indeed, rather than complement the corruption of the mise-en-scene, the gaze counter-balances and contradicts the city's manifested antagonisms. To this end, the frame empowers the main characters with a disproportionate amount of agency and mobility that, over the course of the film, work in tandem with the story to create an undifferentiated group identity. We see this process develop at the level of the cinematic apparatus whenever the mobile frame is used to parallel, enhance, and Romanticize the dynamic activity of the characters during dance numbers and dramatic moments occurring on screen, in turn creating a binary pair of active urban subjects who are defined by a sense of spectacular movement, versus a passive urban space that serves as a kind of empty backdrop for the subjects to interact and deliberate in, under the same level of freedom. The agency-producing gaze, deployed in this way so as to neutralize mise-en-scene, thus negates the impulse to critique the social inequalities affecting urban spaces. At the same time, this neutralization of setting by a pro-urban gaze also triggers an overwriting of the mise-en-scene's persistent Othering of city life, covering over images of grim conditions with a romantic portrait of gay/lesbian/straight pan-collectivity, while advancing a view of homosexuality as part of "timeless," Utopian society, unconstrained by a peripheralized, "fallen" New York City.

At this point, skeptics may argue that *Rent* is an exceptional case, that we should not fault its binarization of community and city for creating a misleading opposition between movement and stasis, because doing so ignores the fact that *Rent* unavoidably remains limited in its overall political savvy, because the genre of the movie-musical relies on Expressionism, theatricality, and the reduction of complexity in order to be financed or to be consumed; in short, the counterargument asserts that *Rent* can't help its reductionism, so therefore we should not be so quick to attack its ideological agenda. Besides, what's the value in dismissing a gay "feel-good" film anyway, especially if it accomplishes the amazing task of getting mainstream audiences to care about people suffering with AIDS firsthand?

On one hand, I cannot help but sympathize with this view, because in many ways the Romanticization of urban queerness in this case partly functions challenge the phobic climate surrounding the AIDS epidemic that existed at the time of the play's release and which unfortunately continues today; and, admittedly, I have not given details concerning these contextual factors that complicate the production or reception of such media, nor clarified my position on the issue beforehand. Indeed, that the gaze of a mainstream media text invites identification and support for AIDS-afflicted individuals, instead of condescending pity, is no small feat and definitely deserves credit, especially because so many "sick flicks" and AIDS-centered works of recent memory organize queerness around a totalizing narrative of gay death.

For instance, see the pessimistic and gay-phobic 2002 adaptation, *The Hours*, whose trans-historical account of middle-class feminist struggle features a typical counter-position which, in the ghettoized portrayal of the suicidal poet Richard Brown, subsumes affected gay identity to highly idealized thematics of mourning, exchanging queer agency for anti-political tragedy that sees despair and self-destruction as the only outcomes for queers in the age of AIDS.

But, on the other hand, we must also recognize that despite these good intentions to function as an anti-plague-ghetto text, *Rent* still encourages us to read the city not as a dystopian, or even an ambivalent place, but as a fantasy space in its construction of an urban pastoral. And the film's pastoral, as it is created in the opposition between the material space of the film (the superficially desolate yet deeply picturesque city) and the inhabitants of that space, implies such a retrograde political outlook that, to my reading, *Rent* loses its own queer, anti-heteronormative potential (that transcends generic convention) and all but negates its otherwise legitimate goal to offer new ways of thinking about and dealing with AIDS in the highly phobic atmosphere of 90's America. In short, I vehemently oppose the implications of the film's logic which presupposes that we must downplay the conflicting material and immaterial forces that characterize real-life cities in order to rally support around AIDS awareness, and that we frame AIDS as city-identified phenomena that can only be addressed within urban communities. It is in that very kind of thinking, that seemingly innocent double-gesture, in which the compulsory abstraction of the city assimilates into some other particularized crisis of gay subjectivity, that we find how metronormative framing circulates throughout mass media with hardly any notice.

For that reason, we should stress the importance of the interaction between gaze and setting, as this formal move is key to understanding the creation and maintenance of the urban pastoral in mainstream queer media. That is to say, then, without the cinematic apparatus and setting working together to coax the viewer out of perceiving the harsh material realities of the city, and shifting attention toward seeing the city as an idealized social imaginary, then the illusion of the urban pastoral – i.e., the dream of a city-based "liberated zone," as seen in *Purple Rain* (1984), *Queer as Folk* (2000), *The L Word* (2004), in which social difference ceases to exist and every homosexual is created and treated equal – falls apart, ruptured by the manifest social disparities that structure cities into sites of social struggle, not spaces of social unity, thereby causing the Utopian image of city-as-landscape to emerge as a much less viable and non-essential model.

Another popular film, John Cameron Mitchell's critically acclaimed *Shortbus* (2006), sheds light on a second aspect of the formal construction of the urban pastoral that I've mentioned earlier, the element of spectacle, which also involves a manipulation of the cinematic gaze. To be sure, *Rent* demonstrates this aspect of spectacle quite plainly, and almost by default as a movie-musical; but because *Shortbus* is an independent film that belongs to the genre of drama, we will see a manipulation of the film form in the service of metronormative discourse that is uniquely decoupled from generic pretense or audience expectations. Along the way, the hostile city space of *Rent*'s Gay Village will be turned upside, revealing the caricatured flipside of a metronormative homosexual imaginary, one that precludes any consideration for socioeconomic and racial divisions whatsoever in favor of consolidating the diversity of urban existence to cosmopolitanized queer pleasures, such as spectacle, fashion, and aesthetics. Lest we be tempted to disregard this construction as frivolous, I will show how the film form assists in the film's narrative treatment of urban space as part of the natural order of things, of queer sexuality as natural, and of New York City as the sexual epicenter of the world.

Whereas the Gay Ghetto posits liberal politics as the answer to heterosexism, treating the heterosexed city as the perpetual obstacle for queer subjects, the Gay Village in *Shortbus* displays more interest in pursuing an ethos of consumption as an alternative to gay/lesbian movement politics altogether, such that the film's urban queer zone turns into what Steven and Malcom Miles call a "consuming city." This element of consumption occurs in accordance with the film's pastoralistic naturalization of urban queerness, so that, in the end, the consuming city ideal cannot be delinked from a vision of homosexuality. We bear witness to this process as the metro-gaze and Expressionistic mise-en-scene help create New York City into the sex capital of the world – a world perhaps more familiar to consumers of tourism media than to the occupants of the city itself. Through several intermission sequences consisting of moving aerial shots of the city, in which we enter and leave apartments and soar around the cityscape with ease, the audience comes to occupy an invisible flying eye-camera, which allows us to experience a topography of urban space that substitutes spectacle and the illusion of control and mobility for an awareness of the urban social structures that suppress the freedom of movement for many city-based queer individuals. As if in a travel brochure, we thus consume an idealized portrait of the city that necessarily excludes all internal and external threats that would ruin the fantasy. Still, this exclusion of undesirable realities that occurs in the film's formal pastoralization of the Big City is key to understanding the politics of the queer consuming city, as the compensatory theme of mobility and pastoralism precludes the subjects and experiences that would expose such a spatial ideal as a fundamentally crypto-racist, classist, and segregationist gay imaginary. As such, in *Shortbus* "the landscape-as-leisure returns with a vengeance, creating a sort of citizenship predicated on the externalization of those deemed 'undesirable' [and] through landscape, politics is fully aestheticized" (Mitchell, 2000: 138). The tourist ethos not only masks this agenda but also treats exclusionary politics, in such aestheticized form, as a fetish object.

Our gaze is further entreated to consume the city when the film turns to a place called Shortbus, a salon for "the gifted and challenged" and the imaginary endpoint in a migration narrative to which queer "kids flock" and get laid. Here, the film converts N.Y.C. from a landscape-as-leisure into the global locus for legitimate sexual variation. Justin, the overseer of Shortbus, performs this transformation in his description of the salon that compounds the city of the film's travel-brochure gaze with gay globalism ideology: "You've got the whole world and it's your playground," he tells a newcomer, pointing into a room where a wild party seems underway, with participants who appear prepared to fulfill every sexual taste of interested visitors. Justin then naturalizes the sexual playground (i.e., political outlook) of the consuming city in his conception of sexuality as a "magical motherboard that connects globally," an image which, linked to the film's metro-gaze and mise-en-scene, aestheticizes the city with transparency, control, and spectacle, at the expense of social and material barriers, in order to legitimate metropolitan sexuality as natural, and render different sexual beings as fundamentally the same, interchangeable units to be united in circuit board which figures as a metaphor for nation insofar as "the cultural heterogeneity of the city [is] denied […] to symbolize an imagined national community" (Sibley, 1995: 108) that takes on an additional geopolitical aspect wherein Americanized metro gay nationality conflates into gay globality. Spectacle, as constructed in the urban pastoral of *Shortbus*, thus offers an ethos of consumption toward worldwide sexual assimilation of U.S. models of urban sexuality.

Other types of Gay Village cities rely upon globalism, spectacle aesthetics, and capitalistic values to varying degrees, to be sure, but *Shortbus* nonetheless gives us a glimpse into the general tendencies of a cinematic apparatus entangled in the various ideological

positions that compose the urban bias in queer media. Before we move on to narratological components of such media, we should revisit Mulvey's notion of the gaze to reaffirm the fact that the metronormative frame circulates throughout the mediascape without drawing much scrutiny. Literary scholar Nalini Paul (2004), in giving a summary of Kaplan's notion of the male gaze, illuminates the circumstances of media reception which allows this objectifying force of the frame to pass over viewers' notice, stating "the apparatus does not draw attention to itself as a process of construction; rather, this filmic process detracts attention away from itself during the experience of watching the film, allowing the spectator to get drawn into the diegesis." But even if such an objectification of gay and lesbian city life reflects hollow empowerment, instead of disempowerment as in male gazing, the effect of such a metronormative gaze still stays the same: Like Mulvey's gazed-at woman, the fantasy city becomes an image of desire for the gazer. Put another way, the gaze here transforms the city into a commodity for us to fetishize. As cultural geographer Don Mitchell reminds us, cinematic "landscapes, through their aesthetization of space, may very well be texts, and they may often be texts that revel in depictions of the good life, but they are also, always, physical concretizations of power, power that the landscape itself often works quite hard to fetishize as something else altogether" (2000: 125). I propose that the fetish we're supposed to desire in such mainstream portrayals is the imaginary ideal city that maintains the urban as the privileged term in the rural/urban divide, that views cities as paradises instead of sites of struggle, that also allows metropolitan stylistics and forms of desire to emerge as timeless, authentic, and natural rather than constructed and historically particularized phenomena. Granted, my description of the gaze pertains to fantasy models of cinematic cities, so we must refrain from generalizing about all kinds of media. Yet, even so, this general tendency to translate spaces from dynamic and material sites into flat images of desire still predominates metronormative representations of sexualities (albeit in different ways), and almost to the point where heavy stylization and objectification constitute the status quo.

Metronormative Narrational Strategies

The narrative theories of structuralist writer Gerard Genette are particularly useful for understanding the ways that the metronormative frame enlists elements of plot and story, such as perspective, focalization, and address, to narrow the field of queer voices in media representations in favor of biases held by urban-identified gays and lesbians. As defined in narratological theory, perspective has to do with the overall ideological point-of-view offered by a text. This textual viewpoint is not necessarily obvious to the eye. A work of literature, for instance, may offer an anti-imperialistic morality tale about the history of colonialism on a literal level, yet simultaneously have its sub-literal, ideological perspective designed in such a way to flatter modern-day Westerners, making readers forget the neo-colonial practices of imperialistic forces that characterize the present moment.

Perspective therefore acts as the underlying value system that forms the superstructure, or subconscious, of stories that claim to talk about values in the literal sense. For my purposes, we shall consider this definition of perspective through a Bakhtinian understanding of textuality: that textual objects always carry the potential to speak for a variety of real-life populations in the world, yet at the same time texts tend to (de-)emphasize certain values and groups depending on the work's perspective, and social context in which a text is received. The idea of address, meanwhile, centers on the desired audience of a particular voice of a text: It involves the real and

imaginary populations who are either interpellated or disregarded by any given media. The text's address in this sense is always a political relation; even if a work strives to be inclusive, say, by presenting a grand vision that tries to account for the totality of human life (e.g., the epic, some forms of lyric poetry), then inevitably the multitude of social and material specificities which define existing subcultural populations are going to be submerged under the banner of a collective "we" that tends to make sense only for people in power or people closest to a text's normative ideal. Finally, in terms of focalization, we should view this narrative mechanism as the conduit for the perspective and the address of a media text. The focalizer is the protagonist or host of characters acting as the surrogate of a text's ideological point-of-view. Focalization can be linked to gaze theory: the focalizer is often the figure in whom the audience invests its identification and carries their gaze. Together, these three components of narrative compose the textual basis that complements the visual aspect of a metronormative frame.

The perspective offered by pro-urban queer media generally works to exclude rural queer life. It does so by constructing a collective "we" that implicitly prohibits the participation of non-Out, non-urban queer individuals. The metro-normative "we" acquires this exclusionary aspect in the way that the "perspective" of a television program or movie seems to speak on behalf of all gays and lesbians, yet does so from the lockstep viewpoint of a pro-urban, pro-White, pro-middle-class ideological framework. For instance, in *The L Word*, or *Will and Grace* (1998), queerness becomes a function of a sexualized, classed, and raced cityscape, and the concomitant perspective fails to accommodate exceptions to these conditions when they do appear, instead functioning to authorize the legitimacy of urban life by making antithetical individuals (frequently perceived as "low-class" by the shows' characters) appear as deviant, stigmatized, and undesirable. The city queer is then normalized through these texts' insistent claim that urban queerness is acceptable and desirable to the extent that it is connected to a fantasy city (and the concurrent city norms of racial assimilation, corporate professionalization, and anti-political middle-class life). Numerous gay-oriented documentaries[x], such as *Common Threads: Stories from the Quilt* (1989), *The Times of Harvey Milk* (1984), and *Before Stonewall* (1984), serve as iconic examples of the institutionalization of this pro-urban-queer narrative perspective through their implicit or explicit use of the gay migration trope as a fundamental pretext to homosexual solidarity and political activism.

A collective "we" cast as White, urban, middle-class, and anti- or pro-liberal politics focalizes itself at the level of characterization across a variety of social archetypes. These types, despite occupying different bodies and identities, still tend to display the same metronormative ideological frame in the attitudes held by the individuals (typically the protagonists) who represent the "we" of a text. These attitudes correlate to the biases Herring identified in his theorization of the rural-to-urban migration narrative.

That is to say, the characters in pro-urban queer media seem to be obsessed with upper-middle-class fashion aesthetics, committed to a standard of white-collar professionalism and enforce abstracted Whiteness that treats corporeal differences (of skin color, body type, and gender-sex identity) as a sign of deviance to be stigmatized and contained at a distance. In addition, the character-focalizers embody norms of metropolitan sexualities, such as visibility, gender nonconformity, and political activism. The focalization of these biases serve to sustain regional shame, bicoastal biases, and forms of urban gay cosmopolitanism that manifest in a cultural rural/urban divide which appears to be incontrovertible in the narrative logic of pro-urban queer texts. Hence, when focalizers encounter sexual disidentification with metropolitan

stylistics or urban socio-sexual norms, these moments are typically encoded as inauthentic and dangerous to the stability of the urban gay and lesbian community imagined by the text.

That the perspective of the text remains fixed, monolithic, and unchallenged among the urban-identified focalizers suggests Bahktin's notion of the struggle over meaning in narrative discourse, showing that urban sexualities attain legitimacy in media by collapsing one meaning into visual and narrative symbols that have the potential to signify various things: "the ruling class strives to…extinguish or drive inward the struggle between social value judgments which occurs [in the sign] to make the sign uniaccentual" (1984: 23). In other words, the characters and narratives of mainstream metro-texts offer their respective discourses in a way that is organized around an "objective, authorial voice" of the urban gay/lesbian "we." In this way, we can say that metronormative media strives for a gay imaginary that is, at its core, a *monoglossia*: an "official" perspective or "dominant ideology [that] argues there is only one unified and unifying language" or voice to articulate the condition of homosexuality in American society and abroad, one situated in the queer public offered by gay ghetto/village models.

The element of address coincides with the monoglossic aspirations of perspective and focalization such that there is the production of an imaginary feedback loop of media reception whereby the consumer of pro-urban queer media is implicitly interpellated as a member of the selfsame gay society represented on screen, and the two parties supposedly engage in a recursive relationship that reinforces the stability and unity of each other. Complications arise, of course, when sexual assimilation between media consumer and media images cannot be sustained, thus triggering a variety of implications that call into question the viability of a gay imaginary which presumes universalism yet remains highly particular in its self-constitution and in the ideologies intended for its desired audience. However, despite the disparity between the imagined community and the actual recipient of these images and stories, the realm of address is where the rural-to-urban migration narrative of metronormativity takes shape, for the affirmative communities in fantasy cityscapes implicitly call upon non-urban viewers to relocate to city spaces in order to achieve idealized forms of socio-sexual interconnection. *Shortbus* evidences this aggressive enticement in a remarkable scene where the ex-Mayor of New York offers consolation to a younger salon patron that is, in actual fact, a provocation to spur on queer diaspora and urban resettlement, directed at the film's imagined audience:

> You know what's wonderful about New York? It's the place everyone
> goes to get fucked. It's one of the last places people are willing to bend
> over and let in the new and the old. New York is where everyone comes
> to be forgiven when you've done wrong. Home can be very unforgiving.

In this moment, *Shortbus* channels the ideological voices from the other focalizers in the film into an "official" discourse with a singular message for queer subjects: run away and find refuge in the Big City at any cost. While Weston has given substantial anthropological evidence of the harmful impact incurred by this pro-urban propaganda, I can't help but wonder at the implications the message holds amongst a middle-class urban audience. If I had to hazard a guess, I would venture to say that the rhetoric behind the idealized cityscape offered to us here carries a more or less disciplinary function to deter a critical assessment of metropolitan power relations and prohibit a style of thought that would relativize the urban imaginary to include other sexual spaces where others go "to get fucked," without the metro-biases that devalue socio-sexual difference.

Fortunately, the gay village/ghetto sexual politics in mainstream queer media have incited counter-narratives that contest the credibility of these ideals. As such, filmic and televisual resistances to metronormative framing reveal the catastrophic effect of media-based metronormativity: that the compulsory idealization of metropolitan space simultaneously causes non-urban spaces to be essentialized into a narrow set of geographic stereotypes which legitimizes urban queerness at the expense of non-urban sex-gender systems. In the next section, we see how forms of anti-urban queer media are actively attempting to overturn this pattern by re-imagining rural geographies.

Critically Rustic Media

Critically rustic media, in the most general terms, refers to a stance of reflexivity in queer-centered media representations, as well as in queer media studies, that orients issues of sexuality and space as central while simultaneously branching off into other interconnected areas of cultural geography, such as spaces and boundaries of class, race, and gender, with an emphasis on intersectional critique. Critically rustic media pursues sexual space in this way to see how spaces, real and imagined, are sexualized and sexed, and to see how this process subsequently constitutes and regulates sexual identity. Under my definition, this heterogeneous collection of film and television media acts as a critical interrogation of dominant spatial idealizations that inform mainstream American culture. At the same time, critically rustic media representations also advance the counter-production of non-urban-biased frameworks with which to assess historic and newly made artifacts and their socio-sexual implications, pointing out the constructed-ness and arbitrary nature of urban/rural sexual politics which we tend to perceive as existing forever in everyday life, and doing so often times without the influence of metronormative tendencies. This medium-specific conception of the critically rustic, which in my view has the potential to function multiply through many contexts as a media categorization, an aesthetic and political style, as well as a critical toolbox with which to conduct theoretical and social studies, draws heavily from the groundbreaking work of Scott Herring, who first analyzed and coined "critical rusticity" in addressing a crucial socio-political juncture in twentieth-century gay and lesbian history in the U.S.

In a study on anti-urban queer print media, Herring (2007) persuasively argues that, contrary to popular belief, not all gay and lesbian populations in America were satisfied with inheriting the social practices and political attitudes of post-Stonewall gay and lesbian political movements that seemed to be devolving into another national consumer culture implicitly positioned, at best, as homonormative or "assimilationist," and, at worst, White, middle-class, heteronormative, and anti-political.
Herring traces the development of U.S.-based regional counterpublics that emerged in the seventies to contest the perceived unity of gays and lesbians in society, producing oppositional literary and social scenes that were often located outside the discursive matrix of metropolitan areas. These regionalized pockets of resistance not only positioned themselves against the normalization of queer life – a process that had been compounded by the development of such major magazines as *The Advocate* – they also tried to offer an alternative to urban sexualities by re-interpreting rural America and region-specific gay imaginaries as places that could sustain gay and lesbian populations.

Herring identifies these forms of anti-urban politics as demonstrating "critical rusticity." Not to be confused with anti-urban attitudes of xenophobic political conservatism, Herring maintains that critical rusticity refers to "an intersectional opportunity to geographically, corporeally, and aesthetically inhabit non-normative sexuality that offers new possibilities for the sexually marginalized outside the metropolis as well as inside it" (2007: 346). In addition to the stance of pro-rural oppositionality, the critically rustic refuses or repurposes the relations of power that facilitate the ongoing sexual standardization of urban gay and lesbian communities, offering a home for critique and self-awareness that accounts for the logic of exclusion governing metronormative subjectivity in a guise of progressiveness. For instance, regional shame under Herring's theorization no longer acts as the impetus for a rural-to-urban migration; rather, it forms the affective basis of marginal communities based in small towns or the country, leading to the formation of "bottom-up" political and social solidarity that articulates forms of sexual diversity instead of creating space-based stratifications of sex. Therefore, critical rusticity pursues alternative and productive, not reactionary, politics. By promoting queerness in this way in order to include multiple real and imagined geographic perspectives, the critically rustic thus reveals the oft-forgotten element of spatiality that determines sexuality. Osborne and Spurlin (1996) profitably clarify the importance of maintaining such sensitivity to space and sexuality, and gesture toward the ethics of implementing space-conscious criticism in gay/lesbian/queer studies, stating that "the Midwest [and the non-urban in general] is not antithetical to lesbian and gay identities and cultural practices; in fact […] the Midwest *enables* the production of queer culture. To assume otherwise, to disparage queer location and cultural production [in non-metropolitan regions] dangerously serves and perpetuates homophobic ideologies that assert there is no place for lesbians and gay men in 'Middle America'" (xxv).

Indebted as I am to Herring's breakthrough study, I want to transplant his idea of the critically rustic queer text to the realm of queer media studies to explore the ways in which the dominant metronormative frame gets resisted by television programs and movies that are interested in creating a sexual imaginary which includes, and promotes, non-urban regional identities. In order to access this resistance in a medium-specific context, my study examines the position of critical rusticity from the vantage point of formal analysis. "Critically rustic media" figures in this section as the destination for queer-centric films and television that, unlike my prior categorizations of queer cities in the media, tend to display awareness about sexual space.

In what follows, I describe three typologies of critically rustic media, spanning the post-Stonewall era of the seventies and nineties to the post-post-Stonewall period of the twenty-first century. These types include what I call "Revisionist Hillbilly Horror," "Rural Magic Realism," and "Rural Retrofuturism." I wish to caution readers ahead of time that by no means should these categories be taken absolute or closed, yet nor are they to be read as trans-historical or wholly permeable phenomena either.

As we will see, some tendencies from one type overlap another, while some types arise from contemporary political problems that cannot be easily connected to crises of the past. Critically rustic media of any type does, however, generally involve the same queer subversions of uncritically metropolitan media – the refusal to migrate, the indifference to hierarchized models of sociability and sexuality, the skepticism toward grand visions of the rural/urban divide, and the incorporation of what Rubin calls "benign variation," a mode of sexual politics that undercuts standardized behaviors by encouraging plurality versus value-laden conformity. Using several assumptions of Bakhtinian theory, in this section we will also perceive how predominantly metronormative texts attempt to reign in, or become undone by, latent anti-

metronormative impulses (particularly within revisionist hillbilly horror films). For this reason, we should not concern ourselves with hunting down black and white, either/or examples of critical rusticity versus metronormativity in media. Instead, it would be better to consider these oppositional media forms as existing together in a latticework of discourse, in which particular forms are more noticeably divergent or influential than others, depending upon the medium, mode of production, and socio-historical context, yet still remain connected to each other all the same. Critically rustic media, as such, resembles Barthes definition of the text as "inter-textual," as "a tissue, a woven fabric," found on a massive web wherein "every text has its meaning, therefore, in relation to other texts." The first type to undergo investigation is revisionist hillbilly horror, whose intertextuality usefully clarifies the ways that sexual spaces in the media rely upon and respond to prior representations.

Revisionist Hillbilly Horror

Revisionist hillbilly horror comes from a long-standing Western tradition of representing the rural as the space of socio-sexual Otherness. Many media historians claim that this tradition dates back to 17th century England, when Englanders constructed a cultural mythology of the mountains that associated mountain people with nature's shames and ills (J.W. Williamson, 1995: 18). The otherization of rurality continued on through the turn of the twentieth century as "hillbilly" entered the American lexicon in mass culture, and the 1930's saw a spike in pop cultural rural stereotypes amid large-scale economic collapse. Though many significant developments concerning images of rural life occurred throughout these historic periods, our primary interest here concerns depictions of rurality in the American cinema around the late 1960's and early 1970's, when a subgenre of the horror film called "hillbilly horror" emerged on the scene and seemed to generate appeal by drawing on an assortment of cultural myths about the sexual perversions of rural "white trash" people (See *Deliverance* (1972), *I Spit On Your Grave* (1978), and *The Texas Chain Saw Massacre* (1974), for examples). Revisionist hillbilly horror, we will see, involves the invocation of such myths from "hick flicks" and also calls attention to the urban frame through which they have been conventionally assessed in the mainstream mediascape. Also, these films and T.V. programs perform a critique of the horror conventions that give rise to a sexualized rural/urban divide that characterizes our understanding of sexual subjectivity in American society today.

David Bell (1995) conducted a landmark study on hillbilly horror, showing that popular, "lowbrow" cinema frequently creates an "anti-idyll" that inverts the "wholesome" pastoral and desexualized agrarian myth through an encounter between city-dwelling protagonists and monstrous, sexualized rednecks, creating a symbolic showdown between the city and the country. Bell observes that exemplary hillbilly horror, particularly *Deliverance*, identifies the rural world with ruralized images of non-normative sexuality – "of inbreeding, insularity, backwardness…incest and bestiality" (96) – and implicitly encodes the urban with heteronormative ideology, in turn valuing the former as a space of isolation and corruption and the latter, of enlightenment and innocence. Though the rural often dominates the mise-en-scene, these horror films provoke detachment from the countryside by deploying an Otherized setting

that suggests something intrinsically wicked and threatening about the non-urban. The rural-identified characters occupying these settings then compound the landscape by manifesting the degeneracy of "suffocating and repressive" small towns. Bell does not discuss the function of the gaze in these films, but it is clear that the viewer is repeatedly urged to regard country folk as "exotic" in the negative sense, as a counterfetish: the rural, in other words, acts as an object of hypersexualized deviant desire to be feared and abolished, or else maintained at a distance by the reaffirmation of an eternal rural/urban divide.

Revisionist hillbilly horror borrows heavily from the visual codes of traditional rural horror, but deploys these mechanisms to produce sexualized spaces for a much different purpose. In contemporary independent cinema, for example, we see an overwriting of rural horror conventions in the context of a modern "social problem" film whose story centers on the status of queer identity displaced from city spaces. The importation of horror tropes facilitates the breakdown of metro-heterosexist barriers, however, rather than fortifying them, so as to problematize the sexualized cultural rural/urban divide which a great deal of queer media takes for granted. The controversial premium cable program *Big Love* (2006), for instance, revolves around an upper-middle-class polygamist family in suburban Utah, and their extended "redneck" kin from a nearby Mormon compound in the outer parts of town, whose dysfunctional domestic situation somewhat resembles Leatherface's grave-robbing cannibal family, with their white trash disregard for middle-class norms of propriety, dress, and urban professionalism. The show's redneck family suggest the "white trash erotics" (Bell, 2000) of hillbilly horror when they clash with their fellow suburbanized counterparts, serving to blur the line between abject sexuality of the rural hillbilly and the illegal, yet somehow more "vanilla," sex conduct of the non-rural polygamists, in a sexual imaginary that can only be called "queer heterosexuality." Phil Morrison's indie film *Junebug* (2005) likewise serves to "queer" the repressed or hypersexualized straight identities of precious, Otherized rural stereotypes. *Junebug* does so by drawing on white trash erotics through the construction of the North Carolina in-laws who express urban middle-class assumptions of feminine submissiveness and masculine sexual immaturity in the South, yet in the name of humanizing rural populations amid the film's urban protagonists' metropolitan condescension and fragile sense of superiority that echo the hubris of many a city-dwelling victim from rural horror. The Oscar-winning film, *Boys Don't Cry* (1999), directed by Kimberly Peirce, serves as a worthwhile example in this regard as well, as it draws liberally from hillbilly horror in its filmic revision of a popular geographic stereotype (circulating through queer culture), that of the country-as-closet.

Benshoff and Griffin (2006) highlight the film's dependency on an archetypal rural locale, a location that, in Bell's words, "offers isolation and an alien environment," stating that "everyone in *Boys Don't Cry* is seemingly living at or below the poverty line: they are trapped, limited, and uneducated. The Nebraska they inhabit is a world of trailer parks, drug and alcohol abuse, and dead-end jobs" (281). To be sure, Pierce's film subjects Nebraska to the semiotics of hillbilly horror in this way partly in order to enjoin pro-queer audiences in a campaign against rural homophobia and the socioeconomic impoverishment that fuels it. The film's agenda, in other words, is not to victimize Brandon Teena in a universalist tragedy by using horror tropes to posit the straight world as a monolithic villain that devours queer life; rather, the country-as-closet aesthetics of *Boys Don't Cry* should be read as a (problematic) attempt to critique conditions of homophobia and undermine the binary of sexual space in the broader culture which negates the existence of queer life beyond the borders of the metropolis in the first place. The film's unique synthesis of the gaze and an exoticized countryside, along with the presence of a

polyphonic cast of rural voices, subverts the metronormative impulse that would configure the country-as-closet as another motivating factor that gives rise to a migration narrative and thus extinguish the viability of rural space as site for queer subjectivity. To grasp this anti-metronormative sensibility that characterizes *Boys Don't Cry* and revisionist hillbilly horror in general, we need to account for how the gaze, setting, and narrative work together to muddle distinction(s) between sexual spaces.

As stated before, the setting and gaze of *Boys Don't Cry* Otherizes Nebraska – at a glance, doing so only to recapitulate the metronormative image of the country as a space of repression, with the aid of horror cinema aesthetics. For instance, much of the film is bathed in darkness, as major plot points take place during night-time when the characters either party, bar-hop, or commit crimes. There are also wide angle long shots of the landscape that inspire images of an overwhelming desolate wasteland; at one point, we see part of a sci-fi movie in Lana Tisdel's house that reproduces this dystopian construction, in which a lonely astronaut treks the surface of a moon, isolated from human civilization. Perhaps the most obvious allusion to hillbilly horror concerns the portrayal of Brandon and Lana in their most private moments of intimacy, when they are in isolated cars, a moonlit barn, or darkened bedroom, shrouded in a claustrophobic pitch-black mise-en-scene that calls to mind Clover's "Terrible Place" of the rural slasher film where sexual pleasure abruptly transforms into visceral brutality and ends in death.

However, contrary to popular assumption, the iconographic country-as-closet set-up in this instance uses the aesthetic of horror not as a metaphor signifying the intrinsic ugliness of rural folk; rather, these aesthetics work in the service of a polyphonic pro-rural narrative that distinguishes between rural life as human and rural xenophobia, when influenced by economic and social factors, as inhumane but ultimately unfixed and therefore changeable phenomena. The diverse characters of *Boys Don't Cry,* which encompass pro-queer transgender and lesbian positions as well as anti-queer straight subjectivity, negotiate the rural as a contested site, where queerness manages to exist despite heterosexist hegemony. The cast also fails to comply with the narrative code of hillbilly horror that posits a Manichean distinction between good versus evil which manifests in the characters along a corresponding urban (good) versus rural (bad) axis.

In a truly admirable maneuver, the film instead entreats the viewer to perceive the flawed vantage point of the homophobic men and women, so that the horror of homophobia does not also signify the "horror" of the rural society at large, even though the story's focalization establishes Brandon Teena as the sympathetic carrier of the dominant perspective in the text. Brandon himself, by virtue of his gender performance and movements across Nebraska, acts as a counter-narrative "to the dominant stories of urban gay and lesbian and transsexual life," as Halberstam points out: "His migration was precisely the reverse of the usual move from country to city; indeed, he moved to the small geographically isolated town of Falls City from a large city, Lincoln, not in order to be a stranger with no history but because he had friends there" (2003: 164). The narrative-focalizer in this sense preempts a metro-impulse of exile in the rural Closet.

What emerges from this formal reading, then, is that the homophobic element that constructs the rural as a totalized Closet becomes revised, detached from an abstracted rural society, and subsequently concretized in the actions of specific individuals, so that the film does not implicitly naturalize a connection between rurality and repression that would overlook the crucial fact that queer beings, such as Brandon Teena and Lana Tisdel, have the capacity to explore sexual identity outside an urban spatial context (though this capacity, admittedly, gets compromised and is never unthreatened). I would add that this reading also preserves the rural as

a space that produces and sustains sexual variance, instead of characterizing it as an unmanageable "problem" that requires the physical displacement of queer populations. The true horror of *Boys Don't Cry*, in the end, remains the self-destructive and fatal consequences of homophobic discourse, and the horrific landscapes of isolation and slaughter that it generates in small town Nebraska.

We should not forget, though, that while the film recuperates rural queerness at the expense of Closet rhetoric, it does so with the simultaneous exclusion of Phillip DeVine, the African American disabled man who played a role in the real event and was eventually killed by Nissen and Lotter. In a criticism pointing to Pierce's filmic white-washing of the Brandon Teena case, Halberstam laments the mainstream aspect of *Boys Don't Cry* that racializes the story as White for a mass audience, noting that "race is narrative trajectory that is absolutely central to the meaning of the Brandon Teena murders," and adding that "the film makers have sacrificed the hard facts of racial hatred to a streamlined story of love, death, and gender impersonation in the heartland" (168). I agree with Halberstam and echo the view that, in terms of racial politics, Pierce's film all but erases the figuration of race and its centrality to this story of rural transgenderism. As such, we must ultimately view *Boys Don't Cry* as a complex case of revisionist hillbilly horror, insofar as the revision of metro-biased country-as-closet imagery here occurs at the same time as a counterproductive, revisionist deracination of the countryside. At the same time, I still maintain that, in revisionist hillbilly horror, race is not always sacrificed within a pro-rural critique. In fact, blaxploitation films such as *Space is the Place* (1974), *Sweet Sweetback's Baadasssss Song* (1971), and African American-made underground films, particularly *Killer of Sheep* (1977), tend to display the aesthetics and politics of revisionist hillbilly horror with an emphasis on racial struggle that intersects issues of rural/urban sexual spaces. Craig Brewer's *Black Snake Moan* (2007), though another complex case indeed, nonetheless exemplifies the critical race component attendant in some kinds of revisionist hillbilly horror. Here, the hypersexualized "anti-idyll" of rural horror collides with recycled tropes of 70's sex- and blaxploitation in the service of a negotiated critique of gender conformity and archaic racial stereotypes in Tennessee.

Recent revisionist hillbilly horror also reverses the aesthetic and narrative norms of classic redneck cinema towards triggering recognition of the urban frame that organizes rural space in such films as either a "Southern Gothic set in a semi-mythological wilderness" (S.V. Doviak, 2005: 170) or a geographic idealization of pre-social and desexualized purity. Bennett Miller's *Capote* (2005), in particular, offers a multi-layered revision of the narrative aspect of the urban frame that, in a manner akin to Ang Lee's *Brokeback Mountain* (2005), "challenges and relativizes dominantly metropolitan voices, which advance powerful but limited sexuality politics and representations" (R. Phillips, D. Watts, & D. Shuttleton, 2000: 3) by showing that the urban gay imaginary is not divorced from visions of immaterial space, but is, in fact, dependent on false spatial ideals that invest metropolitan sexualities with cultural legitimacy and a regulatory power to determine and deny the status of dissident queers.

As with most metronormative media, the Kansas locale of *Capote* appears to us as another "dead space" cited from rural horror, in large part owing to the stark cinematography, which features drained out colors and many static shots of a dreary rural landscape, punctuated by a few isolated and unassuming ranch homes. The storyline confirms this dismal picture, associating the murders of the rural family with the provincial community itself, and then portraying the townsfolk as secretive and hostile toward outsiders, such as when Capote states that the people of Holcomb "won't talk" on account of his gender nonconformity. By contrast,

New York City seems completely liberated from such narrow-mindedness. Indeed, most urban depictions in the film revolve around Capote's forays in the town's exciting nightlife, when he is either giving a reading for the general public, partying with fellow literati, or dining with his publishers. In a twin construction that smacks of allegorical Manicheanism, the rural and the urban thus take up the classic binary opposition of the pathos-ridden country-as-closet versus the Big City, a mecca of gay cosmopolitanism. The binarized mise-en-scene and visual aesthetics cooperatively position this reductive rural/urban divide in the foreground, however, so that other filmic devices reveal this myth, in which rural and urban sexual spaces are self-enclosed, static, contrasting realms, to be the product of an urban frame.

Capote probes this urban frame at the level of narrative by putting a queer spin on the standard plot formula of rural horror: Instead of having a normative protagonist encounter non-normative sexuality in the countryside, which would privilege the biases of urban straight audiences, here we have a reverse allegory where the queer figure Truman Capote acts as our focalizer, encountering a heterosexed, hostile small town in Kansas, under the pretense to unmask the mystery of the country, yet in the end showing us only the workings of dominant biases among urban homosexuals. In the process, Miller's film urges viewers to compromise identification with Truman by subjecting him to Brechtian technique, namely that of Distanciation, or "the effect of distancing or estranging a spectator through means within the form or content of a text that challenge basic codes and conventions, and therefore mainstream ideological expectations" (Hayward, 1996). This distancing effect occurs when Capote undermines his credibility as a reliable narrative voice by revealing his own class pretensions that distort his perceptions, or by exposing an inability to treat the townsfolk with respect while manipulating them for information, such as when he lies to Detective Alvin Dewey about using the town murders as the subject of a book.

In this way, the distancing effect puts Capote in the position of a double outsider to both the townsfolk and the non-diegetic audience, producing a Brechtian relation between viewer and diegesis whereby our protagonist, serving as shorthand for metropolitan sexuality and the metro-gaze, loses subjective agency as the carrier of the movie's perspective and simultaneously turns into an object to be viewed by an emergent critically rustic gaze. Our distanciation from identifying with an urban frame therefore becomes a mode of critique through which to comment on such a frame as well as the formal binarizations that, consciously or not, regulate Capote's worldview as well as inhabit other forms of metropolitan queer media.

This ambivalence toward representational codes that were, and continue to be, filtered through an uncritical urban frame acts as the common defining trait to this particular subset of critically rustic media. Other revisionist hillbilly horror films such as *The Woodsman* (2004) evoke rural horror to perform similar distanciations of queer protagonist-characters who, in defiance against norms of classical Hollywood narrative that undergird depictions of queer cities, refuse to serve as the unproblematized carrier of a film's gaze and narrative perspective. These and other formal distanciations point to the urban biases that surround mainstream depictions of rural Otherness and at the same time work to revise existing hegemonic sexual spaces with an anti-urban frame. The next type of critically rustic media to be covered, rural magic realism, continues this counter-hegemonic struggle over representations of rural queerness. As we will see in the following section, the critically rustic also goes beyond a corrective, consciousness-raising agenda, and seeks to establish the vocabulary and political outlook needed for the production of an entirely new gay imaginary divorced from pro-urban mainstreaming.

Rural Magic Realism

"My most important problem was destroying
the lines of demarcation that separates what
seems real from what seems fantastic"
- Gabriel Garcia Marquez[xi]

"The queerest irony of all would be a
queer world that had no place for queers"
- Mark Simpson[xii]

Using the genre of "magic realism," Colombian novelist Gabriel Garcia Marquez attempted to create a literary universe that could generate social critique which fused everyday life with elements of fantasy. Concerned as he was with the political potential of the human imagination, Marquez sought it necessary to work within a type of Spanish fiction that capitalized upon, rather than suppressed, the mysteries of the human mind toward the end of social change. In magic realism, the boundaries between objective thought and subjective experience tend to intersect to the point where neither polarity becomes sustainable without the presence of the other. As such, it is not unusual to find stories where the mundane is juxtaposed with the profound, in which the "the whole world is enchanted, mysterious," and reality conveys the "ordinary as miraculous and the miraculous as ordinary" (B.H. Rogers, 2002).

Writers of magic realism invest in a "poetics of excess" or capacity for alternative possibilities, "that can be expressed in popular or cultured forms, in elaborate or rustic styles in closed or open structures" (Luis Leal) in order to disrupt rationality, pretense, and replace normalcy with the supernatural.

But what does this definition have to do with queerness in the American media? Furthermore, how can we characterize "magic realism" as another subset of critical rusticity? And, more important, why is it necessary to incorporate the genre of the "fantastically real" into a politics of anti-metronormative representation, especially when such faith in fanciful images tends to betray cynical connotations, as seen in the case of pro-urban queer media, particularly Gay Village idealizations of the queer metropolis?

In this section, I propose a counterintuitive argument (which gets developed later on in "rural retrofuturism") that seems to contradict my previous findings: in short, I argue that the element of fantasy is crucial for the production of counterhegemonic sexual spaces in the media. I temper this statement by noting the ways in which pro-rural queer media preempt the impulse to generalize and totalize the particularity of rural life, as well as play up rather than downplay material realities to counteract the anti-politics of idyllic mythologies, in contradistinction to the problematic agendas of mainstream queer cities. Above all, my concern with fantasy relates to widening a spectrum of queer representation. For without an interest in play, imagination, or the impossible, critically rustic media fails to realize its end goal to materialize a range of alternative non-urban gay imaginaries for the occupation of queer, lesbian, gay, and straight populations.

Unlike metro-queer media, rural magic realism uses fantasy for a rather unfantastic purpose: to situate the subject in a densely intricate world and to uncover existing relations of power that constitute that world. It accomplishes this contradiction by fusing together two

aesthetic practices that seem directly opposed to one another: mythology and the aesthetic of realism. In terms of myth, these films and programs tend to project aspects of stereotypical rural idylls from a dominant heterosexual imagination or the homoerotic pastoral fantasy of the gay literary tradition, echoing mainstream representations of rurality as either a "rural milieu […] cast as the site of cultural tradition and heritage" (Folwer, Helfield, 2006: 12) or as an egalitarian countryside delinked from power. However, the presence of progressive realism, as both a style and a political goal, inform these constructions to shift their functioning as fantasy away from escapism or xenophobia toward using them to construct an alternative imaginary which recognizes the differences that constitute lived queer experience beyond the metropolis. Shohat and Stam offer a useful explanation of this double-sided realist aesthetic, stating that "realism as a goal – Brecht's 'laying bare the causal network' – and realism as a style or constellation of strategies aimed at producing an illusionistic 'reality effect'" are not opposite artistic approaches, that, in fact, "realism as a goal is quite compatible with a style which is reflexive and deconstructive" (1994: 180). In effect, through a double-pronged realism composed of mimetic art and small-scale, real-world politics, rural magic realism situates the iconographic countryside fantasy in a network of power relations so that country mythology inhabits a historical and socially divided world which revolves around the lives of rural gays and lesbians, without the harmful presence of metro-framing that would devalue non-urban sexuality and demand sexual assimilation.

Along with having this aesthetically and ideologically rustic frame to contextualize and recuperate rural queer milieu in the media, rural magic realism lays out a diverse narrative discourse of rural subjectivity to preclude the metronormative impulse to homogenize different perspectives and subject positions into one normalizing imperialistic voice. Instead, we see "a delegation of voice" traded for anti-normative Bahktinian polyphony, a "simultaneous combination of voices" often expressed at the level of voice-over, narration, and focalization – such as in *Palindromes* (2004) where Surrealistic role-reversing characterization undoes blue state versus red state binarizations of enlightenment versus tradition – expanding a text's overall narrative perspective into a confluence of multiple ideological positions that encourages many readings without overlooking other possibilities. In this way, this subset of critical rusticity shares features with what Bahktin calls the polyphonic novel: "the polyphonic novel presents a world in which no individual discourse can stand objectively above any other discourse; all discourses are interpretations of the world, responses and calls to other discourses" (Allen, 2000: 23). By definition, rustic polyphony, with its variety of clashing, ever-shifting, boundary-crossing viewpoints, thus serves to call into question the fictive rural/urban divide which gives rise to a monoglossic and exclusionary urban "we" in fantasy and ghetto queer city media; and which also sustains an increasingly "homogeneous, monologic" mainstream queer culture in America by enforcing a compulsory relationship between queerness and urban space that essentializes homosexuality into a representational binary, regulating and restricting the agency of producers belonging to metropolitan elite and non-metro-Other populations alike.

The rural magic realist text, ironically, reclaims the fantastic imagery of myth, and narratively fractures the totalizing voice and "controlling, omnipotent narrator" (Allen, 2000: 24) of mythic grand narratives so that Lyotardian "little narratives" are given a level of representational autonomy to thrive beyond compulsory stories of metronormativity, particularly rural-to-urban migration, while reintroducing countryside images as fantastic "liminal spaces" to sustain, not essentialize, rural queer subcultures. Gregg Araki's controversial film, *Mysterious Skin* (2005), is a key text in this regard. Neither reactionary nor indifferent to rural/urban

sexualities in its perspective on sexual politics, Araki's film negates the impulse to "speak of the urban and rural in oppositional terms" – disrupting a rhetorical strategy of dominant pro-urban queer media – and instead uses rustic polyphony at the level of narrative to show that rural/urban sexual spaces are "inextricably linked as points of tension rather than points of contrast" (Fowler, Helfield, 2000: 3), a relationship necessitating the participation of formerly subjugated discourses.

The film centers on two rural Kansan teenagers, Neil McCormick and Brian Lackey, and their attempts to reconcile their childhood experiences with a pedophilic Little League coach. In McCormick's memory, the coach remains a sympathetic catalyst who triggered his own homosexual awakening, while Lackey, by contrast, was so traumatized as a child that he spends years unaware but haunted by his previous relations with the coach, until he finally has a fortuitous encounter with McCormick at the end. *Mysterious Skin* splits the narrative between these two focalizers, as such, using double-voiced narration and an alternating gaze to probe intergenerational queerness with stark perspectives that resist one-sided Romanticization or condemnation, and also to construct two competing, self-consciously critical idylls around homoerotic rural space.

In McCormick's story, for instance, rural Kansas becomes sexualized at first through the idealized sexual encounter with his coach, and later via his status as a young rural queer and local gay prostitute. Yet, unlike the hypersexualized rural from contemporary hillbilly horror or the gay pastoral, McCormick's idyll negotiates rural queerness across different material sites (the small town and the big city) and at different temporal contexts (childhood, adolescence, and adulthood) to de-glamorize as well as de-vilify depictions of rural sexuality that rely upon static, contradictory geographic stereotypes. In the process, we see the many various functions of rural sexuality that metropolitan biases chronically misperceive as inauthentic or counter-revolutionary for not being overtly political or visibly Out in public. For instance, in an early flashback to October 1983, pre-adolescent Neil McCormick goes out trick-or-treating on Halloween with his fellow soul mate and partner-in-crime, Wendy. After a random bout of bullying, McCormick accidentally injures another boy with firecrackers, but assures Wendy that he knows how to keep parental authority at bay and proceeds to perform oral sex on the would-be tattletale, while saying "there are things we can do to get him on our side." Thus, at the moment McCormick's carefully sustained rural idyll could disintegrate under the reality of adult punishment, the sexual practices of pre-teen rural homosexuality are used as de Certeau-ian "tactics of the weak" in order to preserve queerness from harm. In this instance, his Kansan idyll becomes complicated as well by acknowledging relations of power, an awareness echoed in another scene in which McCormick as a young hustler services a Kansan businessman who warns him about the danger of law enforcement busting gay cruising around parks. These moments of filmic realism colonize fantasies of rural homoeroticism without invalidating rural sexual space as fundamentally inoperative.

Lackey's idyll suggests far more pathos and implies a desexualized rural imaginary, as the element of fantastic imagery (flying UFOs, alien autopsy rooms) coincides with a realist agenda to counteract idealizations of rural intergenerational sex. Throughout *Mysterious Skin*, Lackey appears to inhabit an exoticized countryside ripped out of a science fiction universe, yet the fantastic imagery of this world consistently acknowledges its own constructedness; for example, other characters constantly question Lackey's whimsical perceptions, none of which find any parallels whatsoever in the gritty ethos that characterizes McCormick's story. This self-awareness renders fantasy as a coping mechanism for Lackey, to be sure, but it also indicates that

the film knowingly uses artifice in part to relativize sexual space and to preempt the naturalization of any particular identity in its depiction of rural landscape. In contrast to metronormative gay pastoralism, then, in which the fantasy of unencumbered sexuality thrives without external or internal disruption, the magic realist pastoral for Lackey is pregnant with rage and confusion at a system of sexual abuse which seeks legitimacy in a guise of innocence offered, unwittingly or not, by a conception of rural sex as intrinsically wholesome.

With these polyphonic idylls, we also see a violent and blunt blurring of gaze and setting which replicates the brutal trauma at the center of the story. Partly through the aid of double-voiced narration, which alternates between McCormick and Lackey, the cinematic apparatus urges us to identify with both protagonists but also to appreciate the regional specificity and the subjective positionality which defines them, so that, unlike in metronormative modes of identification, these characters do not lose the crucial distinctions of class and sexuality that define them as individuals who are subjected to larger forces of power.

The Expressionistic setting highlights these distinctions by making the landscape externalize the very different psychic lives of the two boys. McCormick leads a nomadic life, moving from Kansas to New York then back to Kansas again, undergoing a painful reversal of the rural-to-urban migration narrative, and the mise-en-scene expresses the difficulty of maintaining such displacements by associating McCormick with the diverse sites of travel frequented by people on the margins: seedy hotels, cramped apartments where he enjoys control, as well as classy bars and upscale city penthouses where he appears powerless. The gaze delivers a sobering account of McCormick's migratory trajectory, as we witness in extremely close detail his encounter with an AIDS-afflicted sex client and his rape by a sadistic marine. Lackey, meanwhile, remains in Kansas alongside "the miraculous and the ordinary;" yet everyday places like barns and roads take on a threatening, alien aspect of Otherness, as the science fiction iconography serve as manifestations of his damaged subconscious. The gaze likewise sutures us to his justifiably paranoid perspective, denaturalizing the film's rural idyll up close so that it loses status as a signifier of male homosexuality to become an anti-idyll of trauma. Together, the interaction between gaze and setting uphold a rural fantasy that is at once concerned with mystery and the unknown but also deeply committed to verisimilitude and addressing the hard facts of sexual suffering in the Heartland.

Patty Jenkin's *Monster* (2003) manipulates a disjunction between a sympathetic cinematic gaze and the anti-heroine's focalization as a victimized prostitute turned serial killer to depict a lesbian rural imaginary that is corrupted by patriarchal power and tragic naïveté. As in *Mysterious Skin*, the magical symbolism displayed in the visuals and the voice-over narration (delivered by Aileen Wuornos) acts as a cover for sexual trauma. In the opening montage, for instance, we see glimpses of Aileen's childhood and adolescence, depicted in the grainy visual style of home movie footage, suggesting a state of innocence forever lost. Wuornos, as narrator, describes her youthful dream to become beautiful and rich like her role model, Marilyn Monroe, and calls herself a romantic as her fairy-tale tone suddenly shifts to a sense of ironic detachment with the appearance of teenage Wuornos stripping for the enjoyment of a group of boys. This theme of contaminated fantasy extends to other moments in the film, such as when Wuornos' rape by a john shatters the prospect of continuing prostitution, causing her to seek out a more respectable line of work without any success, or when Selby realizes that her new life with Wuornos is not going to be a leisurely vacation but a struggle for survival with barely any money and no job. These disjunctions between attaining the good life and fighting to eke out a meager existence in a harsh rural milieu serve to reinforce a conception of rural space that retains fantasy

as a crucial imaginative force for non-urban lesbian subjects but also maintains an aesthetic of realism to point out the very unforgiving consequences of sexual violence that threaten to extinguish queer life. That the focalization and persistent identification with Wuornos continues throughout the story without interruption suggests that the film's overall perspective situates a rural fantasy around this specific case in order to enact a critique of the sexist prejudices and socioeconomic conditions that led to a killing spree and ended in the imprisonment of Wuornos, factors that oppress female sex workers and lesbian subjects across America.

As we've seen in *Mysterious Skin* and *Monster*, rural magic realist texts aim for a rather complicated relationship with the unknown and the concrete facts of oppression. Rather than do so to neutralize the connotations of shortsighted pastoralist politics, or to launch a compulsory rural-to-urban migration that would secure the centrality of urban imaginaries, I believe that this type of critical rusticity sheds light on the aspect of critically rustic imagination in terms of expanding a vision of gay utopia. These films and programs hold on to a dream of future possibility for rural subjects, while giving us unyielding critiques of present-day injustices informing their lives, so that the sexual space of the rural remains a key component to the development of a future world where stigma and power hierarchies do not absorb queerness in all its various incarnations. In the next section, we discuss the question of futurity from the viewpoint of postmodern critical rusticity to see if the products of an urban frame can be retooled toward change.

Rural Retrofuturism

"Utopia would seem to offer the spectacle of one
of those rare phenomena whose concept
is indistinguishable from its reality,
whose ontology coincides with its representation."
-Fredric Jameson[xiii]

What is the social value, if any, in cultural stereotypes? Is it possible that, in our current postmodern epoch, stereotypes can be represented in ways that transcend the oft-decried purpose of xenophobic reductionism? If so, is the political utility of such forms always limited to respond to the exigencies of the moment, or can seemingly one-sided images paradoxically bring forth emancipatory possibilities that alleviate present crises yet also help build a future that enlarges the diversity and social prospects of human life?

A quick look into gay and lesbian history reveals a paradox that suggests an answer to my queries above: Despite the sustained hegemony of heteronormative culture, queer subjects have exercised the capacity to not only fashion counterhegemonic forms, but they have also managed to repurpose the aggressive heterosexist functions of even the most adamantly anti-queer objects. Perhaps the most well-known, and effective, anti-heterosexist discourse available to queer culture today is what's known as "camp." In *Flaming Classics* (2000: 82-3), media scholar Doty defines camp as a discursive practice:

> Camp's central interests are taste/style/aesthetics, sexuality, and gender--or,
> rather, sexuality as related to gender role-playing (via style codes). Camp's mode
> is excess and exaggeration. Camp's tone is a mixture of irony, affection,

seriousness, playfulness, and angry laughter. Camp's politics can be reactionary, liberal, or radical, depending on the example you are considering and your ideological agenda as a reader. But one thing about camp is certain--at least for me: Camp is queer. There is nothing straight about camp.

Camp thus defined as a tool to be used against compulsory heterosexuality gets at the heart of my opening questions. With the case of camp, then, we see that oppressed populations have the power to reconfigure the meaning of oppressive texts.

 Indeed, elsewhere, cultural critics have pointed to the existence of feminist camp, black camp, and many others, all of which offer differently minoritized subjects a critical sensibility with which to resist a dominant reading, appropriate and decontextualize stigmatized images and stories, and produce a subversive element out of texts that try to stereotype and contain Otherness. Furthermore, these diverse sensibilities continue to aid the counterproduction of resistance throughout the years so that repurposed texts add to the future empowerment, rather than "symbolic annihilation," of subjugated peoples.

Having said that, in this section we revisit the stereotypical countryside mythology of metronormative discourse, but with a twist: we aim to examine the functioning of anti-rural, anti-queer cultural stereotypes when appropriated by critically rustic media texts that display a political interest in maximizing the futurity of a rural gay imaginary. In effect, we will witness a widespread deconstruction of heretofore urban-specific queer practices. For instance, we see how rural camp aesthetics break urbanity away from being a precondition to queer artistic resistance. Finally, this section closes by pondering the long-term potential of postmodern politics that encourages a playful collage ethic amongst isolated depictions of rural and urban sexual spaces. We will consider if a critically rustic stance of incredulity toward grand visions of urban gay imaginaries (i.e., Ghetto and Village spaces) have the potential to productively inflect what can only be termed "gay utopianism," or the belief in working toward the creation of a society that values sexual variation.

With rural retrofuturism, we enter a sphere of critically rustic media that is enchanted with postmodern representation and actively pursuing its political mindset of perpetual skepticism (minus conservative nostalgia), with tongue planted firmly in cheek. This emphasis on playfulness, irony, reflexivity, and deconstruction reveals as much about the emancipatory potential of emergent anti-normative sexual space in media as it does about the deep-rooted limitations in maintaining metronormative framing. For instance, retrofuturist media texts like *Wild At Heart* (1990) and *Rocky Horror Picture Show* (1979) offer a conception of spatiality that emphasizes open-ended-ness, fluidity, and sexual dispersal, as opposed to the proto-Modernist tendencies of mainstream queer cities that assert the centrality of urban sexual space at the same time that they marginalize the non-urban, in turn producing closed sexual spaces through the formal manipulation of gaze, narrative, and mise-en-scene. In addition, whereas metronormative queerness makes claims of universalism and sexual essentialism with an unselfconscious aesthetic of realism, retrofuturist countrysides by contrast acknowledge a high level of self-constructedness in terms of aesthetic composition to undermine faith in anything but a fierce avowal of difference. *Wild At Heart,* for example, obsessively reminds the viewer, using all manner of visual and aural clues, that its filmic portrayal of regional identity cannibalizes dominant cultural myths of rural life, as seen in its humorous remixing of *Wizard of Oz*, Elvis Presley lore, and Southern Gothic. Here and elsewhere we see an attempt to reconfigure these myths with a sense of space that promotes disillusionment with monoglossic pro-urban images,

encouraging the revaluation of such images toward converting them into a heteroglossia that, in offering a discourse composed of many conflicting voices, is able to broaden a field of queer representation without subsuming differences to the violent consolidation of an urban-dominated "we."

The rural retrofuturist accomplishes a widening of queer representation in part by challenging taken-for-granted assumptions about queer politics that compulsively associate the urban with gay/lesbian subjectivity. Using formal analysis, we see how retrofuturist texts deploy the cinematic form to call attention to this process, particularly in the case of John Waters' infamous *Pink Flamingos* (1972), in which the attitude of radical incredulity exhibited by the trailer-trash protagonists comes to be highlighted and dramatized by the similarly lowbrow aesthetics of the cinematic apparatus. Though there are many critically rustic components to be analyzed in this particular example, at this point we will study how Waters' film "queers" dominant forms of queer social practice through a formal re-evaluation of queer camp, which, until only recently, had been widely understood to be the exclusive representational domain of White urban gay men.

Susan Sontag's seminal "Notes on 'Camp'" (2001) conducts a spectacularly cheeky and equally brilliant pioneering investigation into the camp sensibility that has been long identified with homosexual subcultural practice in the U.S. To Sontag's understanding, camp as a concept involves an imagined relation between media consumer and media object whereby the unconscious, naïve "seriousness" of the latter transforms into an object of ridicule or sympathy to be embraced by the former beholder-consumer. This occurs through the beholder, who makes a resistant identification with the object such that there is a negation of its presumed authority and dominant meaning, and a subsequently ironic incorporation of it. As a result, even a media text that is adamantly heteronormative, such as a Douglas Sirk melodrama, comes to be invested with a subversive meaning that is externally overlaid onto it to repurpose its pro-straight ideology into a queer aesthetic. For Sontag, we must continue to acknowledge a relationship between camp and gay urban subjectivity, since the camp aesthete, in demonstrating "Dandyism in the age of mass culture," reveals derivation from "an improvised self-elected class, mainly homosexuals, who constitute themselves as aristocrats of taste" (2001: 289-290).

Up to this point, Sontag's definition of camp has largely resisted critical reappraisal. However, her implicit claims that camp as a practice is neither political nor social, that it originates in and remains the exclusive sensibility of an elite subset of the Anglo-American urban-identified gay subject, have been rightly decried as narrow-minded and ultimately essentialist by a second wave of camp theorists. Indeed, scholars beholden to Sontag's original work have taken pains to delink the White gay American male from the plainly widespread and globalized constitution of the critical sensibility, which, among other things, has thrived in other contexts as a feminist strategy against patriarchy, or as a non-American queer strategy for subverting the racist tendencies of upper-middle-class Anglo gay populations located throughout major port cities, as seen in the anthropological work of Manalansan which covers the social conventions of diasporic Filipino gay men in the U.S. who "drew a distinction between their style of cross-dressing, which is akin to 'femme realness,' and the comedic drag of Caucasian and mainstream gay men" in order to "negotiate between the hegemonic imperative of assimilation and the subaltern option of total defiance" (2000: 191, 200).

Pink Flamingos, likewise, participates in undoing previously metronormative readings of camp, and other gay/lesbian-identified modes of resistance, by using the film form and narrative discourse in tandem to create critically rustic queer subjectivity that manifests queerness as a

"process of spoilage" (Herring), resisting the socio-sexual normalization of metropolitan notions of middle-class respectability, affirmative culture, and self-abstraction. The gaze does so partly by composing an anti-aesthetic of bad taste.   For example, we first enter the diegesis through a grainy long shot showing the exterior of a decrepit trailer, which would seem like another threatening (and stereotypical) hillbilly horror locale, if it weren't surrounded by kitschy lawn ornaments which convert the horror iconography into tokens of a self-aware and ironic subcultural style. After the credits, we then cut to a closeup of a poster showing the "Filthiest Person Alive," the transvestite Divine, who, we're told via a cartoonish voice-over narration, "adopts the alias of Babs Johnson" and now resides in the woods with her freakish family. Throughout, the camerawork remains purposely (and perfectly) shoddy, to give the impression of low-budget porno cinematography, and the film's minimal range of camera techniques consist of amateurish stationary shots, pans, zooms, and the occasional gratuitous closeup. Rather than glamorize or vilify subjects with such composition, the cinematic apparatus wants to self-consciously invert the "to-be-looked-at-ness" of exoticized countrysides in order to provoke critique and distancing from binarized "positive" and "negative" valuations of sexual spaces often represented in the urban-biased media, giving rise to a self-mocking critically rustic position, which is then echoed in the narrative, that can be seen as traces of an emergent anti-urban camp sensibility.

Though many of the varied characters provoke pity and ridicule as opposed to identification, the figure of Divine/Babs Johnson, along with a few members of the Johnson family, do emerge as retrofuturist camp figures, carrying the capacity to encourage sexual disidentification with the metropolitan gay imaginary, in spite of (or, maybe, because of) the film's reliance on tired hillbilly stereotypes in its construction of the characters. Divine, for example, is the concrete embodiment of the urban drag queen figure – over-the-top and highly visible in terms of presenting her nonconformist gender identification. But at the same time, she remains an uncompromising "hick-chick," with her penchant for white trash fashion, excessive profanity, and a love of filth counteracting the metro-norms of gay cosmopolitanism and middle-class taste. By fusing supposedly contrasting traits of rural and urban identity into one sexual being, she thus becomes the paragon of retrofuturist critical rusticity insofar as her own identitarian hybridity suggests the possibility of overcoming the seemingly unbridgeable divide in the cultural rural/urban opposition. In addition, the film's narrative discourse promotes such skepticism to rural/urban opposites by situating Divine as the rural-identified focalization of its manifestic ideological perspective: a refusal to the classist and exclusionary values of the "seething metropolis," as embodied by her status-obsessed urban/suburban rivals Raymond and Connie Marble, and the promotion of an alternative ethic of excess, play, and (literally) eating shit, a boundary-crossing ideal which reconfigures forms of urban power, particularly regional shame, into shame at not being so similarly hybridized.

Retrofuturism often summons and remixes metronormative gaze strategies to further synchronize a fusion of rural and urban representations via critically rustic narrative and gaze counter-tactics. Once again drawing on existing Otherized rural depictions, *Pink Flamingos* produces Cotton Johnson, a hyper-feminine Southern belle, and her brother, Crackers Johnson, a momma's boy redneck who lives in a chicken coop next to Divine's trailer and recalls every rural horror archetype in the book. The film calls attention to and then deconstructs these fairly commonplace metro-models of rural heterosexuality by radically recontextualizing them in a queer domesticity situated in the backwaters of Phoenix, Maryland. In particular, the incestuous "white trash erotics" which occur between Cotton and Crackers reveals the ways in which

retrofuturist texts can appropriate patterns of urbanized voyeuristic gazing to impair their tendency toward privileging forms of social hegemony. As such, when Crackers voluntarily engages in bestiality with a chicken for the erotic spetatorial enjoyment of Cotton, *Pink Flamingos* thus constructs a relation of male objection and female voyeurism that not only reverses Mulvey's male-serving formulation of the gaze, but also leads to the production of feminist agency which, unlike the metro-gaze, reflects an active and mutually empowering relationship between desire, gazer, and gazed-at. Hence, retrofuturism revalues fetishism toward a non-hierarchical productive end, as the usage of objectification often serves to highlight patterns of power in depictions of sexual space to trigger a change in representation (or recognition) that would address such inequality.

Frequently, the rural retrofuturist emphasis on constructedness, on the arbitrary and unstable division between sexual spaces in the media, correlates with the presentation of a self-consciously ironic and deliberately constructed rural idyll that revitalizes the stereotypical pastoral with postmodern pastiche ethic, in an effort toward legitimizing formerly marginalized subjectivities, particularly women, lesbians, and queers of color. *Wild At Heart* and *Faster, Pussycat! Kill! Kill!* (1965) thus stand as two queer media texts that subversively re-inhabit the stereotypical masculine pastoral in order to explode its anti-feminist politics with the construction of masculine caricatures and portrayals of powerful "hick-chicks." Though *Wild At Heart* focalizes the narrative around Sailor Ripley and his escapades through a conventionally heterosexed and exoticized countryside, the film actively denies identification with its male protagonist insofar as he's characterized as a satirical composite of over-sensationalized media masculinities: part Elvis persona, part John Wayne cowboy, and one-hundred-percent stereotypical southern "rugged" manhoood, Sailor enacts the spectularization of rural male-ness rather than its oft-repeated male-serving glorification. Meanwhile, the murderous strippers in Russ Meyer's *Faster, Pussycat!* reclaim the female component that is often submerged in straight and gay masculinized idylls with a vengeance, offering deviant images of hyper-sexualized female masculinity that trigger a pro-feminist "return of the repressed" toward the elimination of rural-based structures of male domination.

The reappraisal of hegemonic sexual spaces not only queers and camps an extensive cultural mythology of gay and straight anti-ruralism for the purposes of extending representational possibilities of queerness in the future; in fact, this paradoxically forward-backward gesture also orients the rural retrofuturistic subset of critical rusticity to the question of queer utopia. In other words, this and other similarly media-based trends of dissent, which continue to contradict ahistorical and exclusionary models of sexual space offered by a dominant gay imaginary in this way, do so to seek out a more inclusive model of queer society. Indeed, we see as much through the chronic questioning and formal obliteration of oppositional rural/urban sexualities or in the ironized notions of taste and respectability that pervade the rural retrofuturist text. Ultimately, this typology uses the postmodern practices of skepticism and aesthetic play to advance a rather peculiar, but undeniably progressive, political goal: the recuperation of formerly segregationist sexual spaces with reparative representations that promote socio-sexual differentiation by recovering rather than exterminating problematic images.

Conclusion

Thus far I have endeavored to discuss the various forms of media images of queerness and their social implications in the post-post-Stonewall era of late twentieth century America. Throughout my discussion, I have held to a number of arguments that I introduced in the beginning and later expanded. Since this is the so-called "ending" of my paper, some further explanation of the implications of these arguments may help readers contemplate the overall significance of this media studies project, as well as gain some guidance in conducting further studies. That said, I want to resist creating a sense of closure that would imply my work in this area is finished; on the contrary, my personal investment in rural/urban studies and Queer Media Studies has expanded considerably, and revealed to me the tremendous extent to which scholars need to theorize space and sex together. The following notes about my theoretical claims underline both of these realizations and also, I hope, work to remind people about the seriousness of continuing research on media representations with a self-reflexive, space-conscious mindset.

The first thing I want to address is my earlier analysis of what I have termed the "Gay Ghetto" and "Gay Village" models of queer space. From the outset, I critique these dominant formations for, among other reasons, their conceptual limitations and their amplification of an already crippling disjuncture between media conceptions of sexuality and sexual space, versus the social realities of sexuality as considered in different rural/urban spatial contexts. Yet, in doing so, I do not wish to imply that these fabrications should be purged completely, or that they yield no productive function for gay and lesbian subjects (let alone for straight audiences), or that queerness itself should be delinked from oversimplified imaginary cities. Such implications run the risk of misreading my analysis as little more than dangerously reactionary commentary, instead of seeing it as the balanced, productive, and legitimate critique I truly believe it is.

While I do level many criticisms at hegemonic representations of queer sexuality, let me say that I remain deeply sensitive to the fraught media history of gays and lesbians. As Benshoff (1995, 2006) and other media critics observe, images of queerness have largely been one-dimensional, Otherized, and all but repressed by a heterosexist American society. In this respect, then, we must always remember that, on a historical continuum of media representation, gays and lesbians have arguably made significant advances in expanding representational diversity, especially in the sense that "queer" as an identity category has entered national discourse and currently enjoys a dynamic status in the media. However, that fact alone should not preclude us from critically engaging trends in media representations that, on the surface, appear benevolent and progressive, but in reality only further stigmatize already oppressed populations, while at the same time lulling spectators into the comforting illusion that they are trustworthy and valid depictions so that critical intervention is unnecessary or, worse, counterproductive.

The argument I'm foregrounding here, which I draw from the media research conducted by Jhally and Lewis (1992), is simply that audiences should always remain wary of so-called "positive" images. In many ways, my examples of ghetto/fantasy sexual spaces act as a case study of the limitations and long-term consequences of positive images. Yet, while *The L Word*, *Rent*, *Shortbus*, and others continue to garner near-universal praise for being affirmative queer media, the implicit exclusions and acts of epistemic violence embedded in these media texts persist with hardly any notice.

Furthermore, their attendant ideological framework, which I've explained elsewhere to be a multi-faceted, "metronormative" frame, has subsequently been overlooked and hence multiplied itself indiscriminately, causing the naturalization of an urban bias in television and media which only recently has received attention from academic fields. But even so, the implications – representational restrictions and the politics of shame – are, in fact, secondary to what I consider to be a more insidious effect of unchecked metronormative queerness: the strengthening of heternormative ideology through the promotion of an urban bias and the circulation of a rural-to-urban migration story in the queer mediascape. In particular, the metronormative belief that queerness can only legitimately exist and grow or receive social tolerance in major cities allows heterosexism to flatten and binarize the sexual geography of American society into a matter of "red state" versus "blue state" differences, in which the "gay and lesbian problem," or the threat of queerness, can be controlled by simply relegating queer life to the margins of an urban setting. I insist that metronormativity feeds into and sustains heteronormativity by spatializing a binary opposition of homo/hetero into a sexualized binary of rural/urban wherein the rural stands for heterosexual and the urban homosexual. However, compounding matters further, dominant society still views cities as "straight," a double standard which not only thrusts urban queers out of sight, but also imposes a double invisibility onto rural queers. As the logic goes, rural queerness displaces itself onto the city for authenticity in a social and private sense, because *the Big City is the only essential place for homosexuality*. Compulsory heterosexuality relies on this binaristic segregationism, as well as on cultural formations that actively mystify the fluid distinctions of sexual space. Indeed, without these reinforcements of the notion that binary sex is an either/or phenomenon that has been so for all time, the hegemony of heteronormative discourse would lose all sense of legibility and authority in our world.

Having said that, I now want to highlight my second point about "positive" images of metronormative queerness: namely, that metronormative media, whether empowering for some gays and lesbians or not, works to empower systems of heterosexism, including forms of homophobia and violence. Metronormativity can thus be seen as both a homophilic and a homophobic phenomenon in its sexually essentialist connection of space and sexuality: while it flatters and valorizes the existence of a few, it comes to worsen life for just about everyone else. For this and other reasons, we as critics need to study spatial identities in conjunction with sexual identities. In so doing, we may delve deeper into the internal contradictions of metronormative discourse, and at the same time observe the forms of culture that resist it and gesture toward a theoretical position that is reflexive about space and sexuality. To induce such a "spatial turn" in queer theory would not so much cause a revolution as build on a slow but steadily growing trend.

Within the past decade, for instance, there has been a growing emphasis on cultural geography as a central component in the construction of American sexualities. Scholars such as Howard (1999), Clare (1999), and Bailey (1999) point out in their work that while the continued fixation on heteronormativity in the American academy is legitimate and productive inquiry, it is one that often transpires through an urban filter, which tends to efface valuable concerns of spatial relations that deeply inform the interactions between marginalized sexual groups and give rise to the existence or oppression of them. In this sense, theory itself is at times metronormative.

Indeed, throughout the latter half of the twentieth century, an urban bias has increasingly attached itself to academic investigations of gay, lesbian, and queer life. Invisible to some, while deeply felt by others, this bias can be seen most simply in a pervasive, yet almost unconscious preference for the urban as the overriding place for one to conduct an exploration into any and all things queer. Clearly, most critics do not treat the city as a static, unproblematic Utopia. In fact, the vast majority take great pains in weighing both the comforts and injustices facing urban queers, and argue that most American cities are still "sexed" as straight, through zoning laws and practices of law enforcement personnel, in order to naturalize heterosexual power (Hubbard, 2001). All the same, we must realize that sexuality studies is, by and large, urban in spirit and in subject matter, and a gap in knowledge exists where there could be many studies on non-urban queer life. It is important to note, however, that by identifying metronormativity in intellectual output or creative artifacts, I don't mean to suggest that this trend remains unchanging in every context and time period. Furthermore, I'm sensitive to the plights and struggles of urban lesbians, gays, and queers; with my study I do not want to devalue the lives of people in cities, but rather aim to contribute more diversity and reflexivity to media studies and queer theory.

My last conclusion is that we should continue to affirm the connection between media and our perceptions about the world. After all, metronormativity exercises cultural hegemony in American society today because television and cinema, being two modes of mass cultural transmission, actively serve as outlets for the perpetuation of urban-centric values, perceptions, and spatial imaginaries. And, in large part due to the preponderance of metronormative media and a lack of critical inquiry into this situation, the fiction of the rural/urban divide in American society persists in the collective consciousness as another biological difference in the natural order of things, as a never-ending conflict between "us" versus "them," and thereby masks how this fictional binary privileges urban power in reality. We as critics must remind ourselves that the rural/urban imaginary is not a simple, obvious fact of difference; to do so would take it out of history, out of the possibility of social change. Rather, we need to understand the current rural/urban schism as a culturally and socially produced system of meaning and power which influences and shapes power and meaning. We must affirm awareness that stories and images, not the facts of materially geographic differences, are what construct a dichotomous relationship as a simple, obvious fact. Our understanding of rural/urban distinctions in culture therefore needs to arise from an understanding of rural/urban not as geographic reality, but as *performatives*: that we perform a nonexistent binary over and over so that is retroactively created. The binary may be nonexistent, yet performativity, and the binaries of class, gender, and sexuality, as manifested in cinema and television, put the rural/urban imaginary into a material being that is extremely difficult to dislodge from everyday lived existence, from the realm of facticity, since these meanings, images, and practices so thoroughly saturate the world and regulate human thought.

To study and, perhaps, alter this situation, we should look back on Stuart Hall's time-honored "politics of image." As Hall states, media critics must "interrogate the image," and ask questions of culture in order to expose the mechanisms that hide processes and effects of representation which function to suggest that conceptually limited stereotypes and compulsory stories of the dominant ideology are the only inhabitable reality for us. By destroying the closed intelligibility and naturalness of dominant sexualized spaces through media criticism, we thus open up new possibilities for what Hall terms the "practices of signification," so that problematic aspects of culture that dictate our relationship to ourselves and to the world become changed. In particular, critical rusticity is a media-based form of such social critique, denaturalizing the stereotypes of queerness in the gay village/gay ghetto and gesturing towards alternative

possibilities. Critical rusticity allows us to conduct a politics of image that considers space and sexuality as central to the production and maintenance of identity, and should therefore be treated as another site for cultural critics to pursue critiques across the cultural landscape that productively coincide with issues of class, race, and gender also.

In our own research, we need to consider the formal qualities that distinguish different mediums, for each cultural form (literature, movies, music, and so on) develops and circulates ideologies differently, depending on the structural factors and external or internal conditions that constitute it. As I've noted previously, scholars such as Herring and Halberstam have focused on metronormativity as it is created and spread through the language of literature; therefore, in my study, I concentrate on (anti-)metronormative media, to see how spatial imaginaries are mapped out in visual language. I adopt this somewhat medium-conscious approach because I see culture as a varied and uneven realm, and also believe that the most illuminating work in cultural studies acknowledges distinctions between cultural forms. Also, since metronormativity adapts itself to other spheres that signify in differing or incompatible ways, the only legitimate way to claim any knowledge about such a huge discourse is to conduct many studies within specific fields that offer potential insight on the micro-level. These insights may then reveal the operation of a particular facet that is either symptomatic or divergent of a process belonging to the whole.

More research in urban/rural studies can be conducted in other realms of culture. Within political science, for example, one may study the myth of polarized America, and the ways in which the red state/blue state split gets sexualized and gendered through political rhetoric; similarly, research on how tourism promotes rural/urban idylls could provide insight into the commodification of space, but other options abound. By studying metronormative discourse in these and other areas, only then can we begin to separate ourselves from its extensive reach so that we clarify our relationship to sexual space without prejudices. More importantly, beyond simply minimizing our complicity in a system of power, from a humanitarian standpoint we need to pursue further research to diversify and value the range of possible and existent social life. Such pursuits remain crucial if we hope someday to be able to think within a spatial imaginary that does not treat spatial and sexual differences as a basis for power hierarchies but instead as part of the natural "benign variation" that empowers and, indeed, produces humankind.

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[2] I want to offer some brief remarks on my understanding of rural and urban space. I do this so as to dispel any semantic ambiguity beforehand, and also to clarify one of my critical objectives in this project. Rural/urban spaces do not (always) pertain to biological, empirical, or geographic realities. When I discuss rural or urban, I therefore do not necessarily imply the populations and regions as defined by the data on the U.S. census report. Instead, I insist on a conception of *cultural* spatiality that merges the imagined and the real. The "imagined" used here refers to what Said (1978) once called "imaginative geography." In other words, my object of study is the "collection of dreams, images, and vocabularies available to anyone who has tried to talk about" oneself, one's sexuality, one's community, one's nation, as well as the "Other," or the unknown. Additionally, the imagined to me is "often the sense in which someone feels himself…based on a very unrigorous idea of what is 'out there,' beyond one's own territory" (54). Yet the imagined always has a basis in, and correspondence with, the "real" (i.e., that which we grasp through our senses in the material realm), and so it includes the memories and artifacts of previous generations and retains the imprint of individuals who have affected us. Admittedly, I do privilege the imagined in this project, as part of what I want to do is draw a link from conceptions of rural and urban worlds from the recent past and see the ways in which they build on, diverge from, or meld into our ideas of the rural/urban split relative to sexuality, identity, and gender formations in the present.

[3] Because cinematic cities are not ahistorical, monolithic constructs, they may signify differently according to the spectator. Hence, just as Levy (1991) once dismissively remarked that the "Big City" has long been a symbolic "villain" in the American collective psyche, so Fowler & Helfield maintain that "urban space in the cinema has been endlessly represented and theorized" (2006: 1), as well as considered in largely idealized, uncritical ways. Such outwardly contradictory statements happen, I believe, not because the authors are wrong (quite the contrary), but because the countryside and the city signify multiply, depending on the beholder's agenda and world perspective, not to mention his or her sexuality, race, gender, or class.

[iv] Circumstantial evidence suggests that this gulf exists within lived experience as a fundamental divide in queer life in America (Clare, 1999); however, this schism of queerness only assumes a façade of naturalness because such sexual spaces organized by an urban bias achieve a level of credibility and popularity in mainstream queer culture.

[5] Since the first section cannot sustain a longer analysis of Halberstam's rural-to-urban migration, I offer here insights from scholars that seem to build on metronormativity and gesture toward other areas of research (American studies, rural cultural studies) in order to further study the phenomenon. In detailing the rise of globalization studies within North America, Grewal and Kaplan (2001) note that American studies and sexuality studies programs have adopted terminology that tend to generate discursive divides which exclude the experiences of people in

suburban, rural, or diasporic contexts. Moving their critique alongside Halberstam's notion of the rural-to-urban migration, Grewal and Kaplan state: "the process of migration to […] metropolitan locations is figured as the movement from repression to freedom. That is, 'backward,' often rural subjects flee their homes and/or patriarchal families or violent, abusive situations to come to the modern metropolis, where they can express their true nature as sexual identity in a state of freedom" (670). Thus, the rural/urban divide that lies at the heart of metronormativity, which sometimes expresses itself in migration narratives, gains the added valence of tradition versus modernity. Meanwhile, the rural is cast as a space out of time, something permanently stunted or frozen causing degeneration and death, whereas the urban is the symbolic space in which Modernism's "march of progress" continues unabated, keeping up an appearance that is always dynamic.

Correspondingly, Cloke and Little (1997) address representations of rural experience in which the rural is positioned as lesser, inferior, exotic, or "Other," by combining a study of the rural/urban divide with aspects of Orientalist discourse. Mainstream depictions of rural-ness are typically portrayed as Other for an imagined urban or suburban spectator's consumption, even if the "countryside that lies behind the images does not seem to quite match up to rural ideals" (Murdoch & Pratt, 1997). Akin to Said's notion of Western Orientalism (1978), Cloke and Little suggest that this process of Otherization imposes a Sameness onto a heterogeneous group of rural populations and locales, which on the one hand acts as a projection of the fears and desires held by mainstream audiences, and on the other, works to colonize rural life to dominate it.

[6] As Judith Butler notes in the introductory chapter to *Bodies that Matter* (1993), the delusion of stable binary sexuality always serves to reinforce the dominance of straight culture. The straight subject is "constituted through the force of exclusion and abjection, one which produces a constitutive outside to the subject, an abjected outside, which is, after all, 'inside' the subject as its own founding repudiation" (3). This straight/non-straight binary which springs forth categories of homosexuality and heterosexuality (as well as causing its own auto-deconstruction) is then further fortified through metronormativity, which insists on the maintenance of a permanent cultural division between urban and rural that is simultaneously sexualized as essentially gay and straight.

[7] This tendency to exclude the rural dweller for being "Other" – against which the American mainstream understands its own "self" – often comes into being alongside an axis "structured around centres and margins" (Philips & Watt, 2000), which can either reaffirm existing power relations amongst competing sex-gender systems or create new possibilities for the disruption and reconstitution of them. Alan Sinfield (2000) notes that contemporary gay communities, which occupy the cultural centers in America, tend to view themselves through a largely metropolitan frame, failing to accommodate the differences held among rural homosexuals, while nevertheless claiming to speak on their behalf. Consequently, rural queers are stripped of legitimacy in larger national discourses, doubly displaced by being alienated from straight culture and also by lacking support from mainstream homosexuals. Still, the non-recognition of marginal sexualities, whether in film, television, or real life, is productive in the sense that sexual non-assimilation can serve as the basis for creating alternative communities that don't reproduce similar hierarchies of power.

[8] "Critical rusticity" is a term borrowed from Herring (2007) in a discussion on the mode of critical thought and cultural production that occupies an oppositional stance in the face of dominant forms of style, class, and sexual norms that converge in an urban imaginary.

[ix] Foucault, M. & C. Gordon (1980). *Power/knowledge: selected interviews and other writings, 1972-1977*. New York: Pantheon Books.

[x] Though film critics tend to regard documentary as having a closer relationship to objectivity or "truth" than narrative film, in the case of metronormativity we must consider both genres on the same terms, and refrain from privileging one to the other. After all, urban biases circulate and frame many different types of film, no matter the assumptions or limitations of industry or political economy.

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The Role of Legumes in Weight Management, Insulin Resistance and Colon Cancer Prevention

Fawn S. Patchell, McNair Scholar, Penn State University

Faculty Research Adviser: Terryl J. Hartman, PhD, MPH, RD
Associate Professor of Nutrition
Nutritional Sciences Department
College of Health and Human Development
Penn State University

ABSTRACT: Penn State University and the National Cancer Institute are currently conducting the Legume Inflammation Feeding Study (LIFE), a randomized, crossover design, controlled feeding study. The purpose of this study is to evaluate the effects of a low-glycemic, legume-enriched high fermentable fiber diet on measures of inflammation and insulin resistance. Both inflammation and insulin resistance have been associated with colon cancer. Study participants may choose to partake in an optional weight-loss phase which will evaluate the effects of the dry bean diet on weight loss and associated hormonal changes. This paper will focus on the preliminary results of the optional weight loss phase and discuss the relationship of weight loss with insulin resistance and colon cancer. Volunteers for this study are men between ages 35-75 who are classified as either insulin resistant or non-insulin resistant. During the first two phases of the study, participants spend four consecutive weeks eating the control diet and four weeks on the legume test diet, in random order. In the optional phase, participants are given limited guidance for eliminating calories. They are asked to eat all the bean dishes, but they may limit or cut out any of the remaining foods. Preliminary results indicate that subjects had an average 8.9 pound weight loss in four weeks.

Introduction

The most recent 1999-2000 National Health and Nutrition Examination Survey (NHANES) reported that approximately 64% of American adults are considered overweight, or have a Body Mass Index (BMI) ≥25 (Seagle et al, 2001). Of these, about 1/3 of these adults are considered obese (BMI >30) (Seagle et al, 2001). Significant evidence shows that obesity (especially in the abdominal region) is a major risk factor for insulin resistance. This, in turn, is a major risk factor for non-insulin dependent diabetes mellitus (NIDDM) (NIH Pub. 06-04893, 2006). Several cohort studies have shown that there is a positive association with NIDDM and colon cancer (Giovanucci et al, 2007). Finally, colon cancer is currently one of the top 5 leading causes of cancer deaths in the United States (Giovanucci et al, 2007).

This cascade of events emphasizes the fact that obesity is a multi-faceted health disorder. As research progresses it is clear that the state of one's health is dependent on multiple factors. The complex web of optimal health, disease prevention and the origin of disease further complicate the treatment process. The treatment itself can be considered multi-faceted and perhaps should be viewed as a scale of treatment rather than a pinpoint trial.

It is in this light that the current study examines weight loss. As weight decreases perhaps the dangerous cascade of health events can be halted and perhaps, even reversed.

As seen in the Diabetes Prevention Program (DPP), lifestyle changes, including weight loss, reduced the risk of developing type 2 diabetes among overweight people by 58 percent. Many who had insulin resistance were also able to reverse this condition (NIH Pub.06-4893, 2006).

However, effectively losing weight remains the major obstacle. In this study a diet rich in legumes is being evaluated for its ability to aid in weight loss. Plasma serum and fecal samples will be evaluated to determine any impact from the resulting weight loss on other factors, such as inflammation, that may influence carcinogenesis in the colon. As such, the main hypothesis of the Legume Inflammation Feeding Study (LIFE) is that a high legume, low glycemic diet will help to lessen the inflammation caused by obesity and insulin resistance which may contribute to the formation of adenomas in the colon, the precursors to colon cancer.

There are three phases to this study. The first two phases include eating from two diets. One diet is based on the average American diet which includes foods that are low in fiber and have a high glycemic index. The test diet is a low glycemic, legume enriched high fermentable fiber diet (fig. 1). Each menu on the test diet includes approximately 1 ½ cups of beans per day. Dry beans included in this study are red kidney, black, navy and pinto beans. The third phase is an optional weight loss phase in which the volunteers continue eating the legume diet.

Fig.1

Example Menus		
	Low GI	**High GI**
Breakfast	**Omelet**	**Waffles & syrup**
	Oat bran bread	**Turkey sausage**
	Peanut butter	**Cranberry juice**
Lunch	**Black bean soup**	**Ham sandwich**
	Grapes	**Canned peaches**
	2% Milk	**1% Milk**
	Vanilla pudding	
Dinner	**Pork stir fry**	**Pork stir fry**
	Brown rice	**White rice**
	Three bean salad	**Bread/margarine**
Snack	**Apple**	**Jelly beans**

Hartman, TJ, Personal communication.

Methods

The study has been conducted in accordance with the Institutional Review Board at the Pennsylvania State University. All participants were informed of their rights and written consent was obtained prior to controlled feeding. Males between ages 35-75 years old with a Body Mass

Index (BMI) 25.0-34.9 kg/m^2 were recruited from a local outpatient gastroenterology facility. All subjects had a colonoscopy within two years prior to study participation. All participants were assigned to one of four groups based on colonoscopy results (+/- adenomatous polyps) and if they were insulin resistant or non-insulin resistant. For the purpose of this paper, subjects who participated in the weight loss phase were categorized as either insulin resistant (IR) or non-insulin resistant (NoIR). A subject was classified as insulin resistant if he had a value ≥2.61 as determined by the Homeostasis Assessment Model (HOMA-IR) [*fasting serum insulin x fasting glucose/ 2.25*] (Monzillo et al, 2003).

Potential subjects were excluded if they had any of the following: cancer, heart disease, kidney disease, diabetes or other serious medical condition, surgical resection of adenomas, bowel resection, polyposis syndrome, inflammatory bowel disease, regularly smoked in year prior to study, any condition that would substantially limit compliance with the dietary protocol, taking any medication that affects inflammation markers, insulin, glucose or lipids.

After acceptance into the study, participants were randomized into the controlled feeding portion of the research. Participants were provided all foods and caloric beverages in amounts determined by individual caloric needs. For the first two phases, caloric intake is adjusted for each participant to maintain weight. All foods and beverages were prepared at the General Clinical Research Center, Penn State University.

Both diets were isocaloric with similar macronutrient profiles (fig.2). For DP1 and DP2, participants were given menu checklists to ensure receipt of foods and asked to consume all foods received and return all food containers with any uneaten foods or beverages (to measure compliance).

Figure 2.

Nutrient profiles averaged over one week

Nutrient	Low-GI Diet	High-GI Diet
Glycemic Index	37	69
Glycemic Load	80	138
Total Fat (% kcal)	35	34
SFA (% kcal)	12	11
Protein (% kcal)	19	18
Carbohydrate (% kcal)	48	49
Fiber (g)	39	17
Cholesterol (mg)	142 mg	180 mg

Hartman, TJ, Personal communication

In the optional weight-loss phase, participants were instructed to eat only until satisfied, starting with the bean dish first. Afterwards, they could reduce or eliminate any of the remaining foods and beverages. Weight was measured and logged daily. Participants were also asked throughout the study to fill out daily monitoring forms indicating any alcohol or extra non-study

foods consumed and any study foods not consumed. GCRC staff also monitored returned food containers. Participants were asked not to alter physical activity levels for the duration of their time in the study.

Blood samples were collected before, during (mid-point), and after each diet phase and will be analyzed when all samples have been collected. Plasma serum will be analyzed for cholecystokinin (CCK), leptin, ghrelin, insulin, glucose, C- reactive proteins, C-peptides, cytokines and lipids.

Results

At the time of project submission, 59 of the participants completed both required phases of the study (n=69). Of these, 38 completed the optional weight loss portion (DP3). Six participants were still in progress. Three men were dropped from the study for reasons of gastrointestinal upset and/or time constraints. One man dropped out before beginning DP1. Overall, across both the IR and NoIR groups, participants lost an average of 8.5 pounds (+/- 5.8) over the four week weight loss period.

The IR group (12 of 14) had 86% of participants lost greater than or equal to 5 pounds. Values less than 5 lbs were considered a zero-weight loss as the human body can fluctuate +/- 5 lbs in a single day. There was an average weight loss of 10.4 lbs (+/- 7.11). In the NoIR group (16 of 24) 67% of the participants lost $\geq$ 5 lbs. The No-IR group had an average weight loss of 7.4 lbs (+/- 4.70).

Discussion

Our results suggest that consumption of a high legume, high fiber, low glycemic index diet was able to facilitate weight loss in a group of older men. For 38 subjects who completed the four-week weight loss diet period, weight loss was 8.5 (+/- 5.8) pounds on average. Moreover, 28 of the 38 participants who completed this diet period lost five pounds or more.

The greater weight loss among the IR group could possibly be due to the higher baseline BMI (30.79 +/- 3.29) and waist circumference(103.10 cm +/- 7.72) compared to the No-IR group: BMI 26.84 +/- 2.92 and waist circumference 93.52 cm +/- 8.64 (Zhang et al, 2007). Motivation due to increased health risks may have motivated some individuals to be more conscientious of types and amounts of food.

Overall, other factors that may have attributed to the weight loss of both groups could be CCK levels, trypsin and amylase inhibitors and the high fiber/ low glycemic nature of the legume diet (Rizkalla et al, 2002).

Cholecystokinin (CCK) is released from the pancreas in response to the presence of protein and lipids within the small intestine. This gut peptide is associated with meal reduction and cessation (Woods et al, 2000). Dry beans contain minor trypsin-inhibitor (TI) activity (Champ, 2002). Although this activity is reduced when the beans are cooked and rinsed, enough is still present to extend CCK secretion (Bourdan et al, 2002). This can result in a greater feeling of satiety for a longer period of time (Burton-Freeman et al, 2002)).

Trypsin is a digestive enzyme secreted by the pancreas that normally breaks down proteins. The presence of TI may possibly reduce absorption of nutrients by inhibiting the cleaving of amino acids in proteins. Another enzyme possibly affected by legumes is amylase. High amounts of amylase inhibitors are present in red kidney beans. Amylase inhibitors are sold

commercially as "starch blockers" although these preparations have not been shown to be affective in clinical trials (Champ, 2002).

The low glycemic, high fiber legume diet may be acting upon several other digestive mechanisms to control weight. First, adiponectin, an adipose-secreted cytokine, improves insulin sensitivity. Low plasma levels are present in individuals with type 2 diabetes. In a study by Qi et al (2005), high GI/load is associated with a decrease in plasma adiponectin. An increased consumption of cereal fiber, such as in the legume diet, plus magnesium supplements were associated with increased levels of adiponectin and the corresponding increased insulin sensitivity could result in better disposal of plasma glucose. Therefore more glucose is immediately broken down as energy rather than deposited in adipose tissue. This study could also boost the argument for the use of a low-glycemic diet in weight loss.

Further, fiber can affect how much food an individual consumes in a variety of ways. Foods with a low glycemic index are high in fiber which may aid in decreased postprandial plasma glucose and insulin (Behall et al, 2006; Potter et al, 1981). This results in a more gradual release of energy and prolonged satiety (duration of time between meals) (Burton-Freeman, 2000; Rizkalla et al, 2002). Higher fiber concentrations can also slow gastric emptying so that satiety hormones remain elevated for longer periods (Burton-Freeman, 2000). High fiber, low glycemic foods also prolong chewing time (Burton-Freeman, 2000) giving the feeling that more food has been consumed.

Much is still unknown of the mechanisms for weight loss when including legumes or other high fiber foods in the diet. For example, Rizkalla et al. (2002) conclude that the use of a low glycemic diet may result in favorable weight loss in the abdominal region. Also, Higgins et al, (2004) suggests that diets high in resistant starch, such as that found in legumes, can promote lipid oxidation. Further examination is required for both of these hypotheses to be fully explained

Since this study's main purpose is to monitor markers of inflammation within the blood and colon, and not to study how weight-loss is aided by the legume biochemistry, further study needs to focus on the latter. However, there is still room for legume research in the realm of cancer studies. One such aspect may be the relationship of legumes and trypsin activity with carcinogenesis in the colon.

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Removal of Vending Machines from Schools and Adolescents' BMI: Qualitative and Quantitative Input from Key School Staff

Anjana Patel, McNair Scholar, Penn State University

Faculty Research Adviser: Lori Francis, Ph.D
Assistant Professor, Department of Bio-Behavioral Health
College of Health and Human Development
Penn State University

Abstract

Objective: The objective of this study was to examine body mass index (BMI) changes in adolescents after the removal of vending machines from their respective high schools.
Method: Participants included 1800 high school students from Harrisburg School District, located in a small urban city in Southeastern Pennsylvania. Students' BMI was measured from 2004 through 2007 and the vending machines were removed in the 2006 and 2007 school year. Analysis of variance (ANOVA) was used to examine the mean differences in students' BMI as well as SAS version 9.1 was used for the statistical analysis. Semi-structured interviews were conducted with a food service director and nurse. Both interviews were tape recorded and transcribed afterwards.
Results: Overall, there were no statistical significance found, however, there appeared a general trend towards smaller increases in BMI from 2005-2006 to 2006-2007 school year compared to 2004-2005 and 2005-2006 school years. The BMI mean changed from 0.71 to 0.75. There was an insignificant decrease in 2005-2006 to 2006-2007 school year when the vending machines were removed. Children who had their data for all three years (n-205), BMI increases were smaller over time. Qualitative parts of the result indicated as the schools food service director and a nurse indicated, for the healthier environment in schools, any school having vending machines that are high in sugar content should be removed and follow the wellness policy that came out in the 2007 school year.
Conclusion: The outcomes were not as significant due to removal of vending machines but it appeared that the rate of change in BMI over time will decrease across high school students. There are also other factors, such as poverty, that have a large influence on obesity. As a result, future studies should measure students' actual vending machine use, and interview more school staff on adolescents' food intake.

Introduction

Obesity has become an epidemic in the United States, and has been given more attention due to the increasing prevalence in adults and children (Ogden, Carroll, Curtin, McDowell, Tabak, & Flegal, 2007). Numerous questions arise for future generations and their health status, and, most especially for children. The obesity epidemic among children and adolescents is related to a variety of factors including one of the many, the issue of vending machines that which is one of many factors that contributed to adolescent obesity (Gemmill, & Nancy, 2005). Multifaceted preventions and interventions are extremely important in halting the adulthood obesity epidemic and the chronic diseases that are related to it. This study will look at the

relationship between vending machines and adolescents body mass index (BMI). BMI is calculated as weight in kilograms divided by the square of height in meters (Ogden, Carroll, Curtin, McDowell, Tabak, & Flegal, 2006). The high school students' BMI will be examined before and after the vending machines were removed from the Harrisburg School District located in Southeastern Pennsylvania. The following questions will be addressed: (1) does access or lack of access to vending machines during a school day equate to a lower BMI among high school students? Is the school food environment associated with the prevalence of obesity in high school students?

According to Center for Disease Control and Prevention (CDC); children who are underweight have BMI scores in the 5th percentile; healthy weight is from the 5th to 85th percentile, at risk for overweight is a BMI equal or greater than the 85th percentile, and over weight is equal to or greater than 95th percentile. For this study, I define overweight as a BMI greater than or equal to 85th percentile, and obese as BMI greater than or equal to 95th percentile. The CDC states that when the consumption of calories outnumbers the expenditure there are consequences of gaining weight. CDC collected data from two NHANES surveys in 1976-1980 and 2003-2004 which indicated that the prevalence of obesity in children from 2-5 years increased from 5.0% to 13.9%, children ages 6-11 years was from 6.5% to 18.8%, and for adolescents age 12-19 years, it increased from 5.0%- 17.4% (CDC, 2007). Overall, the trend is increasing across every age group. In addition, 10% of the world's school-age children either have excess body fat or are obese. These children falling into the category of 85-95th percentiles will have a major impact of being overweight or obese when they become adults. This might lead to increases in health care costs as well (Crossman, Sullivan, Benin, 2006).

Several studies have outlined some factors that contribute to the development of obesity. Obesity is not only school but home environment includes watching the television without any physical activities, playing video games, and overeating. Sedentary lifestyles are involved in gaining weight (Hager, 2005). There would be a reduction in obesity level if there was no television viewing and children participating in physical activities at school or at home (Hager, 2006). In addition, the environmental factors including the school, school cafeteria, vending machines, and fast food restaurants that children have an experience with during the school year could play a major role in the development of obesity (Baranowski, et. al., 2000).

The school environment also has a major impact on adolescent's obesity (Malone, 2005). Since, children spend most of their time at school that makes the school the ideal place for implementing such programs preventing obesity. Improvement of students' dietary intake requires extensive support from the school community that involves administrators, nurses, and principals. According to Dietary Guidelines for Americans 2005, children should consume at least five servings of fruit and two glasses of milk everyday. In CDC studies, regarding food intake, quite alarming results were obtained (CDC, 2007). The CDC survey respondents indicated that in grade 9-12, 78% had consumed less than five servings of fruit and 83% had consumed less than three glasses of milk per day. The intake of fruits, juices and vegetables is below the recommended five servings a day in the United States. This may affect the children's dietary behaviors into adulthood while developing obesity, heart diseases, osteoporosis, dental caries, and other chronic diseases (Weber, 2000 &, Dinanne). This indicates that children have difficulty meeting the Dietary Guideline Recommendations.

One way children get non- nutritious food is from the vending machines in schools. The vending machines at their schools provide unhealthy food choices that encourage students to make poor food selections instead of healthier ones. This could only be changed through strong support from the school community (Gemmill, & Cotugna, 2005). The school policies on healthy and nutritious food environments are important in enhancing healthy food environments. For example, regarding the policies, a study conducted by Neumark-Sztainer et. al. (2005) examined how school lunch and vending machines impact usage and the school food policies. Policies refer to open and closed campus during the lunch hours. For example, the hours of vending machines are turned off and on for open policy and students' permission to go off campus and purchase food.

Neumark-Sztainer (2005) discovered that in schools having the open campus policy, the purchase of fast food was significantly greater by students compared to than students at schools with the closed campus policy. Regarding the vending machines, the usage depended on the location and the types of food that it served. The schools with closed policies had improved their result of purchasing healthier than schools without the policy (Neumark-Sztainer, French, Hannan, Story, & Fulkerson, 2005).

A study conducted by Wiecha et al. (2006) concluded that students who use school vending machines purchased more sugar-sweetened beverages than any nutritious beverages. The greater the amount of vending machines in the school the greater amount of sugar sweetened purchase is observed. The school policies on implementing the removal of sugar-sweetened beverages programs can help the unhealthy environment (Neumark-Sztainer et al, 2005).Vending machines are ways that schools get additional revenue and about 80% of high school students have access to vending machines (Nollen et. al, 2007). The school food policy and location of food, whether it is on campus or fast food restaurants makes a huge difference in students' food choices (Neumark-Sztainer et. al, 2005). Soft drinks from the vending machines which include diet sodas, iced teas, fruit drinks, and sport drinks are linked to excess energy intake and weight gain (French, et. al, 2003). These have no nutritional values and are considered as empty calories. The school administration should examine this epidemic and remove the vending machines that adolescents have easy access to and should consider more health benefits. (French et. al. 2003).

A study conducted by the Centers for Disease Control and Prevention (CDC) on the School Health Policies and Programs Study indicated that 43.0%, 73.9%, and 98.2%, elementary, middle, and high schools, respectively, had access to vending machines, school stores, canteens, or snack bars where unhealthy food was distributed. Moreover, children obtain more calories from drinking sodas, and other non-nutritious foods provided by the vending machines than any other places (CDC, 2007). According to Gemmill and Cotugna (2005), vending machines provide significant revenue for schools. These aid schools for the extracurricular activities which makes it difficult for the removal of vending machines according to administrators. Due to that conflict, school administrators should consult with the contracting company for the replacement of unhealthy foods with more nutritious foods to create a healthier environment in schools (Gemmill, & Cotugna, 2005).

Nollen et. al. (2005) interviewed school personnel to gain insight on the school food environment and its impact on adolescent obesity. The school policies are related to regulation of the legislation. Interviews included school principals, and dietitian/food service managers. Principals did not agree with the concept that schools are the problem source of adolescents' obesity. In the interview process, it was revealed that there are other factors including

community and home environment that play a role in the development of obesity. Food services responded that they try preparing the students for the "real world" healthy and unhealthy food choices. The other staff members of schools including nurses play a crucial role on planning the policies based on the food that children should and should not consume. Nurses have the power to spread the words to students on a healthy food environment, and nurses can inform the students on healthy food choices (Malone, 2005).

Even though researchers are trying to reverse the obesity epidemic, there are still vending machines available in 98% of the United States high school area (Hendel-Paterson, French, & Story, 2004). Parents' high awareness of soft drinks, numbers of location of machines, the hours of operation, and variety of beverages that are included in vending machines could provide them with a better understanding of how it is operated (Hendel-Paterson, French, & Story, 2004). The schools have the power of preventing the unhealthy food choices that are made by children. A literature review study by Story, Kahingst, and French indicated that interventions had an effect on the school food environment. For example, instead of removing the vending machines they recommended replacing the unhealthy food with low-fat foods and including more fruits and vegetables which could change the school food environment. Also, providing low-calorie foods in vending machines could help the school revenues without losing money (Story, Kaphingst, & French).

This study will examine some factors that could play a role in the development of adolescents' obesity. Specifically, this study examined the effects of removing the vending machines from high schools on students' increase in BMI. The Harrisburg School District in Southeastern Pennsylvania removed the vending machines in the 2006-2007 school year and collected students' body mass index (BMI) data over the same time period. I hypothesized that there would be a smaller increase in BMI between the 2005-2006 and 2006-2007 school years, compared to earlier years. BMI increase as children age, as a result we expect to see BMI increasing over time. A smaller increase in BMI over time would show that removal of the vending machines may have an effect on students' BMI.

Method

Participants and schools

Students of Harrisburg School District High Schools were selected to be the subjects of the research study. The BMI of 1800 high school students was measured over three school years, 2004-2005, 2005-2006, and 2006-2007. The three high schools included; John Marshal, Science and Technology, & William Penn were selected for this research. The demographics within the school districts were about 75% Black, 16% Hispanic, 6.1% White, and 4.6% others. Within the district, there were 53.7% economically disadvantaged families. The mean age during 2004-2005, 2005-2006, and 2006-2007 school years were 13, 14, and 15, respectively.

Procedure and Data analysis

This study used mixed-method design that includes qualitative and quantitative measures. **Qualitative:** Qualitative measures consisted of school food environment and interview process. Semi-structured interviews were conducted with key school staff that includes the food service director and a nurse. The food service director supervises the entire school district food service who was asked open-ended questions during a 45-minute face-to-face interview in John Marshal cafeteria. The director was interviewed regarding removed school vending machines with the

replacement of what he called "healthy" beverages and the food environment. A 45-minute phone interview with a nurse was conducted about student health status and school policy regarding students' dietary intake. Both interviews were audio recorded with the permission of interviewees for accuracy of results and were transcribed for validity. Table 1, 2 and 3 describes questionnaires asked to a school director and nurse. The developed questionnaires for the interview were proofread by the faculty advisors in the research area and permission was granted to ask the relevant questions. The school wellness policy was reviewed as part of the qualitative content. The school food policies and practices were not disturbed but the necessary results were drawn from the observations throughout the school and cafeteria.

Quantitative: Quantitative design includes BMI collected for three academic school years. BMI data was calculated from heights and weights collected during each school year. BMI was calculated using the formula weight in kilograms divided by the square of height in meters. For this study, obesity was defined as BMI being greater than 90th percentile. The data were already collected and I was given the permission to implement the study. The BMI data were entered using Microsoft Excel spreadsheet formula and SAS version 8 was used to run the overall analysis. Analysis of variance (ANOVA) tests were used to compare the mean difference in BMI across students' before and after removal of the vending machines. All these analyses were conducted by my faculty advisor.

Table 1: Interview Questions for Food Service Director and insight on the Vending Machine

Food Service Director

1.	How many vending machines were in the school districts?
2.	What was the reason behind removing the vending machines? Was it because of the benefit of children's health or you were not getting enough revenues from it?
3.	Were there any vending machines that included nutritious food for example, 100% fruit/juice, water, nutri bar and etc.
4.	Was the food available every time during the school day or was it stopped at certain time of the day?
5.	Do children buy more food from cafeteria due to the removal of vending machines?
6.	Would you bring back vending machines if they are replaced with nutritious food?
7.	What was the reaction of children due to the removal of vending machines?

Table 2: School Policy Interview Questions for the Director

1.	Who sets up the food policy in schools? OR was there any school policy on using vending machines in the school?
2.	Did you consider replacing the unhealthy food in the vending machines with more nutritious foods? Would the revenues be different?
3.	In your opinion, what are some arguments for having or removing vending machines in schools?
4.	How did students feel when the vending machines were removed?

5.	Since the vending machines have been removed, should the school health policies and programs be stricter then what they used to be? (What was the policy on using vending machines?)
6.	Do rules about leaving campus vary across the three high school buildings?
7.	Would you consider your school to have the healthy food environment?

Table 3: Interview Questions for the Nurse

1.	What type of differences have you observed in overweight students compared to students of ideal body weight?
2.	On average, how many weight related health problems do you deal with each month?

3.	Is the body mass index (BMI) report card used here?
	   • If yes, what information does the report card contain? Is there any advice for parents, or does it only list the child's weight status?
	   • If yes, what is the typical reaction of parents whose children have been diagnosed with obesity?

4.	Have any steps been taken to help prevent or reduce obesity in students?
5.	From your experience, what are some of the key factors that play into high BMI among students here?
6.	How is children's parents' education level?
7.	Are any of children's parents overweight or obese?

Results

Obesity

Obesity seems to be a problem in schools according to BMI measurements and the percentile rates. The food environment in the cafeteria does have an impact on the development of obesity.

Table 4: Prevalence of Obesity Overall:

2004-2005 (n=776)	2005-2006 (n=1055)	2006-2007 (n=1220)
26.9%	25.5%	27.5%

Table 4 shows the overall prevalence of obesity across the three school years. We found no statistical significant in the result, however, there appeared a general trend towards smaller increases in BMI from 2005-2006 to 2006-2007 school year compared to 2004-2005 and 2005-2006 school years. The BMI mean changed from 0.71 to 0.75. There was an insignificant decrease in 2005-2006 to 2006-2007 school when the vending machines were removed. Children who had their data for all three years (n-205), BMI increases were smaller over time.

The prevalence of obesity by high school is listed in Table 5. There were no significant differences in BMI increases between school years 2004-2005, 2005-2006, and 2006-2007. Compared to the other two schools, Science and Technology had the highest BMI percentiles. John Marshal high school had the lowest BMI percentiles but it was moderately lower. Compared to the national prevalence of obesity in 12 to 19-years-olds from 1999-2004 (16%), high school students from Harrisburg Districts School had a higher prevalence rate of obesity.

Table 5: _Prevalence of Obesity by School:_

_2004-2005_			_2005-2006_			_2006-2007_		
_JH_	_WP_	_ST_	_JH_	_WP_	_ST_	_JH_	_WP_	_ST_
26.4%	26.1%	29.6%	24.0%	28.6%	26.7%	25.0%	28.6%	33.2%

Wellness policy

The Pennsylvania Department of Education's Division of Food and Nutrition required that Harrisburg School District have a wellness policy to maintain a healthy food environment. The food offered in the cafeteria should contain certain percentages of fat, carbohydrates, and protein as well as a la carte items should be cut down. The wellness policy came out in 2007 and according to the policy's regulations schools are required to implement programs that will build a healthy school food environment. The school nurse and food director indicated that they knew about the wellness policy to be effective in 2007. Hence, they removed vending machines before hand.

The overview of the policy emphasized more on students' intake of proper nutrition, and healthy life-style that enhance and improve students' achievement in school. The policy requires nutrition education, physical activity, physical education, and other school based activities to be included. This policy is developed to bring a positive, clean, and safe food environment in school. Some basic nutrition guidelines will provide less than 200 calories per serving in vending machines. There will be at least one fresh fruit served, and greater than two grams of fiber to be served. There will not be deep fried and minimal nutritional value food served in schools (Student Wellness, 2006).

School food environment

Two high school food cafeterias including John Marshal and Science and Technology were observed during the summer months and William Penn School was observed from outside of the school; I observed whether the restaurants were available close to school or not. Two schools that were observed from inside the cafeteria had different settings for food serving. For example, at John Marshal high school, there were four vending machines including bottled water bottle, vitamin beverages, fruit juices, and other beverages on what they called "healthy" drinks. There were no vending machines consisting of chips, candies, and others snack foods. At the Science and Technology high school, the school was not in session at the time of observation. Due to the conflict only the food set-up was observed and vending machines were not seen. Since the cafeteria was observed during the summer time, fruits and healthy beverages were served in cafeteria menus as well as unhealthy food was being served including french fries, and

burgers. The cafeteria lunch menu might be a little different during the regular Fall and Spring semester as compared to summer.

Insights of school nurse and food service director on food environment were examined to find similarities in themes. Both mentioned the wellness policy, and how nurses are trying to implement the programs after school or during the school year to bring the healthy environment to school. The food service director mentioned the grant that is given to school from Department of Agriculture to offer fresh fruits and vegetables. The purpose of this grant is to engage students to eat fruits and vegetables and encourage their parents to purchase healthier food. The interview with the food service director satisfied the content and face validity. Table 6 shows the relevant responses obtained from the interview.

Table 6: Responses obtained from Food Service Director, their policy, and Nurse
This table describes the similarities in themes for food service director and the nurse.

Themes	Food Service Director	Policy	Nurse
1.	Vending machines were replaced with Fruitopia beverages	The food service director with school wellness committee which is comprised of superintendents, wellness coordinator, and some teachers and staff members	Students who are obese are usually sick, have asthma, don't want to go to phys. Ed., feel uncomfortable about their body image
2.	Due to regulations, they removed sugar content	Removal of vending machines made the revenues went down a little bit	Mostly, the diseases are asthma, diabetic, and gastric reflux
3.	Now they have fruit juice but not other snacks	Schools had to go to a healthier environment	Parents get the BMI report cards explaining BMI, height, weight
4.	Vending machines are open from breakfast until lunch time and off after lunch time	Before they removed the vending machines, students were explained as he said "we not trying to take things away but this is considered healthy"	There are programs offered at school that nurses can utilize, PENA (Pennsylvania Evocates for Nutrition & Activities
5.	There was no change in purchasing food from cafeteria	Vending machines should be removed, "if someone is selling soft drinks in cafeteria, they should be removed".	The accessibility of corner stores, picky about food, & poverty level had an impact on the development of obesity
6.	There is a possibility to replace with pre-plate salads but offered in cafeteria	Students are not supposed to leave the campus	Parents education level indicates that some finished high school, some can't read, & some with college level degree
7.	Students realized about healthy environment and vending machines were removed gradually	Schools have healthier environment as the food service director indicated	Nurses could not determine, if parents are obese than their children are more likely to be obese and home environment count as well

Discussion

The finding from this study show that there were no significant differences in BMI changes as a result of unhealthy foods and beverages from the high school vending machines. However, there was a smaller but insignificant increase in BMI between the 2005-2006 and 2006-2007 school years which may be a result of the vending machines being removed. This is disappointing because we can not say that removing unhealthy vending machine options or adopting the school wellness policy has made a big impact. The wellness policy may not have an effect yet due to the limited amount of time that the policy was in effect; it would take more time for the implementation. Although, the effective policy rules may make a difference in the future by adding healthy beverages in vending machines in school as well as having a healthy food environment. The small increase in BMI percentile may have to do with the school food environment and that might have replicated the finding by Nollen, et. al., 2007 that had the result of increased BMI in children due to the food environment in school.

Themes provided by the nurse had their relevance. It was surprising that the nurse mentioned accessibility of corner stores that are located within a 1 to 2 block radius of the school and students being picky about the food that is served in schools. There may be other factors that influence obesity level in students, including the poverty level in the school district. The food service director mentioned that 6-7% of students are allotted reduced lunch and 72 % are offered free lunches due to low income population. The schools ought to change the unhealthy environment with the support from nurses and food service directors. They have the power to implement the programs.

After the interview when the permission was given by the food service director, pictures of vending machines were taken. Within the cafeteria, there were about four to five vending machines containing healthy and unhealthy beverages. Although he mentioned in his interview that they removed the high sugar content beverages, thorough critical examination of vending machines found that they still have some unhealthy beverages. They still have sugar content beverages included in their vending machines. They still have sugar-sweetened beverages in their vending machines, even though they refer to them as "healthy" beverages.

The food service director mentioned the financial status referred to the question on revenue. He indicated that the revenue from removing vending machines declined a little bit after the Fruittopia drink removal. The revenue really did not matter because student's health was more important than the financial status. Since that change, now they offer 100% juice, vitamin beverages, ice-tea and iced-tea. A critical observation through vending machines showed that all the healthy and unhealthy beverages were seen throughout vending machines. Part of the healthier environment in school both the food service director and the nurse mentioned one fact that all school should remove their vending machines if they contain soft drink beverages.

The study limitations include timing, seasonal settings, and the measurement of vending machine usage. Timing because vending machines were just removed in 2006-2007 and BMI data was collected the same year. It might have given more accurate findings if the BMI was measured after several years. The other is seasonal setting, because during the school year period students are in the same environment. However, during the summer time they reside in their respective neighborhoods where their BMI may differ because of various influences. There should be more interviews with school staff and directors to gain opinions on school food environment. Also, the study did not measure students' vending machine purchases. These limitations should be addressed in future studies.

Conclusions and implications

The outcomes were not as significant due to removal of vending machines but it appeared that the rate of change in BMI over time will decrease across high school students. There are foods available to students during the school year, especially during lunch and outside of school may make a huge difference. The other factors, like poverty have a large influence on obesity. As a result, future studies should measure students' actual vending machine use, and examine other factors that may have influence on adolescents' obesity. For example, studies should examine adolescents' physical activities at school, food intake while they are in school and outside of school, and parental supervision.

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The Iraq War and Presidential Rhetoric of the War Against Terror

Patrick R. Reck, McNair Scholar, Penn State University

Faculty Research Adviser: Rosa A. Eberly, PhD
Associate Professor of CAS and English
Communication Arts and Sciences and English Departments
The College of Liberal Arts
Penn State University

Abstract

This article examines the role of the President Bush's official rhetoric in shifting the focus of the war on terrorism from Afghanistan to Iraq. Using theoretical and critical frameworks from rhetorical studies, I conduct a close textual analysis of presidential addresses from Sept. 11, 2001, to the invasion of Iraq in March 2003 to explain the patterns and evolution of this rhetorical movement. By studying the Bush administration's discursive construction of the war in the context of dominant Western ideology, I explore how and why, at its inception, this Iraq war was largely unchallenged in the United States as an appropriate action in the war against terrorism. The findings centralize around categorizing the president's arguments into rhetorical genres and stasis questions as well as addressing why alternative responses were not explored.

Introduction

President George W. Bush's justifications for invading Iraq in March 2003 presented the American public with a rhetorical quagmire. Framing military operations as a necessary action in the war on terrorism, President Bush spoke of evidence that portrayed Saddam Hussein's regime as an imminent threat to international security and claimed an inherent connection between the dictator and the September 11th attacks. Illustrating Hussein's history of violence, aggression, and oppression as well as his repeated violations of the United Nations' nuclear and biological weapons disarmament sanctions following the Gulf War, the claims were compellingly effective. Iraq was not cooperating with the United States and, therefore, would be regarded and neutralized as if they were the terrorists responsible for the 9/11 attacks. However, President Bush's decision to wage a war against terrorism was never presented as a forensic argument to defend the practicality and reasoning of a metaphorical war.

Bush's epideictic and deliberative speeches on September 11, 14, and 20, 2001 decisively made the assumption that terrorists attacked the United States because they "hate our freedom" (Bush 1). By ignoring the history of U.S. intervention in the Middle East and Osama bin Laden's internationally proclaimed reasons for a jihad, President Bush's conclusions concerning present and future actions cannot and should not have been supported by his forensic claim.

Argumentative problems persist because not only did Bush mislead the public about causality issues, he also never addressed definitional questions concerning peace, freedom, democracy, terrorism, and war. By including means of diplomacy, law enforcement, and weapons in his definition of war, the president effectively silenced any oppositional arguments in the government. The divisive nature of his rhetoric created an atmosphere of fear that threatened to associate dissent and public criticism with opposition and, consequently, terrorist organizations. As the key terminologies for the war on terrorism and as the phrase itself, continually appearing in the media, became common national vocabulary, all citizens understood the case for invading Iraq through this metaphorical frame and understood their role to be patient, praying, and passive citizens. The country was described as being at war in the present tense yet describing military operations in future tenses. This incongruity made it difficult for citizens to discuss alternatives to war in Iraq. And the president's rhetoric did as much to define what happened as it did to limit the discussion of possibilities outside of war.

In times of crisis, it is natural for the collective body to be afraid and to look for answers from leaders about the future of national safety and security. On September 11th, the entire nation looked to the president and listened to his words. America took comfort in his speech and had faith in President Bush's judgments and decisions. But as an elected representative, bound to his oath of office, given consent to rule in the interests of the will of the people of the United States of America, why wasn't the president more open and judicious about his deliberations? Why was a declaration of war so quick to come from our highest podium? And why was the president's administration so eager to enter another conflict before the rebuilding in Afghanistan was stabilized and completed?

With citizens' inability to examine the military intelligence that provided the evidence supporting the claims Iraq was an imminent threat to U.S. security, the nation stood by as President Bush ordered troops into Baghdad. Months after the May 1, 2003 speech where the president declared major military action to be completed, documents, such as the Downing Street memo and Joseph Wilson's New York Times article, surfaced challenging the validity and truthfulness of the intelligence reports central to supporting the case for war.

Now approaching the midway point of the fifth year of U.S. armed forces involvement, it is imperative to understand how the administration used rhetorical strategies to shift the public's focus of the war on terrorism away from Afghanistan and turned its sights on Iraq. We have lost nearly 3,800 U.S. soldiers in Iraq (Iraq Coalition). The *Washington Post* reported 655,000 Iraqis had died as of October 2006 (Iraq Coalition). The *Boston Globe* cited analysts who calculated the war spending to be nearly $1 trillion (Bender). And, now, as the Taliban and other terrorist organizations regain power in Afghanistan, questions about the decision to divert forces to Iraq continue to swell and gain force in the currents of public debate. With debt and death tolls endlessly increasing, the American people must examine the war on terrorism and determine for

ourselves whether or not President Bush's vision of praying, patient, passive citizens is the audience we want to become.

Rhetorical Operations

Rhetoric and its ability to enable collective action are intertwined with the operation of a democratic society. Without the means to persuade an audience to a consensus manner of thinking and subsequent course of action, personal interests could never be reconciled with the good of the general order. And without a form of government that allows freedom of speech, rhetoric would be confined to government propaganda and back-alley soap boxes. Yet, no society is free from the dangers of rhetoric that can incite the irrational behavior of an entire nation. History tells a cyclical story of how time and again a national leader or public figure persuaded an audience, through either factually-based or mythically-created circumstances, to condone and even carry out deplorable actions, sometimes condemned only by the victims.

In the United States of America, we, the citizens and inhabitants of this nation, have been subjected to national rhetoric throughout our lives. It has normalized ideology that centralizes on promoting patriotic pride and hegemonic values that can undermine our perceptions of people outside of our culture. Today, most significantly, rhetoric shapes our perceptions of the global war on terrorism. As President Bush defined the attacks on the World Trade Center and the Pentagon as acts of terrorism when addressing the nation on the evening of September 11, 2001, he told of the American people to allow the government to wage a war against global terrorism(1). When his administration achieved the desired public response, Bush began enacting foreign and domestic policy that was not in the interest of protecting the American people, but that in-line with private interests or a preconceived agenda. U.S. military forces attacked the government of Afghanistan in October 2001; troops were then redeployed in March 2003 to invade Iraq. At the time, few people publicly dissented. Now, as more and more citizens want to look critically at the call-to-arms sounded in the shadow of 9/11, understanding how rhetoric shaped the course of events is the penultimate step to avoiding similar deceptions in the future.

When speaking of rhetoric, most studies refer to Aristotle's principles, recorded in his text *Rhetoric*. He defined rhetoric as "the faculty of observing in any given case the available means of persuasion"; within this art Aristotle identified three primary elements that determine the effectiveness of a rhetorical act in lieu of mankind's inability to discover the certainty of truth: ethos, the credibility of a person's character, pathos, the ability of a speaker to control the emotions of an audience towards a desired response, and logos, the content of a speech proving an apparent truth through reasonable argument (Aristotle 24-5). The tradition of rhetoric has been carried into the present by contemporary rhetoricians. Thomas Benson, a Penn State Professor of Communication Arts and Sciences, defined rhetoric as "essential to the crafting and communicating of human knowledge; to the construction of self, the other, and society; to the

inducement of cooperation and conflict" (Benson xii-xiii). As postmodern thinkers have created discourse with Aristotles' and modern rhetoricians' ideas, the symbolic persuasion of dialectic construction has taken on a much broader definition.

Rhetoric is not confined to spoken or written words but exists everywhere in the discursive fabrications of society. Modern theories of "social construction", as originally coined by Berger and Luckmann, posit that the existing "social order is a[n]…ongoing human production" where mutual perceptions of shared behaviors shape cultural environments and are then habituated into institutions in which every individual subject to that institution then conforms to an established role (Berger and Luckmann 51-61). Individuals perform every action largely unaware of the cultural rhetoric that shapes their identity and their relation to the rest of society. Through the framework of social construction theory, rhetoric is defined more by its ability to affect action than its media of conveyance.

Within a democratic society, the quality of public discourse correlates to how closely citizens rhetorically criticize the ideological construction of democratic values in the operations of society. Sonja Foss defined rhetorical criticism as analyzing the "process of thinking about symbols, discovering how they work, why they affect us, and choosing to communicate in particular ways as a result of the options they present" (Foss 3). If citizens or elected representatives are given ample opportunities to discuss and propose solutions and policies to public problems while attempting to understand their responses to the negative symbols of diverse ideas, then the people could effectively govern themselves. In the United States, our national identity is closely tied to this ideal of direct democracy. Yet, the operation of our democracy remains a point of contention among scholars from an array of disciplines.

As it functions as rhetoric to the citizens of this country, conceptions of democracy, as explained by Robert Ivie in *Democracy and America's War on Terror*, contain two counterfactual notions emerging from the conflicting views held by the Constitution's Founding Fathers(Ivie 11). Although during the formation of this country there were voices calling for governing practices to be ruled by the will of the people, many members of the Constitutional Convention shared James Madison's republican notions of government and "did not seek to involve the general public in political debate" (Schudson 46). This fear of the public's inability to self-rule without succumbing to the pathos of any public speaker representing foreign interests has been normalized to coincide with the pride of national identity, symbolically linked to the democratic form of government (Ivie 12). The public is presented with two threats to this democracy. When modern leaders evoke the mythic history of democracy, they implement "a rhetorical dynamic that promotes excessive fear of the domestic as well as the foreign Other" (12).

Within the United States, as many opponents to the formation of a direct democracy feared, the rise of "demagoguery" through a "rhetorical president" began with Theodore Roosevelt's presidential ascension (18). A "rhetorical president would appeal directly to the general public without conferring with the elected representative bodies as a means of dominating public persuasion and undermining rational deliberation in Congress (18). Political figures, capitalizing on the appeal of and opportunities created by Roosevelt's approach to rhetorical presidential leadership, continued utilizing rhetorical strategies that purposefully ignored logos in favor of coercive tactics, invoking pathos to inspire the audience toward the desired action (Tulis 117). In times of war or political crisis, these rhetorical strategies that appeal to the audience's fear from any threat to social stability become particularly effective in manufacturing consent to political policy and/or military action. In January 2001, George W. Bush assumed this role of the rhetorical president. Eight months later, he would declare the beginning of the war on terror and mark the continued decline of rational public debate. However, academia continues to seek to understand our rhetorical spheres.

Since the terrorist attacks of September 11th, there has been a wealth of research directed towards understanding how the global war on terrorism operates within the political, social, historic, religious, and rhetorical context of the United States. Scholars have conducted thousands of studies to convey a greater understanding of the current global conditions. Ivie's *Democracy and America's War on Terror* addressed the response to 9/11 by discussing how threats to the nation can be more effectively resolved by promoting a "robustly democratic idiom" that favors democratic practices and values opposed to degrading public behavior to "antagonistic impulses and aggressive policies emanating from a republic of fear" (3-4). Progressive activist George Lakoff advocated reframing the political debate in this country by utilizing different language that does not limit democratic discussion to the rhetoric used by the Bush administration to elicit consent for war (Lakoff 52-3). The global war on terrorism was studied from a sociological perspective to determine that its rhetoric legitimated aggressive changes in U.S. policy, while effectively concealing the underlying material relations of militarism, oil, and the pursuit of a democratic empire (Blain 1,12). *Fear's Empire: War, Terrorism, and Democracy* examined the American history of diplomacy and compared the futility and danger of Bush's strategies for fighting terrorism to the Cold War theory of "containment and deterrence" (Barber 33-5, 97, 121-4). Noam Chomsky has written a series of books including *9-11* that detailed his interviews with various press agencies, shortly following the attacks, in which he discussed the implications of America's military response for the future of international relations (Chomsky 11-21). Zulaika and Douglass wrote about the mythic nature of modern conceptions of terrorism in order to demystify the "culture of terror" and examine how it replaces the need for legitimate public discourse (Zulaika and Douglass 227-235). The rationales for why the United States went to war with Iraq were explored in great journalistic detail as the frequency of the critical words used by the Bush administration were catalogued according to assigned political contexts (Largio 1-15). Noted journalist Bob Woodward wrote

Plan of Attack to account for how and why the Bush administration "launched a preemptive war" against Iraq based upon information gathered from "behind-the-scenes" discussions within the administration.

In order to support the arguments presented in the emerging discourse about the global war on terrorism, there is also a need to reexamining and reconstituting historic studies that addressed related issues from other time periods and shaped the advancement of rhetorical criticism. Published in 1925, Wichelns' "The Literary Criticism of Oratory" outlined what methods a critic should use to analyze speeches because of rhetoric's power to shape history (Wichelns 1-12). Griffin wrote about the importance of shifting the focus of rhetorical criticism from single instances to larger, social movements that demonstrate the language patterns in public discourse (Griffin 9-13). "The Rhetoric of Hitler's Battle," written in 1939 by Kenneth Burke, which gave a detailed criticism of how the German ruler persuaded his audience through rhetorical distortions, informed the American public of what to guard against (Burke 33). In the essay "Operation Desert Comfort," Cloud analyzed the media coverage of the Gulf War to understand how personalized news stories "domesticat[ed] dissent by rearticulating political outrage as personal anxiety," silencing and pacifying any political opposition by framing the political decision to go to war as an issue that was not to be questioned in the public sphere (Cloud 303, 316). Another study by Cloud, covering the oppressive racism facing cotton mill workers in the southern United States during the 1930's, explored the "rhetoric of silence" as it relates to "extradiscursive" rhetoric; in other words, it explained how the material relations of power, coercively acting under the threat of force, define what cannot be expressed in an oppressive environment (Cloud 411-418).

This research literature offers insights to the global war on terrorism from multivalent disciplines and focuses. Scholars have placed the wars with Afghanistan and Iraq in the larger context of American imperialism in the twentieth century, and others have studied the specifics of these modern wars in both countries. There has been research studying how the rhetoric of terrorism impacted public discourse and policy that led to the wars with Afghanistan and Iraq. There have also been studies that document the shift in the war on terrorism from Afghanistan to Iraq, tracing the change in the administration's declared priorities. However, there has not been research conducted to study the rhetorical picture constructed by the president, based on the assumption that citizens' inability to access classified intelligence reports require us to rely on the President Bush's reasoned judgment, expressed in his public arguments for public policy. By applying the theoretical frameworks of rhetoric, often used to discuss how the war on terrorism was rhetorically constructed, to the journalistic scrutiny used to document the shift in the war, this research will analyze the presidential rhetoric that created and perpetuated a conception of the American people accepting the invasion of Iraq as the next logical action to win the war on terrorism.

As Americans considering this lack of crucial information, we must adopt the role of the rhetorical citizens, attempting to identify and avoid the rhetorical deception that typically occurs in political appeals to the nation. Using the methods and instruments of rhetorical criticism, this article will explain, analyze, and evaluate the presidential rhetoric leading up to the U.S. military invasion of Iraq in March 2003. It will examine the constructive rhetorical methods that shifted the focus of the war on terrorism from the hunt for Osama bin Laden in Afghanistan to the invasion and removal of Saddam Hussein's regime in Iraq, demarcating specific addresses from those beginning after the attacks of September 11th up until the invasion.

The methodology will employ a conceptual framework for addressing the shift as a rhetorical movement within the war on terrorism, which itself is a rhetorical movement within the larger historical context of western hegemonic imperialism. The presidential addresses will be analyzed for the structure of the claims and rhetorical devices in order to identify the audience implied by the speech as the constructed, appropriate public response. The patterns of speech will then be categorized based upon the rhetorical exigency of the situation and evaluated in terms of the public action desired by the Bush administration.

Rhetorical theories will be implemented in order to present a complete picture of the presidential arguments for the war on terrorism, military action in Afghanistan, and then redeployment of troops for military operations in Iraq. The theories will identify five types of argumentative claims, three genres for defining rhetorical situations and the goals of the speaker, and explain how rhetoric constructs an ideal audience. This treatment of the speeches does overlook the rhetorical affect on public perceptions based upon either a televised or printed depiction of the discourse. The affect of media is an area that should be discussed at great length in another study alongside the attention to the close, textual, rhetorical theory interpretations.

In a public address, the audience has a literal reality that does not always coincide with the audience projected by the speaker. Edwin Black wrote in "The Second Persona" that a speaker expresses goals for his or her audience embodied in specific language that conveys the speaker's values; this audience is implied by the speaker, and the audience can, therefore, become the ideal audience when they enact the speaker's roles or by simply adopting his or her language (Black 164-166). The ideal citizen is also constructed through descriptions of "heroic citizenship" (Murphy 194). In a speech, the speaker can describe a person who "represents an ideal public image of citizenship" exemplifying the values of America's democracy (195-196). The problem with recognizing this type of symbolic behavior is that it diminishes the deliberative and rhetorical roles of civically-engaged citizens by idealizing unrealistic, romantic notions of patriotism. If we conform to the language of such citizenship, we are conforming to the role of the implied, passive audience.

Assigning discourse genres is an important part of determining what an argument attempts to do, what course of action or way of thinking it impels the audience towards. There are three rhetorical genres: forensic, epideictic, and deliberative. A forensic discourse attempts to judge the past and determine responsibility or cause. Epideictic rhetoric crafts a definition of the present conditions and identifies the community present, while amplifying its values through exemplary citizens or members. The final genre is deliberative and is used to justify the practicality and expediency of future decisions and actions. In his essay "'Our Mission and Our Moment': George W. Bush and September 11th," rhetorician John Murphy explores how the choice of genre directly following 9/11 shaped Bush's authority to control the public's perception of the events (608-610). The rhetorical genres can be further explored with the identification of stasis claims within the text.

Stasis claims answer fundamental questions necessary to formulate a complete argument. They can serve as analysis subgroups when attempting to compartmentalize the components of a speech into a rhetorical pattern that continues unchanged or evolves over time. The first question is that of fact; what happened? From there, the situation requires an accurate label, a definition claim; what should we call it? After the first two claims are satisfactorily answer, then a question of value can be posed; is it good or bad? The fourth question concerns cause and consequence. What made it happen? And the final question is about the future: what should we do about it? By identifying all five claims within a single piece of rhetoric, a critical audience can have a fully realized conception of the argument being presented.

Individual speech analysis will instrument the rhetorical theories discussed above and those found in the body of literature addressing rhetoric and its operation in society. Each speech will be dissected to illuminate the structure of the discourse, tracing the descriptive sequence of arguments and maintaining the original language of the rhetor. Repeated terms and ideographs will be isolated in order to identify the relationship between the discourse and its implied audience's attitudes and ideology. Then, the persona of both the speaker and the audience will be linked to the historical movement of western hegemony.

After analyzing and categorizing the rhetorical devices within President Bush's addresses, the article will evaluate the rhetorical movements that aroused passive public support, allowing U.S. armed forces into Iraq. The period between the fall of 2001 and the spring of 2003 will be divided into assigned political contexts based upon the exigency of the rhetorical situation presented. These periods are contextualized within the modern ideological, rhetorical movement of western society's moral supremacy over "other," uncivilized and repressive cultures. Identifying the underlying framework of U.S. hegemony will help to understand the reception of the war on terrorism and the subsequent shift from Afghanistan to Iraq. The rhetorical material will then be gathered from President Bush's addresses beginning on September 11, 2001 to March 19, 2003.

Rhetorical criticism is a values-based judgment. However, it is not President Bush's values or the American public's values that are being judged. The desired action is being evaluated based upon the character of the implied speaker and audience, characterized by ideologically-signifying tokens within the discourse. The immanency of moral judgment in criticism should compel this implied audience to explore and investigate alternative rhetoric and action for the American public as the rhetorical situation demands.

Defining a New Time: The War Against Terror

Using rhetorical devices relating to ideas of democracy, security, freedom, war, and terrorism, President Bush capitalized on the tragic events of September 11th in order to implement public policy that undermines the civic freedoms of the United States. By defining 9/11 as an act of terrorism and later as an act of war, Bush and his administration constructed a story that told the citizens of this country what happened, why it happened, the response that day, and the preventative measures for similar attacks (1-2). He appealed to the nation's emotion frailty immediately following the attacks and received overwhelming support from the media, Congress, and the American people. President Bush quickly received Congressional approval to use force in Afghanistan, as the Senate passed Joint Resolution 23 on September 18, 2001, which granted the president "the use of United States Armed Forces against those responsible for the recent attacks" (U.S. Senate).

On October 26, Bush signed the USA Patriot Act, in the name of "defeating terrorism, while protecting the constitutional rights of all Americans" (U.S. Congress). This act, as criticized by Sharon Rackow, gives the president and the U.S. Attorney General overarching power that ignores the traditional criminal process in favor of wiretaps that violate the Fourth Amendment; the Patriot Act also permits the government to detain and imprison any person expressing political dissent as a "domestic terrorist," a clear violation of the First Amendment (U.S. Congress 1653). As the public largely remained quiet over the consequences of placing domestic security above the interest of civil liberties, the Bush administration continued to operate against the interests of the American people in the rhetorically declared interest of fighting a war to defend our way of life, defined in the completely subjective rhetoric of terrorism.

The administration's construction of the idea of terrorism or terrorist act operates completely free of any self-reflection directed toward the United States' military action. The United Nations Resolution 1373 defines terrorism as any "threat to international peace and security." The U.S. official code also defines terrorism as:

> "a violent act or an act dangerous to human life that is a violation of the criminal laws of the United States or any State, or that would be a criminal violation if committed within the jurisdiction of the United States or of any State; and (B) appears to be intended (i) to intimidate or coerce a civilian population; (ii) to influence the policy of a government by intimidation or coercion; or (iii) to affect the conduct of a government by assassination or kidnapping" (U.S. Code, par. 3077, 98 STAT. 2707).

Any critical look at the United States' history will divulge a long list of terrorist acts, as defined by the U.S. code, committed by our government. The historical use of the word "terrorism," as it is often associated with guerilla tactics carried out by small insurgent groups battling the larger forces of a government or institution, often prevents applying the definition of "terrorism" to government military actions (Novotny 1). The hegemonic rhetoric of national identity and the prevalent associations with other cultures, races, and peoples limit our perception of U.S. actions.

Using an uncritical rhetorical conception of terrorism, the United States' military began a campaign to stop threats to security as we consequently became the largest threat. President Bush directed the military into Afghanistan because the country harbored the terrorist organization al Qaeda that carried out the attacks of 9/11. On October 7, 2001, utilizing his power as commander-in-chief granted by Congress in S.R. 23, Bush ordered "strikes against al Qaeda terrorist training camps and military installations of the Taliban regime in Afghanistan" (3-4). So to respond to the attacks on 9/11, our military used violent force to replace the government with one who would conduct policy catering to U.S. interests. This resulted in the deaths of 3,800 innocent civilians of Afghanistan in the first three months of fighting alone, more casualties than the September 11th attacks (BBC). President Bush responded to terror with terror. And as the new government in Afghanistan took control of the country, the Bush administration opportunistically used the rhetorical appeal of its global war on terrorism to redirect its military focus to former ally Saddam Hussein and his regime in Iraq. Bush described his vision of the war against terror to enable him to yield unilateral powers of force.

In the crucial, national addresses on September 11, 14, and 20, 2001, President Bush redefined the geopolitical landscape with several definition and value claims. The president addressed a confused and fearful nation and told the country that the United States and the world were at war against terrorism. What should have been a forensic discussion was, instead, a epideictic and deliberative cannonball. Bush called the attacks "a series of deliberate and deadly terrorist acts," then said "we go forward to defend freedom and all that is good and just in this world" (1). The values were set: we are good; they are evil, "the very worst in human nature"

(1). He continued to polarize the present conditions. In the war on terror, Bush claimed that any nation who harbored or supported terrorists would be regarded as a hostile regime (2). This claim became more extreme when, on September 20th, President Bush declared "you are with us or you are with the terrorists" (4). He further dictated the course of events by asking the citizens of this country not to debate and discuss what happened and what should be done, he asked the nation to be passive, pray for the victims and their families, participate in the economy, and be patient. The polarizing nature of Bush's arguments paved the way for uncritical complacence when public debate was needed the most.

And in these critical moments, President Bush committed the worst rhetorical fallacy: he lied about the terrorists' motivation. In a forensic claim, Bush claimed that the terrorist hate our freedom (1). This idea of the cause and consequence question lies at the base of all epideictic and deliberative reasoning. By not admitting al Qaeda and Osama bin Laden's anger over previous U.S. involvement in Middle East conflicts and governments, President Bush misconstrued the entire war on terror under false pretenses. Every argument in support of the war cannot proceed without first recognizing why the terrorists believe they need to defend the Muslim faith and its holy land. In the aftermath of 9/11, presidential rhetoric changed the entire course of history. He could have said many things, notions of criminal investigations, international diplomacy, military operations to hunt down Osama bin Laden, but President Bush said war. Using the force of language, Bush's rhetoric created a reality of its own.

In each speech, the president attempted to convey a sense of completeness, a sense that he was solely responsible for interpreting and determining for the American people the state of our nation. As he addressed a joint session of Congress on September 20th, Bush described the typical role of the president speaking in such a manner as being "to report on the state of the union" (1) But, such a report, Bush said, was unnecessary and self-evident because "it has already been delivered by the American people" (1) He went on to explain that the heroic actions of all U.S. citizens united in patriotism, grief, and resolve were the only explanations necessary to describe the stability of the nation (1-2). This notion permeates the chronology of his addresses because of the privatized, passive role required of the citizens of this nation. It is not wrong to acknowledge the nobility of volunteerism and neighborly support, as he did; it does, however, narrowly define the role of citizen to the private sphere. According to Troy Murphy, this rhetorical construction of the heroic citizen embodying the values of the United States detracts from the discursive negotiation necessary to shape policy to reflect the diverse needs and perspectives of all Americans (196).

President Bush's synecdochical representation of all U.S. citizens' perceptions in his discourse, present in both September 11th and 20th speeches, presents the most troublesome obstacles to critically and effectively challenging his decisions. Through this rhetorical tragedy in the epideictic addresses following the terrorist attacks, Bush presented an argument to the American people that he represented as both question and answer (2-6). Essentially, he was

talking to himself, convincing himself and all those who align with the neoconservative values of his implied audience, or those apathetic, silent, or silenced by the force of emotional and moral appeal framing the country's course of action.

The metaphorical frame constructed in the public's mind through Bush's public addresses securely placed the war in Iraq within the rhetorical confines of the war on terrorism. On April 17, 2002, President Bush proclaimed that the operations in Afghanistan had been successful and that Afghanistan was now an ally in the war (1-2). In this transitional period after the October 2001 invasion, Osama bin Laden's name almost completely disappeared from the president's speeches. Only once, in the time period between invasions, was bin Laden mentioned. On September 24, 2002, Ron Fournier of the Associated Press asked the president if he was diverting attention to Iraq because bin Laden could not be found; Bush completely ignored the question, answering only that "Saddam is a true threat to America" (2). Saddam Hussein's name, however, appeared in nearly every speech regarding the war on terror after first being mentioned on October 11, 2001. The major focal shift occurred in Bush's 2002 State of the Union Address on January 29th, where Iraq became the center of attention as a part of the "axis of evil" (4).

Afterward in the September 12th address, President Bush first outlined his rationales for disarming Iraq that became the arguments for war as Bush claimed Hussein had once again violated the trust of the UN (2-4; 1). They were framed by the polarizing claims of the war on terrorism. As each argument appeared again and again in public discourse, it was carefully referenced to the war on terrorism. The topoi were placed side by side in the speeches, often not relying a correlative reference, simply allowing the chronology to disseminate fear. But how could a metaphorical war against an ambiguous enemy be an argument for waging a war against real people? Why had Iraq and Hussein come up after years of dormant public attention? Why was Bush now accusing the president of humanitarian crimes that occurred fifteen years ago when the U.S. supported his invasion of Iran? But most importantly, how could the public question such a war when it is declared a historic battle of good versus evil?

United States' troops invaded Iraq on March 20, 2003 three days after President Bush issued an ultimatum to the Iraqi president in a televised address to the nation: "Saddam Hussein and his sons must leave Iraq within 48 hours (1-2). Their refusal to do so will result in military conflict, commenced at a time of our choosing" (1). President Bush declared Iraq an imminent threat to the safety and security of the United States and the world (1-2). His rationales for this definitional claim included the history of Hussein's military aggression, the violation of past and present United Nations' sanctions demanding complete disarmament, the oppression of the Iraqi people, the possession of weapons of mass destruction, the potential to build nuclear weapons, and the cooperation of the Iraqi government with al Qaeda operatives and, therefore, the assumed connection to the terrorist attacks of September 11th (1-5). Bush first outlined these arguments on September 12, 2002 in an address to the United Nations General Assembly. In that speech he recommended the UN require Iraq to remove or destroy all weapons and related materials, to end

its support for terrorism and act to suppress it, and to cease the inhumane treatment of its civilian population (1-5).

On November 8, 2002, the UN passed resolution 1441, as a final opportunity for Hussein to "comply with its disarmament obligations" (UN 1441). Iraq complied and allowed weapons inspectors back into the country. Chief UN Inspector Hans Blix reported to the Security Council on February 14, 2003 that "[a]ll inspections were performed without notice, and access was almost always provided promptly"; Blix went on to conclude that "[t]oday, three months after the adoption of resolution 1441, the period of disarmament through inspection could still be short" (Blix). However, on March 16th President Bush concluded that the Iraqi regime must be fully disarmed before March 17th or action would be taken to "remove the threat from Iraq", even though Bush continued to say he acted on behalf of "the just demands of peace and security" (1). Because of the Congressional Iraq Resolution passed in October 2002 and UN resolutions 678 and 687 dating back to the Gulf War, Bush had the authority to use military force in order to remove weapons of mass destruction (2). By May, the president declared that major military operations had ended (1).

President Bush's arguments for war in Iraq succeeded. Relying on the invalid frames constructed for the war against terror, the discourse followed the dichotomous pattern of having only two choices: good or evil, freedom or terror, action or inaction, heroism or cowardice, us or them. The public was given little opportunity to reflect upon the past 18 months in March 2003. The Bush administration's careful control of the framing discourse and the American media's willingness to blindly relay the information kept productive, antiwar conversations from full frequency broadcast. The epideictic and deliberative addresses effectively silenced the cry for forensic investigation when it was needed to judiciously determine the appropriate course of action. This irrational foundation created obstacles to challenging the rationales for invading Iraq. It was possible to deliberate and speculate on alternatives to the war's momentum, but the persistent insistence on projecting a passive citizenry stifled our conceptions of what would be necessary to observe the deceptive and deceitful nature of presidential rhetoric, to create alternative dialogues, and to enact changes in the U.S. government.

The rhetorical strategies implemented in the war are not unique to President Bush or his administration. They are fundamental notions of identity tied to the social construction of public and private conscience. Bush's rhetoric capitalized on the basic human instincts of survival in a culture of fear. My safety, our safety was portrayed as more important than the well-being of dark-skinned humans living half-way around the world. It is also natural to want to assume U.S. service members are doing the right thing. When I see my high school friends return on leave from Iraq, I do not want to believe that they have blindly acted unjustly, killing innocent people. I don't want to believe this because how could I ever tell them they are wrong to follow orders? How could I tell their family that their children are murderers?

The people of America were implicitly told to personalize and stifle these and other notions of American superiority without having the appropriate humanitarian concerns for the citizens of Iraq or Afghanistan. On March 17, 2003, President Bush issued a message to the Iraqi civilians. "[W]e must begin a military campaign…it will be directed against the lawless men who rule your country and not against you" (3). If Bush feels that he can speak and act on behalf of the American people, why would he not feel the same way about Iraqi citizens and Saddam Hussein? It is this lack of critical analysis and self-reflection that allows President Bush's implied audience to blindly support an argument that now threatens to engulf the entire region in civil war and religious genocide. But what can we do?

As citizens of the United States of America, it is our right and responsibility to uphold the government to the tenets of our constitutive documents. Everyone should begin by learning their rights as laid out in the Declaration of Independence and the Constitution. Remember that the government is in place to rule by the consent of the will of the people in this nation. When politicians don't, demand that they do. Read, talk, write, and vote to become informed and active as a citizen. Be critical of the politics and media of our culture and encourage others to do the same. Regardless of political or social positions, look for logical support for any arguments and claims. Only by being assertive about our rights can the American people shape the course of society and change and/or improve the conditions of this country. And just as Burke discussed in 1939, "the desire for national unity, in the present state of the world, is genuine and admirable. But this unity, if attained on a deceptive basis, by emotional trickeries that shift our criticism from the accurate locus of our trouble, is no unity at all" (49).

As citizens reflect on the arguments for the war in Iraq now, it is alarming to read a speech President Bush gave to the UN on September 12, 2002 pleading to resume necessary resolutions to stop a grave and gathering threat that was Iraq:

> "We must choose between a world of fear and a world of progress. If we fail to act in the face of danger, the people of Iraq will continue to live in brutal submission…condemning the Middle East to more years of bloodshed and fear. The regime will remain unstable— the region will remain unstable, with little hope of freedom and isolated from the progress of time" (7).

President Bush was right. The citizens of this country did not choose, and our indifference has brought many "more years of bloodshed and fear."

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Sibling Influences on Adolescents' Educational Expectations and Preferences in Mexican American Families

Sue Annie Rodríguez, McNair Scholar, Penn State University

Faculty Research Adviser: Dr. Susan McHale
Professor and Director of the Social Science Research Institute
Department of Human Development and Family Studies
College of Health and Human Development
Penn State University

Abstract

Siblings are important, often lifelong relationships. This study focused on sibling relationships of adolescents in Mexican American families. First I studied similarities and differences between older and younger sisters' and brothers' educational expectations and preferences, and between mothers' and fathers' educational preferences for their daughters and sons. Second, I analyzed the links between older and younger sibling educational expectations and values. The data came from a longitudinal study of family relationships, The Juntos "Together" Project. Participants were older and younger adolescent siblings from 246 Mexican origin families that were recruited through schools of a southwest metropolitan city. Analyses revealed parental differences in educational preferences as a function of parent and child gender. In addition, there were sex differences in youths' in educational preferences and expectations. Finally, siblings' educational expectations and preferences were correlated, but only in same sex dyads.

Sibling Influences on Adolescents' Educational Expectations and Preferences in Mexican American Families

Immigrants are the fastest growing group in the United States, and it is estimated that, by the year 2020, approximately 30% of all children will have at least one immigrant parent (Capps, Fix, Ost, Anderson, & Passel, 2004). Mexican American families comprise a substantial part of United States population, and they constitute 29% of the foreign born population in the United States (Waldinger, & Reichl, 2006). Mexican immigrants also have the highest birth rate among all the ethnic/racial groups in the United States, representing 39% of births in the United States (Capps, et al. 2004).

Mexican Americans represent the largest minority group in the United States, but their educational attainment is the lowest among all ethnic groups (Waldinger, & Reichl, 2006). In 1970, the rate of high school graduating for Mexican Americans was eight out of ten but this rate dropped in 2004 to six out of ten (Waldinger, & Reichl, 2006). Research also reveals that currently 30% of Mexican Americans twenty-five years of age and older have not obtained their high school degrees (President's Advisory Commission, 2003).

This rate compares to the 11% of non-Latino Whites that has not received diplomas (President's Advisory Commission, 2003). Further, 11% of Mexican Americans have bachelor's degrees, compared to 29% of non-Latino White American (President's Advisory Commission, 2003).

There are several factors that may influence low educational attainment among Mexican Americans. These include: parents' and youth's educational values, and family relationships including those with siblings.

When discussing children's development and their educational aspirations it is important to consider their relationships with their parents and their parents' values. First, children may be influenced by their interactions with their parents (McHale, Crouter, & Whiteman, 2003). For example, parents may treat their children differently because of their gender. For example, parents of boys may promote activities such as sports and outdoors activities such as camping and hiking, whereas parents of girls may not consider such activities (McHale et al., 2003). These patterns of activities, in turn, may have implications for girls' well being and development. For example, in some studies, girls have been demonstrated to be less confident and less interested in the subjects of mathematics and sciences (Updegraff, McHale, & Crouter, 1996). In addition, girls have been less likely to pursue careers in male dominated fields (Updegraff et al., 1996). Even with, these gender differences in activities and support for interest in mathematics, in 2004 Mexican American girls had a lower (4.3%) rate of dropping out of high school than boys (5.1%) (Laird, DeBell, & Chapman, 2006).

Parents not only have an impact on their children's educational success by virtue of their parenting and family roles, but their own educational level and their social economic status may relate to their children's educational expectations and educational attainment (Wigfield, Eccles, Shiefele, Roeser, and Davis-Kean, 2006). It has been observed that immigrant parents and their children highly value education (Wigfield et al, 2006). Among Latino adolescents, the main motivation for school success is youth wanting to make parents proud of their accomplishments. (Wigfield et al, 2006).

Although parents are an essential part of the children's life and their development, other family members, such as siblings, may have an influence as well. Mexican families, and Latino families more generally, tend to have larger families than Anglo families (Updegraff, McHale, Whitman, 2005) making siblings an especially important focus of study. It is also important to evaluate siblings' roles because siblings are frequent companions during childhood and early adolescence (Tucker, Updegraff, McHale, & Crouter, 1999), and because sibling interactions can have a significant impact. According to one study, older siblings served as models for their younger siblings' social cognitive development (Tucker et al., 1999). At the same time, the interactions that older and younger siblings engage in have an impact on the older sibling. For example, older siblings who engage in the education of their younger siblings not only help their younger siblings' educational development, but older siblings learn from this experience as well (Smith, 1993).

Whereas the influence of sibling relationships has been receiving increasing attention in the past decades, there has not been research about Mexican American siblings in relation to academic achievement. Accordingly, the first goal of this study was to measure the educational expectations and preferences of older and younger sisters and brothers in Mexican American families. The second goal was to determine whether there were differences in mothers' and fathers' preferences for their sons' and daughters' education. The last goal explores the links between older and younger siblings' educational expectations and preferences.

Methods

Participants

The data used in this study came from the Juntos ("Together") Project. The study focused on 246 Mexican origin families. For these families to be selected they needed to fulfill certain requirements, specifically to have a non-learning disabled child in the seventh grade and a non-disabled older child living at home who was under twenty-one years old. Parents also needed to be living at home and have intact marriages. Further, the mothers needed to be of Mexican origin, although 93% of fathers also were of Mexican origin. In general, mothers were more likely to have been born in Mexico than fathers. Mothers who emigrated from Mexico had been in the United State an average of 12.38 years, while fathers who emigrated had been in the United States longer, an average of 15.18 years. The last participation criterion was that fathers were employed a minimum of twenty hours per week.

The mean income among these Mexican families was $53,183 with a standard deviation of $45,381 (McHale, Updegraff, Shanahan, Crouter, Killoren, 2005).A total of 18.3% of the families in this study met the federal poverty level which is determined by the Department of Health and Human Services (McHale, 2005). According to the new poverty guidelines from 2006, a family of four falls below the poverty line if their income does not surpass $20,000 (Department of Health and Human Services, 2006).

The participants were recruited through the public school districts in a southwestern metropolitan area. Students of Hispanic descent who did not have a learning disability were identified in five different school districts. Information about the project was mailed to a total of 1,856 families with seventh graders. During the following week, families were telephoned. The call served as a way to screen families in order to be certain that they could participate in the project and to encourage participation as well. Of 1,856 families, 241 families did not agree to be screened or did not want to participate in the study. A total of 438 families were not reachable. Almost half (48%) of the families that were approached were not eligible to participate in the project. A total of 246 families completed both the screening process and the interviews.

Procedure

Mothers, fathers, older sibling and younger sibling participated in home interviews. The surveys were available in English and Spanish, and it was up to the participant to choose the language in which she or he wanted to be interviewed. All families received $100 compensation for their participation in the home interviews.

Measures

For the purposes of this study we used youth ratings of their expectations and preferences for education. The surveys addressed different topics such as individual adjustment, family relations, parental work, youth school experiences, sibling relationships, parent/child relationships, and educational values and expectations, among other topics. Specifically adolescents answered two questions: "How far would you like to go in school?" refer to their preferences and "How far do you really think you will go in school?" refer to their expectations. The response scale represented how many years of schooling youth wanted and expected. The education rated on 21 point scale in were 12 represented a high school graduate and a 16 refer to be a college graduate. A similar version of this scale that was developed in order to asses the parents' preferences. In this measure parents were asked about their preferences for each of their children.

Results

The first goal was focused on difference in the educational expectations and preferences of older and younger sisters and brothers. This question was addressed using a 2 (older sibling gender) X 2 (younger sibling gender) X 2 (sibling: older vs. younger) mixed model ANOVA. The results showed that in general, younger siblings expected to go further in school than their older siblings, except in the case of older-sister and younger-brother pairs. In addition, on average, older sisters expected to go further in school than older brothers (see Figures 1 and 2). Overall, youth from girl-girl families had higher mean educational expectations than youth from boy-boy families. Further, girls wanted to go further in school than their brothers (older and younger).

The second goal was directed at measuring mothers' and fathers' educational preferences for older and younger daughters and sons. I tested the same type of model as already mentioned, a 2 X 2 X 2 mixed model ANOVA. In general, the mothers' means were higher for younger siblings, except for older girl-younger boy pairs, where the mean was lower for younger brothers. The fathers' means were slightly higher for younger siblings with the exception of older girl-younger boy pairs. This finding is similar to the results for mothers' preferences. The was a difference between parents' opinions in the older boy-younger boy pairs; here fathers' average educational preference for boy-boy pairs is 16.20, compared to mothers' average preference which is higher, 16.80 (see Figures 3 and 4).

The last goal of this study was focused on whether there were any links between older and younger siblings' educational expectations and preferences. We used conducted correlations by gender dyad composition, in order to study the relation between siblings' reports of educational values and preferences for same sex versus opposite sex sibling dyads. For the first set of correlations some significant findings were found: (see Figure 5) older siblings' preferences and expectations were significantly and positively associated with younger sibling preferences and expectations in same but not opposite sex dyad. For opposite sex dyads, in contrast, correlations are lower, and even negative.

Discussion

These data are precious because this one of a few studies that examines, in depth, the Mexican culture in the United States. The study focused on sibling influences on adolescents' educational expectations and preferences in Mexican American families. Overall, the analyses revealed that there were sex differences in youths' educational preferences and expectations, favoring girls. Further, there were parental differences in educational preferences and gender differences: mothers had high preferences for sons, but fathers did not. Also, we found that siblings' educational expectations and preferences correlated, but only in same sex dyads.

These results have some significant implications for Mexican American youth. For instance, boys' poorer educational goals may be grounded in their family experiences. According to our study, brothers and sisters from the same family differed in their educational expectation as well as their preferences. This may be related to parental differences in preferences for their children depending on gender.

Some limitations of this study were that there were single items used to measure educational preferences and expectations. In addition, there was no measure of actual school achievement of the participants. Also, participants were assessed at only one time. There is currently a follow up with these families, however, that will assess actual school achievement. Further, the sample for this study was not representative, but it allowed for in-depth study of the families. There are some areas that must be studied in further research such as factors that may be linked to gender differences in education goals for youth from ethnic minority families. Another aspect that must be studied in a more detailed manner is how schools and communities better support and promote Mexican American boys' educational achievement.

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Figure 1. Means for How Far Youth Expect to go in School by Sibling Dyad Gender Composition.
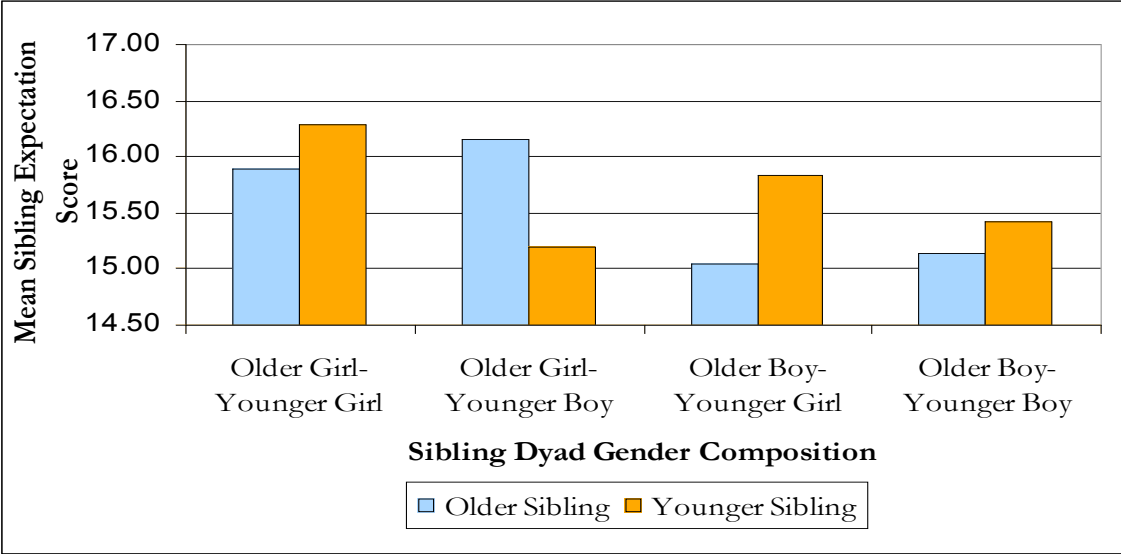
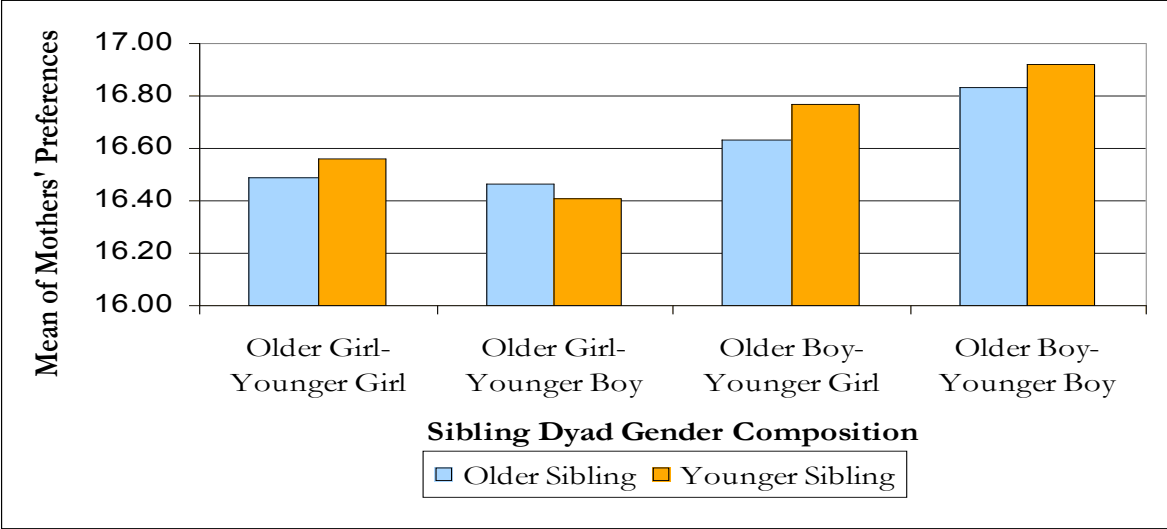Education rated on 21 point scale: 12 = high school graduate; 16=college graduate

Figure 2. Means for How Far Youth Want to go in School by Sibling Dyad Gender Composition.
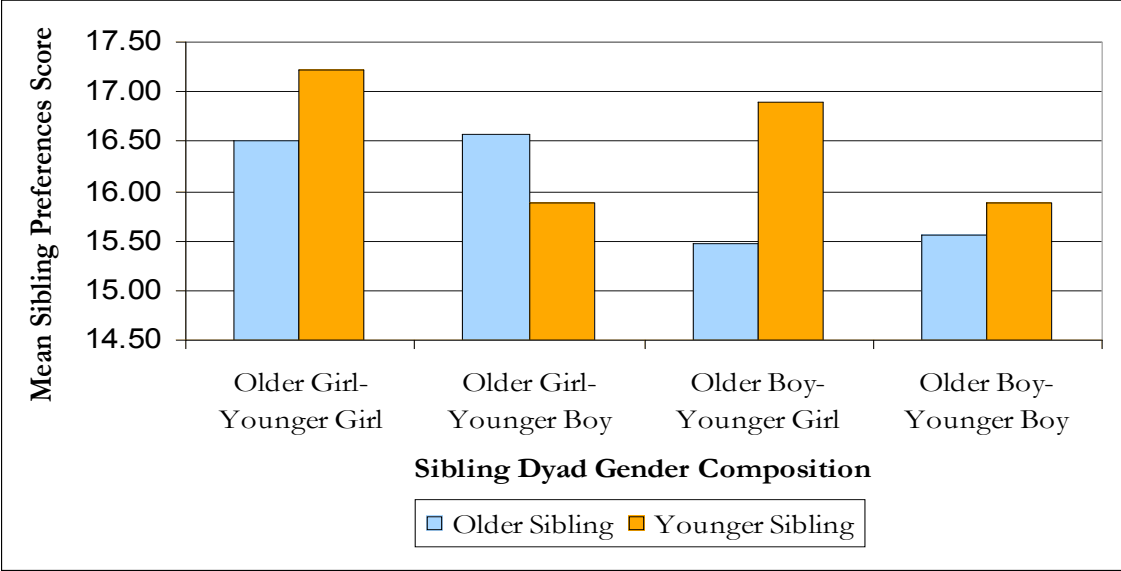
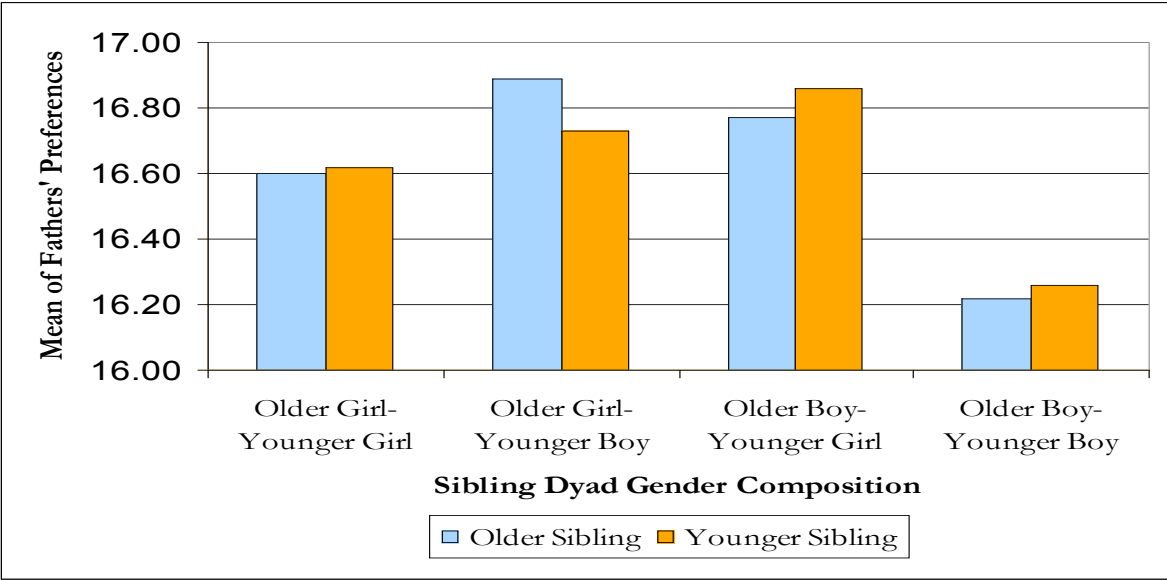Education rated on 21 point scale: 12 = high school graduate; 16=college graduate

Figure 3. Means for Mothers' Reports of How Far They Want Their Children to go in School by Sibling Dyad Gender Composition.

Education rated on 21 point scale: 12 = high school graduate; 16=college graduate

Figure 4. Means for Fathers' Reports of How Far They Want Their Children to go in School by Sibling Dyad Gender Composition.

Education rated on 21 point scale: 12 = high school graduate; 16=college graduate

Figure 5. Correlations Between Siblings' Reports of Educational Values for Same and Opposite Sex Sibling Dyads.
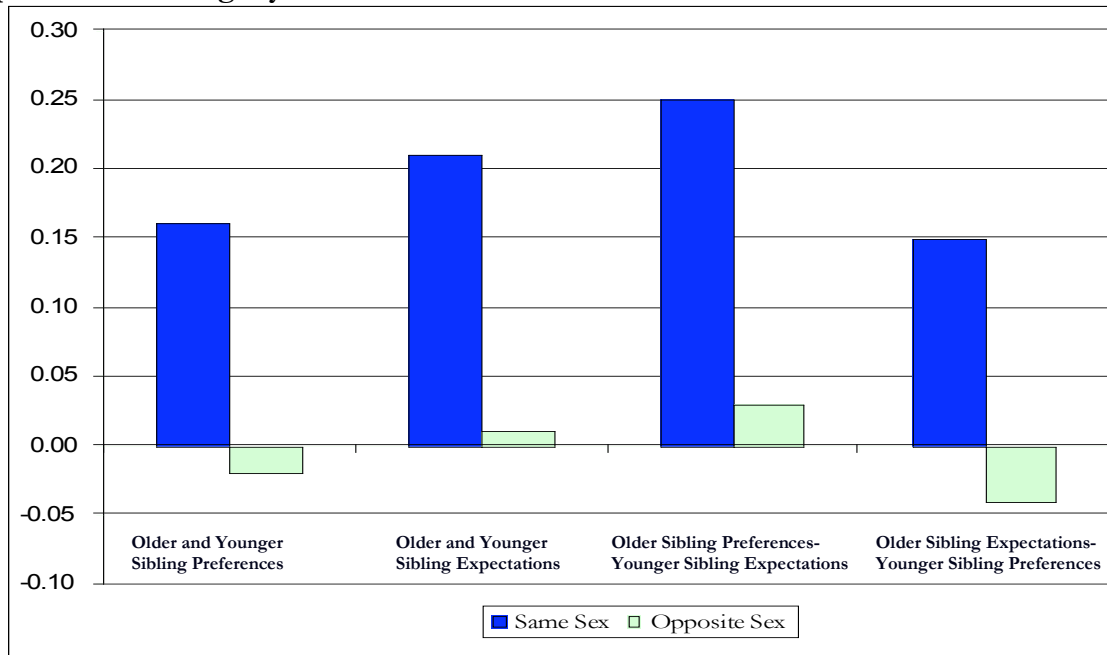
Creating Information Visibility in the Habitat for Humanity Supply Chain

Angelica Smith, McNair Scholar, Penn State University

Faculty Research Adviser: Dr. Dawn Russell
Assistant Professor of Supply Chain and Information Systems
Smeal College of Business
Penn State University

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Abstract

Purpose – The purpose of this study is to begin to define the information technology requirements of an IT system/database for Habitat for Humanity's supply chain challenges in the areas of planning, sourcing, and delivery of materials to build a home.

Methodology – The methodologies employed in this work are: (1) a comparative assessment of commercial off-the-shelf information technology systems in the supply chain domain, (2) telephone inquiries with Habitat Construction Managers, and (3) an online survey regarding user requirements for supply chain visibility.

Findings – The results identify the most critical features required in the near-term for an information technology system to support Habitat's supply chain activities. This work provides members of non-profit, house-building businesses with a reference for analyzing functionality priorities for their information technology and supply chain management (SCM) challenges.

Research limitations –The results of this study are telling and inform on the areas of focus (i.e., planning, sourcing, and delivery). However, a broader base of participants must be queried to obtain requirements across the supply chain.

Originality/Value – Through the course of our literature review**,** we found no research that focused on the Habitat for Humanity supply chain, nor did we find specific supply chain information technology solutions that would immediately serve the Habitat operating environment. The more general area of supply chain management for non-profit home building was also queried, with no relevant literature identified.

Keywords – Habitat for Humanity, information technology, Database Management, Supply Chain Management, Non-profit organization, Requirements Analysis

Paper type – Research

Introduction

With the use of today's sophisticated Information Technology (IT) systems, businesses, more easily done than ever, can stay connected in the supply chain at all times and with all players. Today's supply chain information systems allow for up to the minute data reporting, include supplier relationship management and customer relationship management capabilities, carryout payment scheduling, assist with materials planning and scheduling, and help to facilitate collaboration amongst distributed business partners and customers. With the focus of IT on information integration and management, these systems allow organizations to focus on their specialty and other business practices with better accuracy and preparedness. These together will help to achieve a more visible and well-managed supply chain.

This paper examines IT and Supply Chain Management (SCM) in the context of a non-profit home building organization' s supply chain needs, Habitat for Humanity. Demand and their desire to build homes continue to increase year-to year. However, with growing requests, funds and services continue to be limited and strictly on an "as sponsored" basis, and work continues to be completed on a volunteer basis. Managing the (data) flow of people and materials can be a daunting task, and one that can benefit greatly from increased understanding and visibility. This is especially true when IT is applied to the supply chain. Given Habitat's construction industry and looking into Habitat's business challenges, IT can help eliminate many data and information related issues. IT can also provide them with an infrastructure for a data driven organization that can more easily keep up with managing demanding consumers and partners and rising demand and supply [12].

For Habitat for Humanity, this study aims to investigate the characteristics of an IT system that would effectively create visibility for their most pressing supply chain needs in three specific areas of planning, sourcing, and delivering supplies for building a home. This paper will outline IT strategies to help Habitat for Humanity keep up with and manage their resources. For other readers, this work brings more focus to research in IT and Supply Chain while also looking into non-profit organizations' basic IT needs.

Thus, this work will focus on the improvement to these areas resulting from the integration of an IT system to manage Habitat's data and other information. Specific target areas for improvements include planning, sourcing and gathering materials in order to build a home because these are where their basic needs lie. Further, these three areas include data processing, time constraints, labor and resources and budgeting. This is where Supply Chain Management and IT can play a critical role in managing Habitat's business processes.

In the next chapter of this paper a section reviews current and previous literature in support or disagreement in association with this study. In chapter three we discuss the context of this study; talking about Habitat in subsection III.i., defining Supply Chain Management (SCM) as it relates to the SCOR model, and the three main focuses of this project, planning, sourcing and delivering supplies in subsection III.ii, and finally discussing Databases (DB) and Database Management (DBM) in subsection III.iii. In chapter four a review of the methods for this study will explain the design of the study and how data was collected from Habitat. Chapter five explains the analyses conducted, covering the comparative database assessment in subsections V.i. and the survey results in subsection V.ii. In chapter six the findings and recommendations are presented and finally in chapter seven discusses the limitations and future research.

II.   Review of Literature

A review of the literature, both in the fields of Supply Chain Management (SCM) and Information Systems, helps to support this research focused on creating supply chain visibility using information technology. The literature reviewed points out a standard definition of SCM and through comparisons of systems helps to validate methodology in our experimental approach. In the information systems domain, B2B, SCM, and ERP are the primary information system categories of focus. In the supply chain field the primary areas of focus are three of the five major focuses in SCM: plan, source, and deliver. Below you will find initial interpretations of academic articles that span both knowledge domains – information systems and supply chain. This literature review will continue to build in accordance with the content below.

Kapia et al (2006) initially discuss demand data management processes and correlate it to the effects on visibility. Visibility, in this article can be described as the effects of sharing information to further simplify the steps and effects in data management and make the overall supply chain more efficient for its users, an area of direct relevance to the needs of the supply chain challenges at Habitat. Kapia et al (2006) ask and answer questions dealing with the use of information sharing such as "how can we improve supply chain?" They also ask and answer questions on how improved visibility progresses the performance of the supply chain. The article further discusses the implications on the processes discussed for improved supply chain management and concludes with five recommendations for those interested in improving visibility and overall effectiveness of the supply chain.

Kapia et al provide insight some of the data management processes in the supply chain industry that could help to minimize or eliminate costs of supply chain management. They went on to discuss the importance of point of sale (POS) data and how its use may yield much higher accuracy of forecast statements and how it may reduce the bullwhip effect [3]. Kapia et al

contrast POS data with channel data using a case study. The true differences, other than time delays, appear to be access to data and the overall content [3]. Of particular relevance to this work is their finding on vendor-managed inventory (VMI) and how sharing inventory replenishment data helps to decrease costs by up to 40% [3].

Kapia et al offer five recommendations, all of which carry strong relevance to our challenge in this study of identifying the information technology opportunities to create visibility in the Habitat for Humanity supply chain. The five recommendations offered by Kapia et al are:

1. Share only information that helps to improve the supply chain performance- implies the need for efficiency by cutting out redundancy and irrelevant data [3].
2. Simplify, synchronize and stabilize demand-supply planning processes- decrease last minute changes, decrease information delays and processes that help provoke information delays [3].
3. Use a combination of different data demand sources- for optimum efficiency several processes may help to solve alternate issues v
4. Benefit from collaborative relationships with customers- exchanging orders, invoices and order status data help to minimize cost and other inefficiencies [3].
5. Understand suppliers' real need for demand information [3].

The processes described provide key considerations for creating information visibility in a Habitat supply chain.

To create supply chain visibility, effective system implementation is required. Siddharth et al (2006) focus on the implementation and hardships of Supply Chain Management (SCM) in a firm. It goes into describing what SCM is and in doing so talks about the relationship between Logistics and SCM. This portion of the study provided even more perspectives of general and accepted definitions of SCM while also underlining the relationship with Logistics. Siddharth et al assert that Logistics is a subset of SCM dealing with the movement of materials, storage and inventory management [4].

Siddharth et al suggests that in order to implement SCM, evaluation of the current processes must be conducted [4]. Following this suggestion are four approaches to the evaluation of a supply chain, which would be relevant in both SCM systems and relevant to the design of a database for Habitat [4]. The four approaches presented by Siddharth et al are:

Step I: formulation of strategy and description of issue; direction to any program, assessment of capabilities [4].
Step II: identification of areas for improving material flow- this could include improvements in Logistics, outsourcing information technology, etc [4].
Step III: identification of issues [4].
Step IV: performance evaluation of the supply chain [4].

Relevant to our work here in creating supply chain visibility for Habitat for Humanity, study, Siddharth et al provide a useful overview of what goes into effectively putting in place

SCM processes and provide insight into the types of information technology solutions that are geared toward solving supply chain challenges [4].

Worthen (2007) discusses definitions of Supply Chain Management (SCM), what supply chain software should do, the difference between Enterprise Resource Planning (ERP) and SCM, roadblocks to installing supply chain software and some of the emerging technologies that will affect the management of supply chain. Worthen then looks at the five main areas of focus in supply chain, according to the Supply Chain Council, and explains how they fit in with supply chain: plan, source, make, deliver and return. An explanation of these five core areas of supply chain follows:

- Plan – This is where you strategize with a plan how you will go about accomplishing task(s) and meeting the customer's demand [6].
- Source – Here suppliers are chosen to deliver goods and services needed t create your product [6].
- Make – This is where you will schedule the actual manufacturing of your product [6].
- Deliver – Logistics is what is referred to when discussing delivery. Here you will choose deliverers and setup payment methods [6].
- Return - If your product is defective, here it will undergo the return process, making its way back in your warehouse [6].

Three out of the five –plan, source, and deliver- are the main focus areas for the information technology system to be investigated to serve Habitat's supply chain visibility requirements.

In the section where Worthen explains what supply chain software can do, he states that not one system is right for every company [6]. The goal of these software packages is to increase supply chain visibility. He focuses on how businesses that use these software tools need to share information with one another in order to increase visibility [6]. However, the players are against sharing the data that is most important to achieve this advantage of supply chain visibility. He gives an example how suppliers would not need to guess how many orders to receive and the manufacturer would not have to order more than needed from suppliers [6]. In turn, retailers would have fewer empty shelves if they all would share this information with one another [6]. Worthen goes on to explain how the Internet is here to help make this all possible.

Additionally, Worthen does state that most companies' top priorities are tracking demand, tracking supply, tracking manufacturing status, tracking logistics and tracking distribution, which is similar to the functions being investigated for the Habitat supply chain IT system.   [6]. Worthen did not specifically address whether or not these implications are the same for profit focused organizations and non-profit organizations such as Habitat, but this does introduce characteristics to look for in an IT supply chain system

Wailgum (2007) discusses ERP systems and their difficulty and inability to centralize tasks in a business. As many companies have discovered, there is an emerging category of third-party, hosted options that successfully blend traditional value added network (VAN) capabilities with on-demand hosted supply chain software and back-office integration services [5]. Companies in this evolving market, such as E2open, GXS, Inovis and Sterling Commerce, offer

a single point of data exchange, whether using Electronic data Interchange (EDI), RosettaNet or XML standards, that acts as a gateway for partner-to-partner, enterprise system integration and collaboration [5]. For companies like Agere, it's now possible to make a single electronic connection to all customers and suppliers if they use E2open. Even better, that task can be taken care of by a third party [5].

Wailgum argues there is another advantage of using an outsourced integration service provider; the hosted front end of an enterprise's supply chain system has the ability to communicate with the different communications protocols found in today's supply chain. Jayaraman says that E2open's ability to translate from one language to another is hugely significant for Hitachi [5]. For example, say a company's systems can communicate only in the "language" of RosettaNet but the company's partners speak in EDI, XML or SAP's iDoc [5]. E2open enables the front-end translation from one language to another and updates the back-end systems as well, which is where current enterprise SCM systems really fall down. As Muller says, "If you're a customer of ours, you can have it your way."

Barker et al (2004) discusses seven "waste spots" that allow for problems in the house building supply chain. They further go onto to discuss what each of these means for the business and then discuss what should be the main focus when finding a solution to these traditional home building problems.

Waste spot #1 consist of poor supplier relations. Communications and relations management technologies would be helpful in the facilitation of business agreements and the overall understanding of the relationships needs from both supplier and house builders [12].

Waste spot #2 deals with the lack of integrating the supply chain. Barker and Naim talk about the information that needs to be shared amongst the supply chain players to keep tasks well managed and communication lines clear and open. The solution here is collaborative based IT systems that allow for agreed planning and delivery [12]. Waste spot #3 includes time compression strategies where, again, miscommunication or no communication amongst the players in the supply chain gives way to crises'. This waste spot's solution is associated with both waste spots #1 and #2 [12].

Waste spot #4 details the inability to rapidly reconfigure the supply chain due to uncertainties. This also plays along with all of the above waste spots [12].

Waste spot #5 and #6 talk about stock issues: excess costs and material wastage. They recommend for improvement in this area consider reduction in stocks and improved processes dealing with stock [12].

Waste spot #7 refers to the "ultimate" symptom of the supply chain – the need for a finishing foreman (snagging) - thus the overall poor quality. Barker and Naim discuss the need for everyone in the organization and in the supply chain to take ownership of quality and how this need should be continually managed, and not so much on a problem

persist basis. Barker et al believes solution to this problem deal with appropriate training and overall accountability [12].

Barker et al outlined preliminary steps to supply chain and information technology solutions. Much discussion was on information technology and how the use of new technologies, such as current and future internet systems, can help to shape the supply chain in a more collaborative better managed chain of business where everyone is kept in the loop and updated on changes and also where real time information can be consistently updated and viewed by players. This is the underlining basis for implementation for the system proposed for Habitat for Humanity.

III.   Context of Study

This study is drawn from Supply Chain Management and Information Technology Systems. These disciplines were the focus for creating visibility in Habitat for Humanity's supply chain. Given the versatile domain of study, each of these three arenas (1) Habitat for Humanity, (2) Supply Chain Management, and (3) IT Systems, is described in more detail in subsection III.i, III.ii, and III.iii, respectively.

III.i. About Habitat for Humanity

Habitat for Humanity is a non-profit organization that has been building homes for low-income families since 1976. Although Habitat is exempt from federal income tax, their costs continue to increase every year. In 2006, programs and house building transfers increased by 50% climbing to $103 million compared to $70 million in 2005. Donated assets to Habitat dropped from $18 million in 2006 to $15 million in 2005 [1, 2]. With the on going cost pressures, improving efficiency and managing expenditures closely is a top priority.

Habitats non-profit environment already challenges them with limited resources and finances but their numerous affiliates are left with even lesser resources and capabilities that include the misuse or non-use of Information Technology. It can be difficult to learn, use and maintain IT system features found in most current supply chain systems [3,4,5]. These system's users are usually big companies and for profit; implementation and training are usually not huge problems. Many times this is not the case for small, medium and even non-profit businesses. By not adopting IT strategies information is scattered and useless and many business processes suffer.


III.ii. What is Supply Chain Management (SCM)?

The Council of Supply Chain Management Professionals (CSCMP) has commissioned a globally excepted definition of Supply Chain Management. This definition can be implied throughout the paper.

"Supply Chain Management encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers. In essence, supply chain management integrates supply and demand management within and across companies. Supply Chain Management is an integrating function with primary responsibility for linking major business functions and business processes within and across companies into a cohesive and high-performing business model. It includes all of the logistics management activities noted above, as well as manufacturing operations, and it drives coordination of processes and activities with and across marketing, sales, product design, finance and information technology."

Council of Supply Chain Management

In Figure 1 we visit the Supply Chain Operational Reference (SCOR) model, the primary standard and metric for measuring supply chain performance. It is an industry accepted visual explanation for how each process contributes to the supply chain and the management of it.

Figure 1
SCOR Model
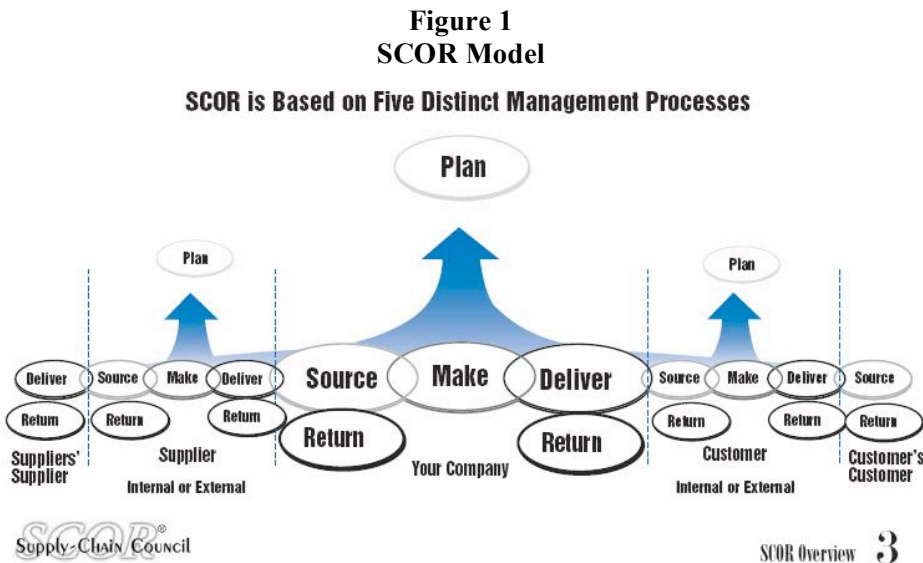
www.supplychain-council.org

There are five bases on which SCM concentrates: plan, source, make, deliver and return. Each of the processes plays an important role in the supply chain.

1. Plan - The strategic planning on how to get your product from point A to point B. Key to meeting customer demand [6,7].
2. Source- Planning with partners who will manage the actual delivery of your goods and services including pricing agreements. Processes that help identify data on delivery statistics such as tracking and receiving confirmation are highly important in this area [6,7].
3. Make –Planning and manufacturing your product [6,7].
4. Deliver- Detailing and packing orders, checking out and delivering goods and services [6,7].
5. Return – Receiving returns given a plethora of reasons why [6,7].

Out of the five concentrations, again, this research will only focus on the planning, sourcing and delivery of supplies to build a home. Just to note, when dealing specifically with source and delivery processes, the main focus is on logistics, which is a subset of SCM. Logistics are specific to the delivery of goods from point A to point B and all of the planning in between [4]. Currently, industry has seemed to somewhat agree on the primary differences between Logistic and SCM but most agree on the description stated above [8].

III.iii. What is Database Management (DBM)?

Database Management (DBM) is the maintenance of a database. Database Management Systems (DBMS) are information technology processes that help to control databases, which maintain the organization, storage and retrieval of data. They are essentially IT systems that help to manage databases. They allow users to make a query, requesting some information from the system, and based on parameters of the database it returns data in response to the query. Therefore databases must maintain relationships of much of the data stored in the database in an effective manner. According to the literature there are several accepted definitions of DBMS. The table below outlines more prominent definitions of DBM and DBMS [9].

Table 1-What is DBM and DBMS?

Source	DBM Description
www.ruf.com/mglossary.html	The task of storing, modifying, and retrieving database information to produce reports, answer queries, and record transactions.
www.automationmed.com/glossary.htm	The task of storing data in a database and retrieving that information from that data. This includes: 1) Entering the data 2) Modifying or Updating data 3) Reporting or Manipulating the Data to provide useful information
wordnet.princeton.edu/perl/webwn	Creation and maintenance of a database

Source	DBMS Description
PC Mag	Software that controls the organization, storage, retrieval, security and integrity of data in a database. It accepts requests from the application and instructs the operating system to transfer the appropriate data.
Wikipedia	Computer software designed for the purpose of managing databases.

There are five major features of a DBMS, which include data security, data integrity, interactive querying, and interactive data entry and data independence.

1. Data Security - In DBMS's users are given specific rights to view specific data. Each user is given a username and password, preventing unauthorized users from gaining access to data [10, 11].
2. Data Integrity - This feature allows for only one update (of a record) at a time. It also does not allow duplicate records. For instance, two records containing the same exact name of a manufacturer would not be allowed [10,11].

3. Interactive Query - This feature allows for users to query the database, looking for the system to return valid responses and also gives the ability of analyzing data and managing fields [10,11].
4. Interactive Data Entry and Updating - This feature allows for users to update, edit and delete data in the database(s) within in the system [10,11].
5. Data Independence - Allows for the updating of information without altering the system or other systems that process it [10,11].

Supply Chain Management (SCM) plays an important role in helping to eliminate processes in the supply chain that have little or no importance and that only repeat unnecessary steps in management and control. Database Management Systems (DBMS) also play an important role in helping to organize data in a manner in which it is easy for it's users to update and retrieve while providing a secure means in doing so. The supply chain information system envisioned in this work could prove to be beneficial because of the minimizing of data storage and task reduction, the stability of real time updates and reports, the preciseness of inventory control, a focus on business relations and the elimination of ineffective processes.

IV.   Methods

This work employed semi-structured interviews, a comparative assessment of database management systems, and a requirements document. The study began with initial telephone conversations asking Habitat Construction Managers questions dealing with the sort of demand for an information system for their office. This system would be to better manage data, materials and the steps involved in planning, sourcing and delivering supplies to build a home. They were also asked questions as to the different characteristics they would expect in a system if they so chose to implement a new. This conversation was a basis for our next step.

After feedback from the initial communication was assessed, a survey and requirements analysis seemed an appropriate tool to further investigate targeted areas identified in the interviews. Meetings with experts in the SCM field were scheduled and further feedback was provided as to the validity and clarity of the questions on the request document. Finally, a document outlining some of the feedback received from the Construction Managers and industry experts as well as other questions pertaining to their past and current uses with IT was drafted into an online survey document and was sent to 15 of the 39 Habitat affiliates that were contacted. Lastly, during the period of distributing surveys and speaking with Habitat representatives, a comparative assessment of 18 different types of systems that Habitat could use to help with their supply chain and IT challenges was conducted. After the comparisons of potential systems were analyzed and reviewed we further reviewed best practice IT processes and modules for top SCM activities and then compared the final eight systems given the four main modules of focus concluded as best practice modules in SCM (source).

V.   Analysis

The comparative assessment and results of the requirements request are reported here in sections V.i and V.ii, respectively.

V.i.   Comparative Database Assessment

To create a framework that could successfully capture Habitat for Humanity's supply chain and IT needs a cursory review of high-level functionality of 18 relevant commercial IT systems for similar industries were researched. For each system we looked at characteristics of data management and assessed systems based on key concepts associated with SCM – planning, sourcing and delivering - and IT. More specific SCM ideas include planning management, product optimization, business management, warehousing, and communication management and automation capabilities. In addition, we considered the appropriateness of the system's overall functionality and usability for Habitat's non-technical environment. Table 1 lists the 18 systems for which an initial review was conducted. These 18 systems cover a full range of supply chain management functionality and beyond. Therefore, a subset of the 18 was selected as a basis for capturing the supply chain and IT needs relevant to this study.

Table 1-18 Systems for Supply Chain Management

1. Enterprise Resource Planning (ERP)
2. Business Intelligence (BI)
3. Manufacturing Intelligence (EMI)
4. Customer Relationship Management (CRM)
5. Product Data Management /Product Lifecycle Management
6. Manufacturing Execution Systems (MES)
7. Supplier Relationship Management
8. CAD/CAM/CAE
9. Warehouse Management
10. Human Machine Interface (HMI)
11. PC Based Control
12. Process Automation Control
13. Procurement/Fulfillment/Payment Systems
14. Supervisory Control Systems
15. Enterprise Asset Management /Maintenance Management
16. RFID Software
17. Simulation Software
18. Machine To Machine

Source: http://softwarefinder.mbtmag.com

Here we conclude the final eight systems that are sufficient for Habitat for Humanities greatest needs in planning, sourcing and delivering. These systems include features as forecasting and inventory, customer and supplier management and shipping and tracking. The eight systems that remain are listed in Table 2.

Table 2 -Best System for Habitat
1. Enterprise Resource Planning (ERP)
2. Business Intelligence (BI)
3. Manufacturing Intelligence (EMI)
4. Product Data Management /Product Lifecycle Management
5. Manufacturing Execution Systems (MES)
6. Warehouse Management
7. Human Machine Interface (HMI)
8. Procurement/Fulfillment/Payment Systems

Source: http://softwarefinder.mbtmag.com

These final systems from Table 2 were selected on the basis of needs, goals and usability. Here they are broken down into more detail, as we understand the reason they would be good choices for habitat for Humanity.

Final 8 Best Systems for Habitat for Humanity
Wikipedia.org | Managingautomation.com

V.i.a. Enterprise Resource Planning (ERP) systems

Enterprise Resource Planning (ERP) systems attempt to unify all business processes into one system. The strengths of an ERP system, with respect to Habitat's needs, are that processes communicate with each other that allow for more collaborative and centralized business. The ERP's collaboration capabilities are what landed it a spot in the final eight. Conversely, ERP's are very complicated systems that are not easy to understand and learn. Also they can be very expensive to implement and maintain while customization is limited.

V.i.b. Business Intelligence (BI) Systems

Business intelligence is a business management term, which refers to applications, and technologies, which are used to gather, provide access to, and analyze data and information about company operations. Types of BI tools include digital dashboards and reporting software. Both of these tools are why they were chosen for the final eight.
The strengths of a BI system, with respect to Habitat's needs, are the abilities to help companies have a clearer view of the factors affecting their business, which help them to make better decisions. The drawback in employing a BI system at Habitat is their insufficient data, data capacity or data retention.

V.i.c. Manufacturing Intelligence (MI)

Manufacturing Intelligence, is a term which applies to software used to bring a corporation's manufacturing related data together from many sources for the purposes of reporting, analysis, visual summaries, and passing data between enterprise level and plant floor systems. Reporting, analysis and visual summaries are what attracted us to this system for the final list. The strengths of a MI system, with respect to Habitat's needs, are the abilities to aggregate data, making available data from many sources, most often coming from databases and the analysis capabilities, enabling users to analyze data across sources. MI's also have dashboard capabilities. This level of reporting requires data integration from multiple sources, which Habitat does not have and so this is a drawback for them.

V.i.d. Product Data Management /Product Lifecycle Management (PDM)

Product Data Management or Product Lifecycle Management is a computer program used to monitor data related to the life cycle of products. PDM allows its users to manage relationships between data that define a product. The product relationships are then stored in a database. This is why PDM made it in our final eight systems. PDM capabilities include product configurations, product versions and product variations that may not be useful for Habitat since many have little to no variations in products.

V.i.e. Manufacturing Execution Systems (MES)

Manufacturing Execution Systems is a shop floor control system, which includes either manual or automatic labor and production reporting as well as online inquiries and links to tasks that take place on the production floor. Its production-reporting tool caused for its inclusion in the final eight. The strengths of a MI system, with respect to Habitat's needs, are its abilities to track inventory and its use of dashboards and other reporting tools. Not all Habitats have a warehouse or sort of storage and so this tool may not be useful for all.

V.i.f. Warehouse Management

Warehouse Management controls the movement and storage of materials within an operation and processes the associated transactions. The strengths of a MI system, with respect to Habitat's needs, are its abilities to control warehouse information and provide real-time updates. Real-time updates are what attracted us to this system. Also, the system relies on intelligence and does not depend on people's experience or skill. This technology can be expensive and is very advanced as it utilizes automatic ID data capturing such as radio-frequency identification (RFID) and barcode scanners.

V.i.g. Human Machine Interface (HMI)

Human Machine Interface includes 14 types of user interfaces: voice UI, text UI, command line UI, GUI, web based UI, etc. We are interested in the system being web-based and so this system was very attractive.

V.i.h. Procurement/Fulfillment/Payment Systems

Procurement systems are the attainment of goods and/or services at the best possible total cost of ownership, in the right quantity and quality, at the right time, in the right place. Procurement is a great focus in supply chain management and so we knew we had to include this. The strengths of a Procurement System, with respect to Habitat's needs, go in hand with the seven life cycle stages of the system which provide for improved supplier relations management:

- Information Gathering
- Supplier Contact
- Background Review
- Negotiation
- Fulfillment
- Consumption, maintenance and disposal
- Renewal

V.ii.   Requirements Results

For the online requirements request documents that was developed we looked at finding answers that would allow us to get a clear understanding of what Habitat did and so what they expected in an IT system that would help deliver efficiency and eliminate many problems they were having. Forty (40%) percent of the participants use a manual system for the planning portion of building a home while another 40% use a database. Sixty (60%) percent of the participants reported they used a manual system for the sourcing of materials to build a home while 20% use a database and 20% use no system. Eighty (80%) of the respondents use a manual system for planning the delivery of supplies to build a home while 20% have no system for this. So, we asked them how they prepared the planning, sourcing and delivery for building a home. Here is a general response:

Plan: Look over unit before demolition stage, and evaluate scope of work on each unit draw up plans, and gather all permits on unit.

Source: Have our warehouse manager purchase, order, and also seek out in kind donations as well as inventory current stock.

Deliver: Ordered from local venders and delivered, also staff and volunteers pull from warehouse and transport to job site.

Both the conversations with Habitat and the request document focused on questions that asked what aspects made it easier or more difficult to perform these tasks. Here is what some had to say:

Easier for Planning: *Preparation, communication with the construction manager and planned volunteers with experience.*

                                              Having completely thought through every possible issue that could arise during the process. Accurate drawings.

Easier for Sourcing: *Good communication with vendor and on-time ordering.*

                                              Having an accurate account & cost of the items that went into the last unit

Easier for Delivery: *Good communication with the house leaders and construction manager to develop accurate material list for the tasks that week.*

                                              Vendors will deliver.

Difficult for Planning: *Not enough time thinking through what's the next step.*

                                              Poor communications from construction manager.

Difficult for Sourcing: *Not a good inventory system.*

                                              Out of stock situations.

Difficult for Delivery: *inadequate vehicle needs.*

We also inquired about their previous and current experiences with IT systems while at Habitat and what they did or did not like about them.

Initial conversations had led us to believe that they need management in inventory, suppliers and transportation. So, for the survey portion of this analysis we asked them to rate system features that they deemed as highly necessary or unnecessary for a functional IT system. In each of the final eight systems, discussed in the previous section, the primary focus was on whether each could provide management in four key areas that encompassed inventory forecasting, supplier and transportation management. These four areas were supported by the survey responses and are also found as conventional features in popular commercial IT system, shown here in Table 1.

Table 1-The Top 4 Features and Their Focus

Feature	Focus on
Demand Management:	• Forecasting • Inventory management • Replenishment • Reporting
Supply Chain Optimization:	• Inventory management including: Product life cycle, inventory profiles • Transportation management including: Routing, scheduling
Transportation Management:	• Planning • Execution • Shipment Tracking
Order Management:	• Shipping and outbound management • Sourcing • Inventory management • Visibility

VI. Findings and Recommendations

After the completion of the comparative assessment and analysis of the user requirements gathered through the on-line requirements request survey, four areas of need appeared prominent: (1) inventory management, (2) order management, (3) supplier relations managements and (4) volunteer skills tracking management.

VI.a. Inventory Management

Many of the affiliates reported they sometime had difficulty, using their current system, exactly what they would need for each project and where the supplies were coming from. For those affiliates who do not have a warehouse, it would be useful for them to have a database outlining what supplies will be coming from what suppliers so that they have an idea of what they'll need to provide before the project date. For those affiliates that do have a warehouse, cataloged inventory would be helpful in displaying supplies and materials on hand. Many managers reported it would be helpful to obtain updated reports of inventory before project dates so that they can more efficiently plan for the pick-up and delivery of these supplies and additional supplies and materials if need be. It would also help them to keep a replenishment of particular supplies. For the both, having a warehouse or not having a warehouse, it would be useful for them to maintain a database with all of the suppliers and supplies they ever used for each project which would help project material costs for similar projects.

VI.b. Order Management

For many managers, order management was a huge problem. Specific to the size of the affiliate, depending on suppliers to deliver almost all of the supplies and materials, sourcing and shipping seemed to be quite tedious. For the smaller Habitats, they were very dependent on suppliers to ship materials on time and on site. However, this was not always the case as miscommunications caused orders to sometimes be incomplete while other times delivery times were off schedule. A reporting database outlining the specifics of what materials in what amount will be delivered, from whom, where and at what time would be very helpful in eliminating production delays and unnecessary costs and help track supplies from arrival to site delivery.

VI.c. Supplier Relations Management

Many affiliates emphasized the consequences of poor communication with suppliers about delivery orders, times and so on. Although this third priority could relate closely with order management it still has its focus. Many of the discrepancies that occurred with order management was because of untimely miscommunications or no communications with suppliers and deliverers. If an email client, directory and database of suppliers and the services they provide were included in this proposed system it would help facilitate better communication amongst players and help to reduce costs and stress on the relationships. All together it will help them to display their supplier requirements to their supplier in a more effective manner.

VI.d. Volunteer Skills Tracking Management

Every affiliate has a cost for marketing to volunteers. Some of them have difficulty locating and gathering volunteers while others do not. Even if they receive volunteer workers these volunteers are too often not skilled enough to perform the needed tasks. Unfortunately, most of the affiliates in this study do not keep track of past volunteer information. If they maintained a database with all the volunteers that had ever worked with them, which would include their skill level along with the projects they assisted on, it would be easier on marketing attempts and would give them a greater chance of locating the appropriate skills they need for a project in a timelier manner.

Lastly, we are not looking to integrate and merge all business data or even all affiliates' data but propose a small scale web-based system to include a database addressing the above IT challenges and that which will assist in better overall management and supply chain visibility.

VII. Limitations and Future Research

There were several limitations for this study. This research was studied on a small scale with only 15 participants, ranging staff number and size, so the analysis could become skewed with more participant feedback changing the top four priorities. At any given moment, we never considered the cost of an IT system because the ideas behind the system referred to a simple customizable database that would only tailor to the planning, sourcing and delivery of supplies to build a home and perform basic functions.

In all it was assumed that Habitat needed specific management in each of the three out of five areas of SCM scope that are focused on in this research For planning, almost all Habitats were looking for an inventory management function. In sourcing, almost all Habitats were looking for better management of an information system to relay their supplier requirements to their suppliers. However, for delivery there were no indicators that they recognize their requirements in this area.

Future research includes going back to Habitat and making sure we understand their needs and have not left out any other important priorities. We would like to go back and expand on the survey and requirements and include more participants to get a more thorough analysis. After their basic top priorities are addressed we can create a prototype encompassing the challenges they reported. If this prototype is on point we may conduct user testing to further revise the program until it is of satisfactory for managing the top priorities of Habitat. Lastly, it is possible to continue the implementation of additional features that address other relevant and important business issues once a design is in completion stage and accepted by Habitat users.

Acknowledgements

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Judging Others: Facial Asymmetry and the Five-Factor Model of Personality

Scott E. Test, McNair Scholar, Penn State University

Faculty Research Adviser: Dr. Jeffrey A. Kurland
Associate Professor of Biological Anthropology and Human Development
Department of Anthropology
The College of Liberal Arts
Penn State University

Abstract

Sexual selection and evolutionary theory are applied to physiognomy; deception and the adaptive value of possessing a 'poker face' are briefly discussed. Possible relationships of facial asymmetry to personality and demographic factors (including sexual orientation *) are examined. The impact of facial asymmetry, specifically hemifacial dominance, on impressions of personality is investigated; left hemiface dominance was positively correlated with the personality factor Extraversion. The results of personality impressions based on three-dimensional stimulus faces are compared with those made based on two-dimensional stimulus faces *; stimulus images in the two-dimensional conditional were rated with greater consensus. (* Original to this study)

1. Introduction:

1.1 Overview

Humans and other social animals are dependent on an understanding of the motivations of other members of their group. To this end humans attribute thoughts and feelings to others (theory of mind). When encountering a stranger, humans seek to explain that person in terms of known, enduring qualities; personality traits and types are examples of these qualities. These impressions are often made based on physical appearances. This practice is called physiognomy and people of many eras and cultures have used it to understand and make predictions about the people with whom they interacted. Due to its misuse in legitimizing prejudicial discrimination, physiognomy has justifiably fallen from general favor. But, the relative unfashionability of physiognomy does not limit the ways in which judgments about a person's physical appearance affect the roles, opportunities, and interactions available to them; humans continue to judge others superficially (for a detailed review of face perception research, see Zebrowitz, 2006).

Physiognomy has consistently been in use by humans for at least thousands of years (and perhaps longer), from the ancient Greeks to modern Israelis (Hassin & Trope, 2000) and Americans (Todorov, Mandisodza, Goren, & Hall, 2005). Its use is not restricted to personal interactions: as part of a recent study untrained raters judged the competency of political candidates based soley on the candidates' appearance. The candidate rated as appearing more competent actually won in about 70% of United States Senate races and in about 65% of United States House of Representative races (Todorov et al., 2005).

The apparent universality and obvious importance of physiognomic judging across human cultures may imply a common, evolutionary origin. In order for the process of making these heuristic judgments to be retained over disparate times and conditions, the judgments must exhibit greater than chance accuracy and therefore may serve an adaptive purpose. Some recent work on physiognomy-related topics supports the theory that the human face is a valid advertiser of personality traits relevant to reproductive fitness (Buss, 1997; Fink, Neave, Manning, & Grammer, 2005 & 2006; Levesque & Kenny, 1993; Shackelford & Larsen, 1997; Shevlin et al., 2003).

This study represents a natural extension of this previous work and features two original lines of inquiry. First, is facial asymmetry an advertiser of sexual orientation? And second, do the personality factor ratings of Three-Dimensional (3D) images of target faces enjoy greater consistency than those of Two-Dimensional (2D) images of target faces? In part due to the biological nature of the stimuli, the findings will be interpreted from an evolutionary perspective.

1.2 Background – Experimental Techniques in Personality Perception

Although some have made the case for the scientific investigation of physiognomy beginning with the European Four Humors or the Chinese Five Elements concepts (Fernberger, 1935), Beier and Stumph (1959) were among the first to apply the scientific method to that field of inquiry. They sought to understand how four basic cues (including voice, gestures, face, and social interaction) affected perceptions of personality characteristics. From the standpoint of this study, their approach, while groundbreaking, provided little control over what was perceived about the person being rated; raters had access to nearly all of the same information present in a natural setting, therefore determining the effect of a single variable was difficult at best. A paradigm shift in understanding personality impression research occurred with the application of the 'ecological approach,' understanding phenomena as part of complex systems, to the field of personality impression. This approach revealed that some valid information, a 'kernel of truth,' was contained in personality impressions (for examples see McArthur & Baron, 1983; Berry & Finch, 1993; Bond, Berry, & Omar, 1994). These studies, too, lacked many of the strict controls of later inquiries.

Although some information about personality appears to be revealed by the face alone, it is obvious that a person's behavior is a valid advertiser of his or her personality. The following non-physiognomic methods offer additional stimulus information such as interacting directly with the target to be rated or observing 'thin slices' of behavior via film or concealment (Zebrowitz, 2006). The thin slice consisted of a behavioral sequence, usually observed via one-way glass or a video recording. After observing a four to ten minute behavioral sequence, observers were able to form fairly accurate impressions about the actor's personality (see Ambady & Rosenthal, 1992; Borkenau & Liebler, 1993).

Many of the studies that included real, face-to-face interactions were conducted in a condition known as zero acquaintance, that is to say: when the people involved have just met and have no previous knowledge of one another (see Kenny, Albright, Malloy, & Kashy, 1994 for a survey of previous work; also Ambady, Hallahan, & Rosenthal, 1995; Marcus & Lehman 2002; Evans & Jones, 2003). Unfortunately, from a physiognomic perspective, the previously mentioned studies failed to control for the behavior, manner of dress, and speech of the participants (often a design element of, rather than a flaw of, those studies).

Controlling for behavior and speech of targets was effectively accomplished using what some call a 'less than zero acquaintance' system of interaction. In this model an image, usually a photograph was used as target stimulus. The images are sometimes cropped or matted to control for the clothing and hairstyle, revealing only the target face. These stimuli were at times combined with other information about the target to be rated, including, but not limited to: vocal quality (Berry, 1991) and age (Malatesta, Fiore, & Messina, 1987). The less than zero acquaintance paradigm was also used to examine the relationship of personality impressions to babyfacedness (Berry & Brownlow, 1989), to composite faces of left/left or right/right hemifaces (McGee, & Skinner, 1987), and to artificially constructed faces with very high or very low degrees of asymmetry (Noor & Evans, 2003). This same presentation model was also used in this study, both with two-dimensional and three-dimensional images of target faces.

1.3 Background – Biological & Evolutionary Bases of Personality

An obvious assumption of physiognomy must be that personality has a biological basis or, at very least, an impact on a person's physical appearance. Although both of these assumptions are true to a degree (biological basis of personality: Bouchard & Loehlin, 2001; Eysenck, 2006 and expressive bias: Malatesta, Fiore, & Messina, 1987), the biological basis of personality will be discussed here. Applying the lever of evolutionary theory (Dawkins, 2006), one may infer that facets of psychology may be, and in many cases are, the product of selective pressures in an ancestral environment. The biological and hence evolutionary basis of personality is supported both by monozygotic twin studies (Loehlin, 1992) and by the presence of human and chimpanzee personality trait cognates (Buss, A., 1997).

The adaptive value of personality has been recognized by a number of psychologists (see Buss, D., 1997 or Nettle, 2006 for a survey of the proposed adaptiveness of each of Five Factors). Nettle (2005) describes personality as existing as a continuum of adaptive behaviors suited to specific problems and addressed the role of extraversion in reproductive strategies. McElreath and Strimling (2006) have likewise shown that personality is adaptive using a game theory based model. Some forms of psychopathy have been interpreted as the products of alleles whose expression was neutral in our ancestors, the products of polygenic combinations of alleles that enhanced fitness singly or in other combinations, that were adaptive when possessed singly or in other combinations, or the products of accumulated mutations (Gangestad & Yeo, 2006; Keller & Miller, 2006).

1.4 Background – Facial Symmetry, Attractiveness, & Sexual Selection

Fluctuating asymmetries are hemispheric differences in an organism that are not characteristic of the species and occur as a result of developmental instabilities experienced by the organism (Thornhill, Møller, & Gangstead, 1999). Developmental homeostasis, one result of successfully overcoming genetic and environmental threats to developmental stability, is advertised by bilateral body symmetry, including facial symmetry (Leary & Allendorf, 1989; Thornhill & Gangstead, 1993). With some exceptions, researchers studying facial symmetry have found positive relationships between symmetry and health, perceived health, and attractiveness (Alley & Cunningham, 1991; Thornhill & Gangstead, 1993; Zaidel, Chen, & German, 1995). While it is not clear as to why symmetry is judged as being attractive, it has been considered so due to its contribution to averageness (Baudouin & Tiberghien, 2004) and its role as a signal of intelligence (Luxen & Buunk, 2006). The relationship of symmetry to intelligence is, however, not universally supported (Zebrowitz, Hall, Murphy, & Rhodes, 2002). Similarly, sex differences in symmetry have been investigated, but no signs of a gender based predisposition to a specific pattern of asymmetry have been revealed (Hardie, Hancock, Rodway, Penton-Voak, Carson, & Wright, 2005), except that males showed a negative relationship between body mass and asymmetry and females a positive one (Manning, 1995).

The theory of sexual selection explains that the general traits that are considered attractive in other members of the same species are those that advertise the overall health of an individual and specifically its parasite and pathogen resistance (Grammer & Thornhill, 1994). The human face as an advertiser of personality is, then, supported by sexual selection. Noor and Evans (2003) found that normal faces were rated significantly higher in the personality traits Conscientiousness and Agreeableness than were artificially manipulated faces (perfectly symmetrical and exaggeratedly asymmetrical). Asymmetric faces were rated significantly higher in Neuroticism than were faces in the other conditions. The ability of humans to detect these traits is definitely adaptive; conscientious and agreeable people make better associates, friends, and ultimately mates (Gattis, Berns, Simpson, & Christensen, 2004). Due to their dramatically greater investment in producing offspring, it is expected that women would exhibit a greater sensitivity to advertisers of personality traits related to parental investment in potential mates. Another study has shown similar findings with regard to emotional perception (Montagne, Kessels, Frigerio, de Haan, & Perrett, 2005).

1.5 Study Rationale

The disparity between the concerted societal discouragement from judging others solely on appearances and the prevalence of the practice reveals that this social phenomenon requires further study for understanding (Little & Perrett, 2007). The persistence may also imply that making physiognomic judgments may not be a learned behavior. If an evolved mental module for personality attribution exists, then understanding this predisposition to judge represents an effort to determine not only the proximate cause of human behavior, but also the ultimate causes thereof. While an expanding body of work exists on this topic, the use of 3D images of targets is new and completely untried in this area of inquiry.

1.6 Hypotheses

(I) *A relationship exists between facial asymmetry and one of the following: (a) personality, (b) gender, or (c) sexual orientation. ***

(II) *A relationship exists between the facial asymmetry of targets and the raters' impression of their personality.*

(III) *The personality factor impression ratings of 3D images of targets will have greater consensus than those of 2D images of targets. ***

(* Original to this study)

2. Methods:

2.1 Participants

The sample consisted of 38 participants recruited from a major public university located in the eastern United States. All participants were over eighteen years in age and could both read and speak English. Participants were offered a copy of their personality inventory report and a 3D digital image of themselves as compensation. Eighteen males (ages 20 to 55, m=28.66, sd=11.90) and twenty females (ages 20 to 61, m=30.35, sd=8.25) volunteered for the study.

2.2 Procedure

Each participant provided a personality profile by completing the ipip-NEO-PI (International Personality Item Pool Personality Inventory - Goldberg, 1999; Goldberg et al., 2006) short form personality inventory, consisting of one hundred twenty items (Johnson, 2007). The participants rated stimulus images (human faces) on personality factors using the Ten-Item Personality Inventory (TIPI - Gosling, Rentfrow, & Swann, 2003). The participants were photographed using a Nikon sd400 digital camera and a 3DMD digital imaging system. The presentation procedure will be described in greater detail below.

The participants were asked to manifest a neutral expression and were photographed using both the digital camera and 3D imaging system at a distance of approximately five feet. All of the images, 2D and 3D, were standardized for size and orientation before presentation to raters. The participants were then asked to complete a self-report personality inventory (ipip-NEO-PI) and a demographic survey including items such as: age, gender, sexual orientation, and ethnicity. After being photographed and completing the inventory, the participants were shown stimulus images and asked to give an impression of the targets' personalities using another, shorter personality inventory (TIPI). The target images were matted and/or cropped to remove details of hairstyle and clothing prior to viewing by participants. The participants were instructed only to rate complete strangers and not to rate persons known to them.

Twenty of the first 3D images collected were used as targets and were presented to the last nineteen participants. Nineteen (one participant did not complete the rating portion of the study) of the first twenty participants rated 2D stimulus images (University of Stirling, 2007).

2.3 Data Analysis

The photographs collected were analyzed for hemifacial dominance by dividing the face vertically (using a line that passes through points found midway between the eyes, between the outside corners of the mouth, and between the nostrils. In the event that the points did not form a line, a best-fitting line was drawn with respect to the three points. The hemifacial dominance was quantified as a ratio of total area (in pixels) of right to left hemiface. Reducing the fraction and rounding to two decimal places quantified the dominance. To minimize errors, this operation was performed twice for each face and the average of the two areas was used as the hemi-facial dominance. Faces with a ratio > 1 was considered to be right hemiface dominant and those with a ratio < 1 were considered to be left hemiface dominant. None of the observed faces were perfectly equal in hemiface area (ratio = 1).

As half of the data to be analyzed for relationships was continuous and the other half was dichotomous, a point-biserial correlation coefficient was calculated for the proposed relationships (hypothesis I: relationships between facial asymmetry and (a) personality, (b) gender, or (c) sexual orientation and hypothesis II: relationship between facial asymmetry of target and their personality impression). Independent samples T-tests were performed on the personality factor ratings of targets in the 2D and 3D conditions (hypothesis III: greater consensus exists in personality ratings of 3D vs. of 2D stimuli); the overall means and standard deviations for each personality factor were compared to identify degree of dispersion.

3. Results

3.1 Hypothesis I: A relationship exists between facial asymmetry and one of the following: (a) personality, (b) gender, or (c) sexual orientation.

No statistically significant relationships were identified.

3.2 Hypothesis II: A relationship exists between the facial asymmetry of targets and the raters' impression of their personality.

A negative correlation was observed between left hemi-face dominance in participants and impressions of Agreeableness (r=-.350, p=.027).

3.3 Hypothesis III: The personality factor ratings of 3D images of targets will have greater consensus than those of 2D images of targets.

Ratings of 3D images were uniformly rated with less consistency than were those of 2D images (differences in standard deviations of 3D to 2D ratings: Extraversion=.54, Agreeableness=.64, Conscientiousness=.51, Neuroticism=.66, Openness=.62).

3.4 Other Statistically Significant Results

Both the demographic value sex, specifically female (r=.347, p=.028) and impressions of Agreeableness (r=.487, p=.001) correlated positively with impressions of Conscientiousness. Impressions of Openness and of Neuroticism were positively correlated with impressions of Extraversion (r=.466, p=.003 and r=.325, p=.041, respectively). Openness was likewise positively correlated with Agreeableness (r=.443, p=.005). The self-reported personality factor

Conscientiousness correlated positively (r=.348, p=.041) with race, specifically European-American/White.

3.5 Tables of Results

Table 1: Means (and standard deviations) of self-reported personality scores

N=38	Total sample
Extraversion	58.11 (19.93)
Agreeableness	58.63 (20.37)
Conscientiousness	61.66 (23.26)
Neuroticism	43.63 (18.86)
Openness	57.79 (16.70)

Table 2: Means (and standard deviations) of personality impression scores

N=38	Total sample	2D targets (*N*=19)	3D targets (*N*=19)
Extraversion	7.77 (2.69)	8.16 (2.42)	7.35 (2.96)
Agreeableness	7.86 (2.68)	8.27 (2.39)	7.42 (3.03)
Conscientiousness	8.64 (2.48)	8.84 (2.24)	8.43 (2.75)
Neuroticism	7.63 (2.51)	7.90 (2.18)	7.35 (2.84)
Openness	8.08 (2.63)	8.11 (2.33)	8.06 (2.95)

Table 3: Correlations of demographic information and self-reported personality scores (*p<.05)

N=38	Female	White	Left Hemiface
Extraversion	-.014	.051	.229
Agreeableness	-.040	.135	.130
Conscientiousness	.189	.348*	.285
Neuroticism	-.048	.249	.023
Openness	-.245	.122	.311

Table 4: Correlations of self-reported personality scores to sexual orientation (*p<.05)

N=19	Sexual Orientation
Extraversion	.228
Agreeableness	-.137
Conscientiousness	-.169
Neuroticism	-.115
Openness	-.075

Table 5: Correlations of demographic information and personality impression scores (*p<.05)

N=38	Female	White	Left Hemiface
Extraversion	.105	-.125	.215
Agreeableness	.195	-.220	-.350*
Conscientiousness	.347*	-.216	-.032
Neuroticism	-.063	-.284	-.033
Openness	-.185	-.337*	-.241

Table 6: Correlations of personality impressions (*p<.05, **p<.01)

N=38	Ext.	Agr.	Con.	Neu.	Ope.
Extraversion	X	.310	.022	.325*	.466*
Agreeableness	.310	X	.487**	.159	.443
Conscientiousness	.022	.487**	X	.226	.110
Neuroticism	.325*	.159	.226	X	.233
Openness	.466*	.443*	.110	.233	X

4. Discussion

4.1 Discussions and Implication

In an effort to determine possible relationships between facial asymmetry and the following: personality, gender, or sexual orientation, hemifacial dominance was determined and correlated with the other variables. Although sixteen different dyads were tracked no significant relationships were observed; the first hypothesis was therefore falsified. Relationships that approached significance included: Left Hemiface dominance to self-reported Openness (r=.311, p=.069) and to sexual orientation, specifically Heterosexual (r=.315, p=.065). Investigating the potential relationship of hemiface dominance to sexual orientation was unique to this study.

Impressions of Agreeableness were negatively correlated with Left Hemiface dominance (r=-.350, p=.027). Mixed results regarding relationships between degree of asymmetry and self-reported Agreeableness have been observed in the past (positive - Shackelford & Larsen, 1997; Noor & Evans, 2003; negative - Fink, Neave, Manning, & Grammer, 2005); the focus of this study was on asymmetry as it related specifically to hemifacial dominance.

A variable that had not been included the hypotheses, race (self-reported as White), was revealed to have a significant relationship with Conscientiousness (r=.348, p=.041). It is worth noting that the small sample size, stereotype threat, or other unforeseen (and unrecorded) variables may have influenced this relationship. On a somewhat related note: impressions of a

target's level of Openness were negatively correlated with race, White (r=-.337, p=.036). Considering America's history and the plethora of differences between humans, particularly ethnicity – it would be naïve to assume that no biases in rating and self-reporting exist.

Pertaining to consensus in rating: personality impressions of 3D images were consistently more widely ranging than were those of 2D images. Greater consistency in ratings was expected due to the perceived presence of more information in the 3D images. The depth of information present may, however, have actually contributed to more disparate ratings: with more information to read from, more varied readings may be possible. Also, people are conditioned by their day-to-day experiences to seeing static 2D images and dynamic 3D images, but the rotating static face presented in this study was effectively a hybrid and therefore may have lacked ecological validity.

When considered from the perspective of deception, the relative lack of statistically significant findings of this study may itself be of interest. The inability to accurately of humans to 'read' the consciously neutral face implies that this deception may be adaptive. The interests of a person's audience do not always represent the interests of the individual himself; on many occasions exhibiting a 'poker face' may be of paramount importance: lying, negotiations, bargaining, bluffing, concealing information, and during other misrepresentations. In light of this thinking, the neutral expression of a person's face effectively *should* be a 'poker face.'

The ability to self-monitor effectively, essential for generating false emotional expressions (Friedman, Riggio, & Segall, 1980) and for producing consciously neutral expressions as well, seems to be possessed by participants in varying degrees. Some of the participants were able to readily assume a neutral expression, most had a little difficulty with the task, but a few participants were visibly uncomfortable attempting to present a 'neutral face, free from expression' as requested: they smiled or frowned spontaneously and appeared nervous. This seeming distribution of potentially deceptive ability on a continuum may imply that some level of deceptive ability is most adaptive or that the adaptiveness of skilled deception is frequency dependent. In contrast, appearing consistently inscrutable or overly candid presents obvious social liabilities. This may represent an example of stabilizing sexual selection; although both extremes may have advantages in certain situations, the ability to be perceived as open and genuine while retaining the capacity to effectively deceive as necessary is undoubtedly superior across different situations.

4.2 Limitations of this Study

This was effectively a detailed pilot project of a potentially much larger study. Small sample size (*N*=38) was a major limiter in this study. Other factors that may have negatively impacted the study were: the short duration (less than eleven weeks from start to finish), the relative inexperience of primary investigator, the novel nature of dynamic 3D presentation of stimulus faces, and the budget (funding for recruiting participants was nonexistent). Additionally, although it would have been ideal to look at all possible and potential informational dyads of interest – it was likewise not feasible given the time, the budget, and other resources available.

4.3 Recommendations

Despite the small sample size, a significant relationship of sexual orientation to hemiface dominance was observed. The potential existence of stereotype threat effect with regard to Conscientiousness also invites further investigation. Future studies might address these relationships specifically.

To ensure greater ecological validity, the hybrid nature of the 3D images (rotating static 3D image) could be addressed by using 3D models, physical or holographic, that allow the participant to engage with them as with people in real life situations.

5. Acknowledgments:

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Are there significant differences in treatment and outcomes of African American and white youth in treatment foster care?

Katherine I.E. Wheatle, McNair Scholar, Penn State University

Faculty Research Adviser: Elizabeth M. Z. Farmer, Ph.D
Department of Health Policy and Administration
College of Health and Human Development
Penn State University

Introduction

Juvenile delinquency is a social and legal problem that is results from a variety of factors. Researchers have found that juvenile delinquency correlates with academic deficiency, physical discipline from a parent and/or guardian, poor self-esteem and self-identity, and peer rejection (Chamberlain, 1994). Although these characteristics describe early antisocial behavior, if left unaddressed such behavior can gradually become delinquent (Chamberlain, 1994). Antisocial children are more at risk for criminality, unemployment and welfare dependence, alcoholism and substance abuse, and poor relationships in adulthood (Chamberlain, 1994). In juvenile justice cases, up to 50 percent of cases report attention deficit hyperactivity disorder, up to 41 percent have anxiety disorders, up to 53 percent show learning disabilities and specific developmental disorders, and up to 66 percent have received some outpatient mental health treatment (Heffron et al., 2004). The majority of juvenile delinquents reside within the community, and the most effective preventative interventions of delinquency are community based (Chamberlain, 1994).

Community-based residential treatment facilities include group homes. The group home model uses teaching parents as primary staff in a family-style environment for six to eight youths (Farmer et al., 2004). The group home teaches self-reliance and utilizes peer-to-peer relationships to motivate change. Yet, in such facilities, children are easily abused or neglected, and often medication is used as their main source of therapy. Although peer relationships ideally are to create positive change for youth in-group homes, adolescents are constantly around other delinquent peers. Without effective monitoring and mentoring to decrease antisocial behavior, adolescents do not reach successful rehabilitation. They become more dependent on their peers to teach them more negative behavior. These children do not relearn healthy social behavior and as a result are at greater risk of re-entering the legal system in the future. Those who are in need of resocialization through positive reinforcement in a parent-child relationship may benefit most from family-based residential treatment such as treatment foster care. Group home residence has also been found to have negative effects on adolescent self-identity development (Kools, 1997).

Treatment foster care (TFC) is "a cost effective alternative to group or residential treatment, incarceration, and hospitalization for adolescents who have problems with chronic antisocial behavior, emotional disturbance, and delinquency" (Chamberlain, 1994). The treatment parent plays an essential role to the rehabilitation of the adolescent. Treatment parents are recruited and professionally trained to provide an intensive supervision for each adolescent. Treatment parents are also trained to provide rules and limits at home and school with consequences they will keep if the child should break these rules; a positive mentoring relationship with the child; positive reinforcement for healthy social behavior; and separation

from delinquent peers (Chamberlain, 1994). Along with the treatment parent's care, the child may also participate in other services available, such as counseling with a therapist or social worker, attending a special school, being in contact with a school psychologist, or taking medications. "The [TFC] approach combines the normalizing influence of family-based care with specialized [and individualized] treatment interventions, thereby creating a therapeutic environment in the context of a nurturant family home" (Wells et al., 2004).

With growing attention on mental health access for children and adolescents, more information has been found about the current and growing disparity between racial/ ethnic minority children and white adolescents. It must first be stated that "race" within this study does not follow a biological definition. Although racial categories in the United States may display different physical characteristics, race creates social categories that correlate with socioeconomic status, education, income, etc. Researchers have found those who are impoverished are more likely to have poor mental health status and less likely to have access to mental health services (U.S. Department of Health and Human Services, 2001). Overall, "children are more likely to have unmet need of mental health care if they were impaired because of mental illness and had had no mental health care in the six months." In addition, African American children and adolescents were more likely to have unmet need than whites (U.S. Department of Health and Human Services, 2001). African American youth account for only 15 percent of the population. However, African American children make up 45 percent of the children currently in public foster care and more than half of those awaiting adoption (U.S. Department of Health and Human Services, 2001). Abuse and neglect and the frequent moves and placement changes that often result from such experiences are associated with a high risk of mental illness. One study reported that 42 percent of youth in child welfare programs met criteria for a mental health disorder (U.S. Department of Health and Human Services, 2001). However, a significantly higher proportion of white youth received counseling and psychotherapy while in foster care than African American youth (Farmer et al. 2001). Overall, African American children and adolescents are less likely than whites to receive mental health treatment, regardless of the type of source used (U.S. Department of Health and Human Services, 2001).

While they have lower access to mental health treatment for emotional and behavioral problems, African American youth are overrepresented in all stages of the juvenile justice system; with increasing representation as court severity increases (Heffron et al., 2003). In 1996-1997, black youth accounted for 26 percent of juvenile arrests, 30 percent of court cases, and 45 percent of detention (Heffron et al., 2003).

There is, therefore, a concern about African American youth's access to appropriate mental health services and about use of restrictive and punitive services (i.e., juvenile justice) rather than treatment-oriented services for African American youth. However, little is currently known about whether African American and white youth experience different intensity, quality, or type of treatment once they access such services. Therefore, in the current study, we examined differences between African American and white youth on treatment and outcome while in Treatment Foster Care (TFC). We examined differences in the youth, their experiences while in TFC, and their outcomes. Specifically, we compared parent-child relationships in regard to activities and time spent with the treatment parent, consequences carried out for problem behaviors, and additional services received. We measured outcomes by the number of problem behaviors reported by the treatment parent and a measure of strengths known as the Behavioral and Emotional Rating Scale (BERS). For differences between the groups, we discuss what may cause these differences along with similarities between the groups.

Methods

Study Context and Design

This study is a secondary examination of data used from a larger study, the Treatment Foster Care in a System of Care (TFCSC) study. The TFCSC study is a longitudinal investigation of treatment foster care in North Carolina. The broader study examines the use, implementation, and effectiveness of TFC for youth with behavioral and emotional disorders in North Carolina (Farmer et al., 2002). The study population is youth with psychiatric disorders and aggressive behavior in TFC at the time of recruitment (June 1999 through May 2001) (Wells et al., 2004). All youths in the study group were receiving residential services through mental health referrals, and their care was supposed and provided by local mental health agencies (Breland-Noble et al., 2004).

The treatment parents of the youth were also study subjects. The treatment parents from the TFCSC sample represent the population of therapeutic foster parents providing care in North Carolina. At the time of the interview, youth have been with treatment parent for a median of 9.4 months (range= 1 month – 10.4 years).

"The data for this study came from a statewide study funded by the National Institute of Mental Health of TFC in North Carolina. Institutional review board approval was obtained from the Duke University School of Medicine, and the principles for the Declaration of Helsinki were followed. Therapeutic foster parents and the youths provided informed consent and assent before involvement in the study (Breland-Noble et al., 2004)." All data for these analyses came from the baseline interview with the treatment parent.

Components of the interview included a Parent Daily Report (PDR), the Child and Adolescent Services Assessment (CASA), the Behavioral and Emotional Rating Scale (BERS), and the Trusting Relationship Questionnaire (TRQ). Scores from the Brief Psychiatric Rating Scale for Children (BPRS) administered when each child entered TFC were also available. The PDR recorded problem behaviors and attitudes of the adolescent and interaction between the child and treatment parent within the last 24 hours prior to the interview. The CASA is a parent-report instrument developed to assess the use of mental health services by children and adolescents ages 8 to 18 years (Ascher and Farmer, 1996). For this study, only the types of services the child received were recorded. The BERS is designed to assess the strengths according to five dimensions: (1) interpersonal strength, (2) family involvement, (3) intrapersonal strength, (4) school functioning, and (5) affective strength (Epstein et al., 1999). A higher BERS score indicates more strength. The TRQ assesses the quality of the parent-child relationship from both the adult and child's perspectives (Mustillo et al., 2005). The BPRS was designed to describe child and adolescent psychiatric severity and help to categorize each patient's problems, i.e. behavioral problems, depression, thinking disturbance, psychomotor excitation, withdrawal-retardation, anxiety, and organicity (Lachar et al., 2001).

Sample

      To address the question for this study- are there differences in treatment and outcomes between African American and white adolescents in therapeutic foster care? - the sample was chosen according to the race of the adolescent in TFC; African American (or black) and white.

      The following table displays the demographics of the sample. There were 175 adolescents in TFC at the time of the interview; African American, 42.9 percent and white, 57.1 percent. The mean age of the sample population at the time of the interview was 14 years (SD= 2.69; range= 4-19). There were more males (73.1 percent) than females (26.9 percent) in TFC (SD= 0.44). The mean BPRS score within this sample was expected, and found, to be higher than that of an average adolescent. The mean BPRS score of the sample was 64 out of a possible 100 (range= 24-115). The mean amount of time in TFC for the sample was 492.7 days (SD= 568.26; range= 25-3743). There were no significant differences between African American and white youths on any of the demographic and pre-placement variables.

Table 1. Profile of youth in therapeutic foster care (TFC) in North Carolina.

| Sample Profile			
	Black (African American)	**White**	**Total, N**
Total	75	100	175
Age (years)	14.5	13.8	14
Sex (%)	Female, 26.7; Male, 73.3	Female, 27; Male, 73	Female, 26.9; Male, 73.1
BPRS	64.9	67.2	64
Time in TFC (days)	447.2	526.9	492.7

Data Analysis

      Differences in treatment and outcomes were based upon the parent-child relationship (both quality and quantity of time spent), how long the child was in TFC at the time of the interview, services received while in TFC, and the amount of discipline the child may receive for unacceptable, problem behaviors.

Data Interpretation

      Figures 1 and 2 displays similarities in two types of services that adolescents in treatment foster care may receive. Case management is care coordination that mobilizes and maintains access to a variety of services and resources to meet the adolescent's needs (Farmer et al., 2004). Therapy includes sessions with a psychiatrist, school guidance counselor, therapist, or psychologist. As assessed by the CASA, African American and white adolescents receive similar case management services (89.2 percent to 90.6 percent) and therapy (78.7 percent to 81.3 percent). Other similar services included attendance to an outpatient drug or alcohol clinic, in-home counseling or crisis services, contact with a probation officer or court counselor, help from a mentor or any other natural relatives, medical visits for emotional, behavioral, or substance abuse problems, or spiritual guidance from a minister, priest, or rabbi for emotional, behavioral, or substance abuse problems. Overall, African American and white youth received similar services while in TFC.

Figure 1. Graph displaying similarities in case management service levels between African American (blue) and white adolescents (red).
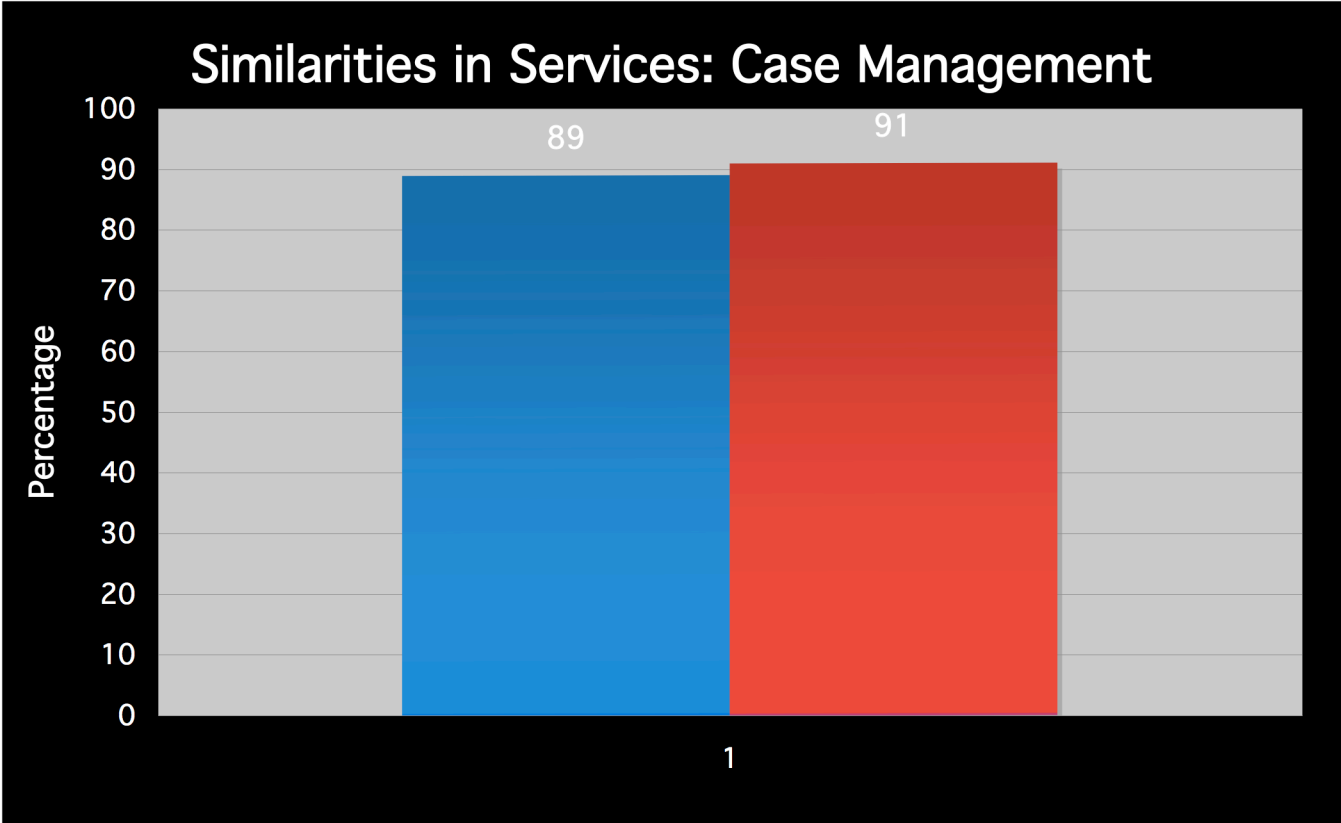
Figure 2. Graph displaying similarities in therapy service levels between African American (blue) and white adolescents (red).
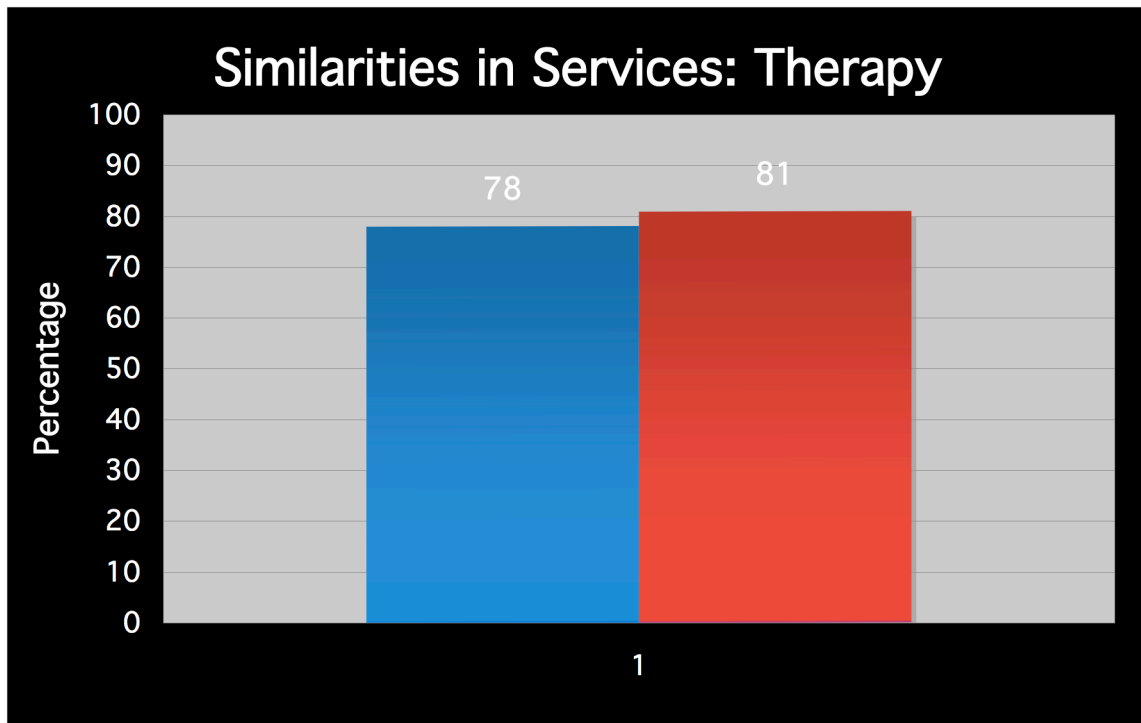

Table 2 displays the results of TFC on African American and white adolescents. These results are measured according to the level of strengths recorded by the BERS and amount of problem behaviors recorded by the PDR. African American adolescents scored a mean BERS score of 90.7 (SD= 27.52); white adolescents scored 83.5 (SD= 22.67). The BERS scores are marginally significantly different (p= 0.06), where African American adolescents show slightly more strengths at the time of the interview than white adolescents. According to the PDR, African American adolescents were reported to have an average of 4 (SD= 3.56) behavioral problems within the last 24 hours prior to the interview; white adolescents were reported to have an average of 7.5 (SD= 4.88). The PDR shows that the number of problem behaviors were significantly different (p < 0.001), where African American adolescents show less behavioral problems at the time of the interview than white adolescents.

Table 2. Outcomes of African American and white adolescents measured at the time of interview.

Differences in Outcomes of Black and White Adolescents			
Measure Used	Black (African American)	White	Significantly Different?
BERS (strengths)	90.7	83.5	YES (p = 0.06)
PDR (problems)	4	7.5	YES (p < 0.001)

Table 3 lists the problem behaviors recorded from the PDR. White adolescents were more likely to be argumentative within the last 24 hours prior to the interview (60.9 percent) than African American adolescents (18.2 percent). White adolescents were more likely to be complaining within the last 24 hours prior to the interview (71 percent) than African American adolescents (47.7 percent). White adolescents were more likely to be defiant within the last 24 hours prior to the interview (33.8 percent) than African American adolescents (13.6 percent). White adolescents were more likely to vandalize or destroy property (7.4 percent) than African American adolescents (0.0 percent); however, because of the very small number of youth for whom any such problem behavior, it cannot be said that this statistic is significant. White adolescents were more likely to be irritable within the last 24 hours prior to the interview (57.4 percent) than African American adolescents (22.7 percent). White adolescents were more likely to be negative within the last 24 hours prior to the interview (56.7 percent) than African American adolescents (29.5 percent). White adolescents were more likely to be rowdy within the last 24 hours prior to the interview (35.3 percent) than African American adolescents (15.9 percent). White adolescents were more likely to swear or use obscenities within the last 24 hours prior to the interview (23.2 percent) than African American adolescents (9.1 percent). White adolescents were more likely to show signs of depression within the last 24 hours prior to the interview (23.9 percent) than African American adolescents (4.5 percent). White adolescents were more likely to steal within the last 24 hours prior to the interview (9.0 percent) than African American adolescents (0.0 percent); however, the majority of the population did not report any such problem behavior so it cannot be said that this statistic is significant. White adolescents were more likely to be nervous within the last 24 hours prior to the interview (35.5 percent) than African American adolescents (2.3 percent). White adolescents were more likely to have a short attention span within the last 24 hours prior to the interview (52.9 percent) than African American adolescents (31.8 percent). White adolescents were more like to be manipulative within the last 24 hours prior to the interview (35.3 percent) than African American adolescents (15.9 percent). White adolescents were more likely to have a fight or disagreement with their treatment parent within the last 24 hours prior to the interview (29.4 percent) than African American adolescents (6.8 percent). It was found that African American adolescents had lower levels of problems for 12 out of the 32 problem behaviors.

Table 3. List of problem behaviors reported by treatment parent within 24 hours prior to interview.

List of Problem Behaviors Experienced Within the Last 24 Hours of Interview			
Problem Behavior	**Black (African American)**	**White**	**Significantly Different?**
Argue	18.2	60.9	YES (p < 0.0001)
Complain	47.7	71	YES (p = 0.01)
Defiant	13.6	33.8	YES (p = 0.01)
Destroy or vandalize	0	7.4	YES (p = 0.08)
Fight	2.3	7.4	NO (p = 0.24)
Irritable	22.7	57.4	YES (p < 0.0001)
Lie	25	38.8	NO (p = 0.10)
Negative	29.5	56.7	YES (p = 0.004)

Boisterous/ rowdy	15.9	35.3	YES (p = 0.02)
Not minding/ noncompliant	25	32.4	NO (p = 0.27)
Stay out late	0	1.4	NO (p = 0.61)
Skip meal(s)	4.5	5.8	NO (p = 0.57)
Run away	0	0	NA
Swear/ use obscene language	9.1	23.1	YES (p = 0.05)
Tease/ provoke	22.7	34.3	NO (p = 0.14)
Depressed/ sad	4.5	23.9	YES (p = 0.005)
Sluggish	15.9	16.2	NO (p = 0.59)
Jealous	18.4	29	NO (p = 0.17)
Skip school	0	4.0	NO (p = 0.32)
Steal	0	9	YES (p = 0.5)
Nervous/ jittery	2.3	35.3	YES (p < 0.0001)
Short attention span	31.8	52.9	YES (p = 0.02)
Irresponsible	29.5	36.8	NO (p = 0.28)
Use Marijuana/ drugs	0	0	NA
Use alcohol	0	0	NA
School problem	13.9	20.8	NO (p = 0.30)
Sexually inappropriate	4.5	4.5	NO (p = 0.66)
Manipulative	15.9	35.3	YES (p = 0.02)
Have a fight or disagreement with you	6.8	29.4	YES (p = 0.003)
Ignore you or stop talking to you	13.6	20.6	NO (p = 0.25)
Try to turn friends or family members against each other	2.3	2.9	NO (p = 0.66)
Set someone else up to get in trouble	6.8	11.8	NO (p= 0.30)
Try to keep certain people from being in his/her group of friends	2.3	5.9	NO (p = 0.35)

Despite these lower levels of problem behaviors, the interview with the treatment parents revealed that African American youth were more likely to have trouble with the law while in TFC than white youth (p= 0.023). In the month prior to the interview, 33.3 percent of African American youth in TFC had contact with the police or the courts because of something the child had done compared to 16.7 percent of white youth. Although African American youth in TFC are more likely to have contact with police because of something they have done (p= 0.01), we cannot say that the crime they committed was done while in TFC. In the last month prior to the interview, 24.3 percent of African American youth were placed in jail, detention, under house arrest, on probation, or had other legal restrictions on their behavior compared to 8.51 percent of whites. Although it can also be said that African American youth in TFC are more likely to have legal restrictions on their behavior than white youth (p= 0.005), we cannot report these restrictions are due to actions done within the last month. The only behavior found to be dangerous to others or that broke the law and statistically significant (p= 0.01) was carrying a gun or knife; 9.6 percent of African American youth versus 1.04 percent of white youth. Although significant, very few treatment parents reported such behavior in either group. In the last month prior to the interview, 14.7 percent of African American youth in TFC ran away from their treatment home compared to 5.21 percent of white youth. Although statistically significant (p= 0.04), very few treatment parents reported such behavior in either group.

In addition to problem behaviors of the youth, we also explored whether there were differences in the types of services youth received while in TFC. Figures 3, 4, and 5 display services that have statistically significant different rates of use by African American and white youth. Figure 3 shows that 38.7 percent of African American adolescents in TFC receive respite care within the last 4 months of the interview compared to 57.3 percent of whites. Because the variable is statistically significant (p= 0.012) it can be stated that African American adolescents are less likely to receive respite care than their white counterparts. Figure 4 shows that 23.3 percent of African American adolescents in TFC attend a special school compared to 13.7 percent of whites. This variable proves to be statistically significant (p= 0.08), therefore, African American adolescents are more likely to attend a special school than white adolescents. Figure 5 shows that 12.0 percent of African American adolescents have been in a detention center, training school, or jail within the last four months of the interview compared to 3.1 percent. This variable proves to be statistically significant (p= 0.025), therefore, African American adolescents are more likely to endure more restrictive settings than white adolescents while in TFC.

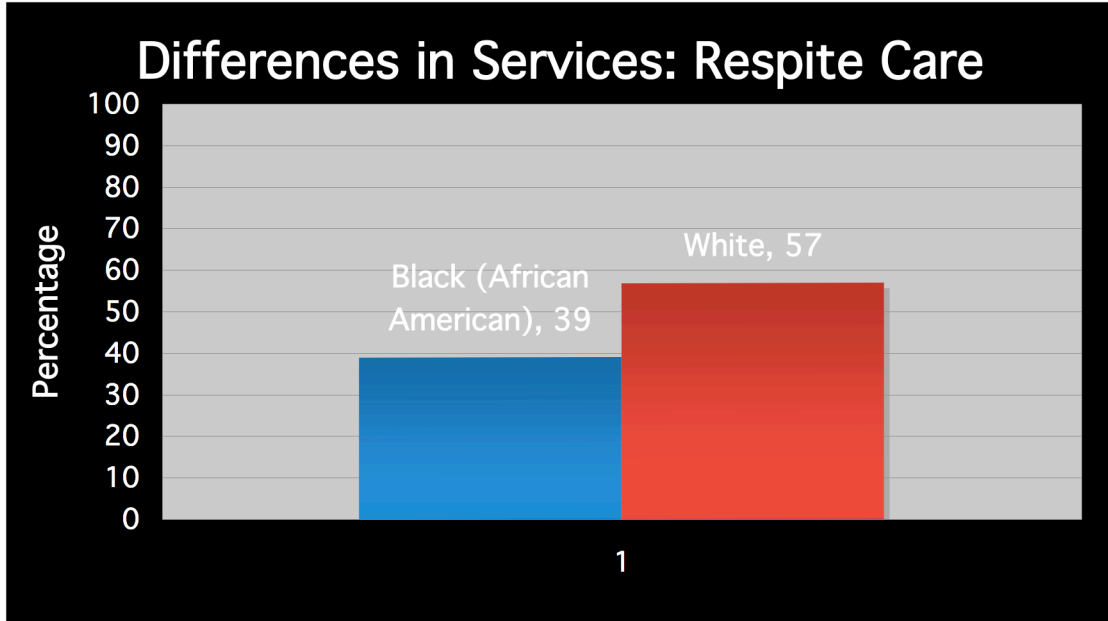**Figure 3. Graph displaying differences in respite care services between African American and white adolescents.**

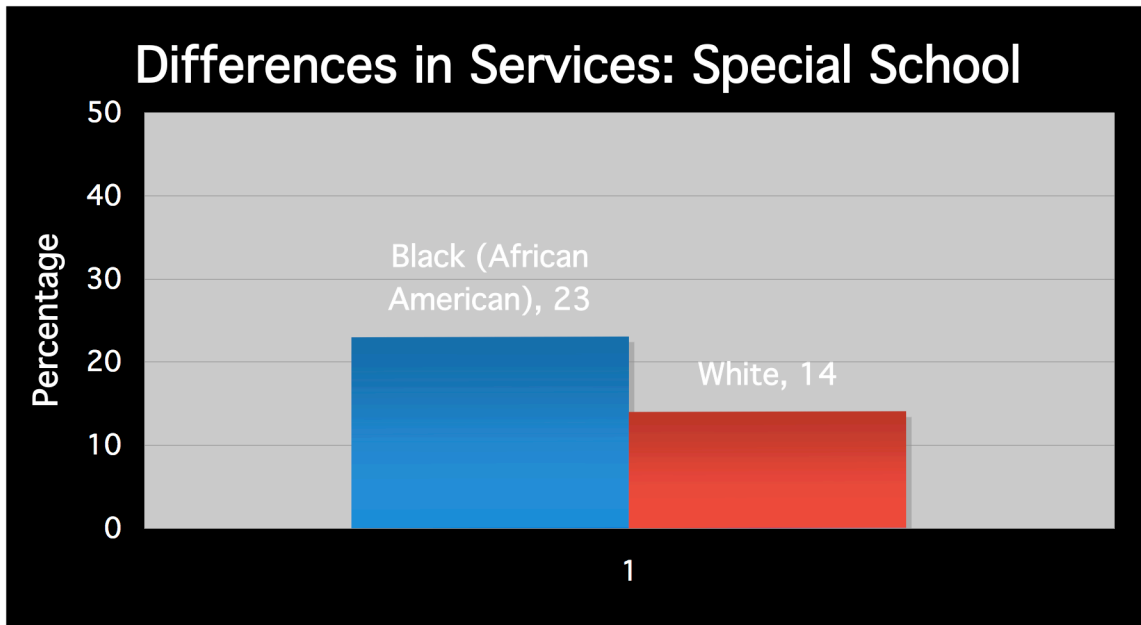**Figure 4. Graph displaying differences in special school services between African American and white adolescents.**

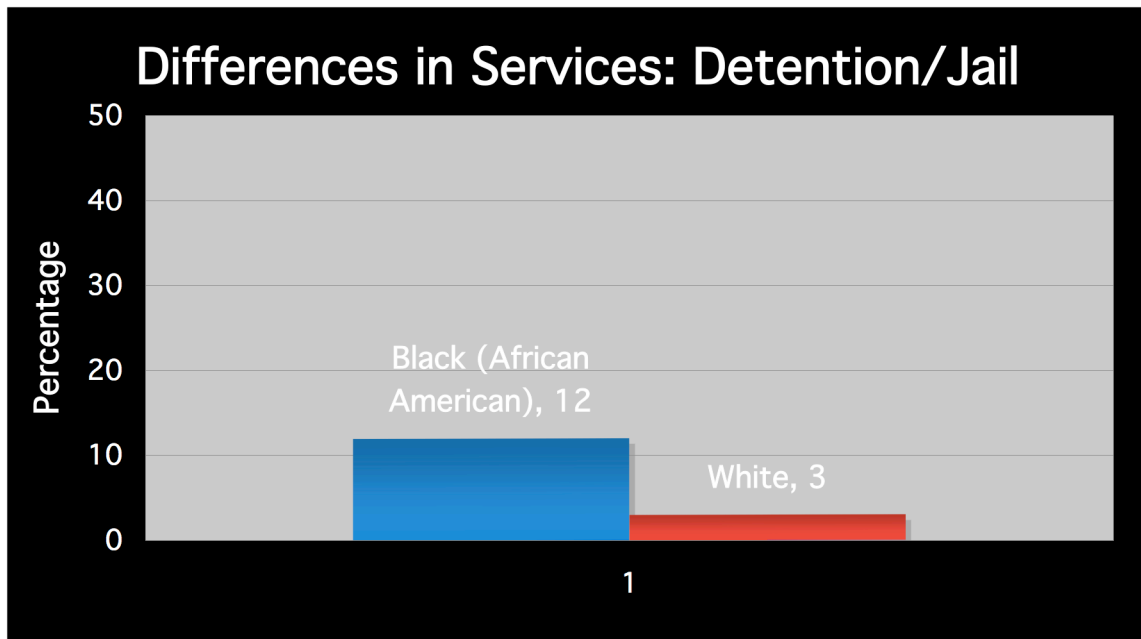**Figure 5. Graph displaying difference in detention/jail services between African American and white adolescents.**

Title: Differences in Services: Detention/Jail
Y-axis: Percentage (0 to 50)
Black (African American), 12
White, 3

   Table 4 examines several factors that may affect the outcomes of the youth. African American adolescents spent a mean time of 449.8 minutes (SD= 276.40) with their treatment parent, including meals, within the last 24 hours prior of the interview; white adolescents spent about 436.2 minutes (SD= 291.96). Total time spent with the treatment parent is not significantly different between the two groups (p= 0.81). African American adolescents on average spent 239.4 minutes (SD= 180.23) doing a one-on-one activity with their treatment parent, excluding a meal; white adolescents spent 195.7 minutes (SD= 154.4) of one-on-one time with their treatment parent. The amount of one-on-one time spent with the treatment parent was found to not be significantly different between African American and white adolescents (p= 0.44). The strength of the parent-child relationship was measured by the TRQ. The mean score from the TRQ for African American and white adolescents were 62. 9 (SD= 13.22) and 64.4 (SD= 10.06), respectively. The recordings from the TRQ are not significantly different from one another (p= 0.41). Appropriate disciplinary actions were measured by the percent of problem behaviors that received a consequence. On average, African American adolescents were disciplined in some way 47.2 percent of the time they misbehaved (SD= 0.38). On average, white adolescents were disciplined in some way 45.5 percent of the time they misbehaved (SD= 0.33). The psychiatric severity of the two groups at admission into TFC as measured by the BPRS is not significantly different (p= 0.40). Total time spent in TFC is also not significantly different (p= 0.36). Therefore, the potential explanatory variables did not differ between the two groups.

Table 4. Factors expected affect outcomes of adolescents in TFC.

Factors Expected to Affect Outcomes of Adolescents in TFC			
Variable Analyzed	Black (African American)	White	Significantly Different?
Time spent with treatment parent (min.)	449.8	436.2	NO (p = 0.81)
One-on-one time spent with treatment parent (min.)	239.4	195.7	NO (p = 0.44)
Strength of parent-child relationship (TRQ)	62.9	64.4	NO (p = 0.41)
Bad behaviors that received a consequence (%)	47.2	45.5	NO (p = 0.81)
Time spent in TFC (days)	447.2	526.9	NO (p = 0.36)

To finalize the analysis, we ran multiple regression models, which take, into account more than one independent variable at a time. This model examined which variable, controlling for others in the model, affected outcomes. We ran the models for each of the dependent variables: PDR and BERS. As Table 5 shows, even with other variables included in the model, race continued to be significantly related to both outcomes. Therefore, even when the model accounts for other demographic factors and experiences, African American youth continue to show fewer problems and more strength.

In addition to race, a few other variables are significant in these models. PDR was positively related to BPRS; youth who had more serious mental health symptoms at the time of placement continued to have more behavior problems by the time of the interview. For the BERS, the quality of the parent-child relationship was related to outcome. This means that youth who had a more positive relationship with their treatment parent also showed better outcomes in terms of strengths.

Table 5. Multivariate regression model run to explain differences between African American and white adolescents.

OLS Regression Model		
Individual Variables	Problem Behaviors (PDR)	Strengths (BERS)
Race (black)	*** -3.24	** 10.11
BPRS (symptoms)	** 0.08	-0.2
Sex (female)	-0.3	1.01
Age	-0.03	0.36
Time in TFC (days)	0.0008	0.0006
Parent-child relationship (TRQ)	0.03	*** 0.76
One-on-one time spent with treatment parent (mins.)	-0.71	-0.06
Bad behaviors that received a consequence (%)	1.5	-8.06
Jail	0.48	-1.94
Respite Care	0.67	0.07
Special School	-0.81	-0.79
Intercept	0.43	** 48.74
NOTE: * = p ‹ 0.1; ** = p ‹ 0.05* = p ‹ 0.01.**		

Conclusions

African American and white youth in TFC exhibited few differences. It was found that African American youth had better reporting on 12 out of the 32 problem behaviors reported by the treatment parent. However, African American youth were more likely to have legal trouble such as contact with the police or courts, legal restrictions on their behavior, and carrying a weapon than white youth. African American youth showed some differences in specific types of care including respite care and special school. Nevertheless, African American youth showed less behavioral problems and more strength at the time of the interview than white youth.

African American and white youth in TFC shared more similarities than differences. Overall, both groups shared similar demographic and pre-placement variables including gender makeup, average age, psychiatric severity at entry, and total days spent in TFC. African American and white youth also received similar types and amounts of services outside of TFC, such as case management and therapeutic services. More importantly, the potential explanatory variables did not differ between the two groups.

Few differences between African American and white youth in TFC were not expected, and so the explanation of better outcomes for African American youth still remains an issue. The regression model reveals that race remains a significant variable when accounting for other variables related to outcome. More research is needed to understand the causes of this outcome.

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Damage Detection in Aluminum Plated using the Electro-Mechanical Impedance Technique

Aimy Wissa, McNair Scholar, Penn State University

Faculty Research Adviser: George Lesieutre, PhD
Professor and Department Head Aerospace Engineering Department
College of Engineering
Penn State University

Abstract

The number of aging aeronautical structures has increased significantly in the last few decades with many aircraft being operated well beyond their design lives. The necessity for onboard systems that provide continuous monitoring of a structure's health has become evident. Several methods and techniques can be applied to meet this need. In this paper the electro-mechanical impedance technique was used with piezoelectric transducers to detect the presence of damage in two Aluminum 6061 plates over three different frequency ranges. The effects of the damage location, as well as the damage size on the impedance signal were also investigated. The results showed that electro-mechanical impedance technique was able to detect the presence of the damage through changes in the real impedance against the frequency over the different frequency ranges. Furthermore, a damage index calculation was carried out to examine the effect of the damage location and size. The results indicated that the bigger the damage size the higher damage index, and that far-field damage results in a smaller damage index than near-field damage.

1. Introduction

1.1 Motivation for Structural Health Monitoring (SHM)

The number of aging aeronautical structures has increased significantly in the last few decades. A large number of aircraft have been performing beyond their design lives. The data in Table 1.1 show that the number of aging aircraft is significant. The number of civil aircraft that have been in service for more than 15 years has increased from 4600 in 1997 to 4730 in 1999. Also, the number of aircraft that have been in service for more than 25 years has increased from 1900 in 1997 to 2130 in 1999. Not only civil aircraft, but also military aircraft have been suffering from the same problem in a more serious fashion. Table 1.2 shows that an increasing number of military aircraft have been in service for more than 40 years [Staszewski 2002]. A study made by Penney indicated that in 2000, over 75% of the US Air Force aircraft were more than 25 years old [Penney 2000].

The problem with aging aircraft is that the longer the aircraft is in service the more operational loads and fatigue it experiences. This means that the older the aircraft the more damage it may suffer. More importantly, due to their long operational life, aging aircraft require higher levels of maintenance and more frequent inspections [Staszewski 2004].

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Table 1.1: Aging Civil Aircraft Overview [Staszewski 2002]

Aircraft type	Total delivered	Fleet in service 09/01	Ageing aircraft in 1999		
			≥15 Years	≥20 Years	≥25 Years
A300	503	411 (82%)	220 (46%)	60 (12%)	1 (0,2%)
A310	255	218 (85%)	54 (21%)	–	–
707/720	1009	379 (37%)	–	–	–
727	1831	1247 (68%)	1381 (75%)	1127 (62%)	673 (38%)
737–100/200	1144	901 (79%)	853 (75%)	442 (39%)	222 (19%)
737 CFMI	1988	1971 (99%)	13 (0,7%)	–	–
747–100/SP/ 200/300	724	562 (78%)	490 (68%)	317 (44%)	154 (21%)
757	968	943 (97%)	51 (6%)	–	–
767	840	820 (98%)	109 (14%)	–	–
DC-8	556	243 (44%)	268 (48%)	268 (48%)	268 (48%)
DC-9	976	727 (74%)	776 (79%)	739 (75%)	588 (61%)
DC-10	446	397 (89%)	333 (75%)	276 (62%)	162 (36%)
L-1011	249	155 (62%)	185 (74%)	113 (45%)	60 (24%)
Total	11489	8974	4733 (46%)	3342 (33%)	2128 (21%)

Table 1.2: Aging Military Aircraft Overview [Staszewski 2002]

Aircraft Type	First built	Total in service 09/2001	Life extension until
BAE Hawk/Boeing T-45 Goshawk	1976	641	
Boeing F/A-18 Hornet/Super Hornet	1978	1762	2019
Boeing B-52H Stratofortress	mid 50ies	94	2045
Boeing 707/C-137/C-18/KE-3	60ies	97	2030
McDonnel Douglas F-4 Phantom	1958	889	
Dassault/Dornier Alpha Jet	1973	289	
Lockheed-Martin F-16	1974	3398	
Northrop T-38	1959	685	2040
Panavia Tornado	1974	746	2018
MiG-21 (incl. licences)	mid 50ies	3324	
L-39/L-39 Albatros/L-159	mid 70ies	2233	

The maintenance of complex structures like aircraft is very detailed and complicated. It also involves a lot of money and effort. Both civil and military aircraft are currently inspected using visual inspections, as well as on-ground non-destructive testing (NDT). During visual inspections, the human eye or cameras, perhaps aided by dye penetrant are used to detect surface damages. There are several methods for NDT. The most common techniques used are ultrasonic inspection, eddy current and acoustic emission.

The ability to regularly inspect aircraft and predict damage growth reduced the life-cycle cost of aircraft by changing the aircraft design methodology from "safe life" to "fail safe". In the safe life design method, aircraft structural components are guaranteed to perform safely for a predetermined period of time and then retired at the end of the that period, while in the fail safe design method critical structures in the aircraft are inspected periodically to ensure the safety of

the aircraft structure in between inspections. On the other hand, NDT is still a costly method of inspection due to the short inspection intervals and the intensive labor. The average cost for this approach to damage monitoring is 10.5 billion dollars per year and typical civil aircraft, like the Boeing 747, are inspected every 12 to 17 months [Staszewski 2004]. The high cost of maintenance and labor, as well as the down time that the inspected aircraft experience motivate the development of new methods for monitoring the health of aircraft structures.

A method that has been under development since the early 1990's is an onboard structural health monitoring (SHM) system. In principle a SHM system would be an integrated part of a structure. SHM will potentially reduce the cost of maintenance and inspection. It will also decrease human errors, as well as the labor cost associated with the scheduled inspections. The SHM system may reduce the down time associated with inspections and therefore increase the profit for both the aircraft manufacturers and airlines. SHM will provide continuous interrogations of the structure and therefore increase the reliability and safety of the aircraft by preventing catastrophic structural failures.

1.2 Structural Health Monitoring System Components

SHM systems contain three essential components. The first component involves the sensors and/or sensor networks. Different types of sensors are available for use in a structural health monitoring system. These sensors include piezoelectric, fiber-optic, micro-electromechanical systems and strain gages. The second component of a SHM system is the integrated hardware, which performs the signal conditioning tasks. These tasks include amplifying the signals emitted by the sensors and digitizing them so that they are ready for processing. Finally, the third component is the software that is used to analyze and process the data [Beard 2005].

All of the sensors listed above have been tested and proved to have useful applications in the field of health monitoring. However, piezoelectric transducers are known for their ease of integration within the aircraft structures without interfering with its mechanical systems. Another great advantage of piezoelectric transducers is that they can act as both transmitters and receivers of mechanical signals [Giurgiutiu 2002]. This unique characteristic of the transducers allow them to be used actively, passively or both actively and passively in the same system.

1.3 Structural Health Monitoring System Technologies

Piezoelectric transducers can be used passively in the acoustic emission (AE) technique of health monitoring. In this technique the piezoelectric transducers are used as receivers only. The AE phenomena is based on the release of energy in the form of an elastic wave, also called a stress wave, which is produced by the creation of damage or a defect in the structure. These waves are then detected by the piezoelectric sensors mounted on the structure's surface, where they get converted to voltage signals [Finlayson 2000] and [Balageas 2006]. This technique is well known for its maturity and proven damage detection ability. However, the real challenge in applying this technique is the background noise due to airflow, vibration and electromagnetic interference [Balageas 2006].

Piezoelectric transducers can also be used actively through the acousto-ultrasonic technique (AU). In this technique, piezoelectric transducers are used as both transmitters and receivers. The transducers produce and receive high frequency waves. These waves propagate through the structure and are received once again by the sensors to be analyzed for changes and defects in the structure. This technique is very effective in detecting damage in the form of geometric discontinuities. In addition, this method of health monitoring is able to collect a lot of information about the structure. This technique is costly because it requires a lot of hardware and software to transmit and process a huge amount of data [Balageas 2006].

Finally, piezoelectric transducers can be used in the electro-mechanical (E/M) impedance technique of health monitoring. The E/M impedance technique is a mixed technique, which means that it uses piezoelectric transducers both actively and passively. In this technique the damage in a structure is detected by monitoring the electro-mechanical impedance of the piezoelectric transducers bonded to the structure over a large range of frequencies. The frequency response of the electric impedance reveals changes in the state of the structure's health [Giurgiutiu 1998]. This technique is very effective at ultrasonic frequencies where local damage can be detected more accurately. Also it can give accurate results because the high-frequency response is hardly affected by the global (far-field) conditions of the structure. On the other hand, this technique is best suited to detecting local (near-field) structural defects and therefore it cannot be used to detect far-field damage [Zagrai 2002].

In this paper the electro-mechanical impedance technique was used with piezoelectric transducers to detect the presence of damage in two Aluminum 6061 plates. The effects of the damage presence and location on the impedance signal were investigated. Also the size of the damage was studied and the relationship between the damage size and the produced impedance signal was evaluated.

2. <u>Theory</u>

Piezoelectricity is an electric polarization effect due to mechanical forces. Piezoelectricity was first discovered by Jacques and Pierre Curie in 1880 and it is a property of some crystalline materials. Piezoelectric materials include both natural and artificial materials. Natural materials include quartz (SiO_2), Rochelle salt and tourmaline. Artificial materials include piezoelectric ceramics, piezoelectric polymer films and other materials. The most commonly used piezoelectric materials are lead zirconate titanate (PZT) which is a ceramic, and polyvinylidence fluoride (PVDF) which is a polymer [Staszweski 2004].

Most piezoelectric materials exhibit coupled electric and mechanical properties. Equation 1 describes the linear mechanical behavior of materials. Similarly, Equation 2 describes the electrical properties of dielectric materials.

$$\{T\} = [c^E]\{S\} \tag{1}$$
$$\{D\} = [\varepsilon]\{E\} \tag{2}$$

where S is mechanical strain, T is the mechanical stress in newtons per square meter (N/m^2), D is the charge displacement in coulombs per square meter (C/m^2), E is the electric field in volts per meter (V/m), c is the elastic stiffness of the material in newtons per square meter (N/m^2), and ε is the permittivity in farads per meter (F/m) [Staszweski 2004].

Piezoelectric materials couple mechanical and electrical properties. As shown in Figure 1, the direct piezoelectric effect is where an electric charge is caused by a mechanical stress, and the converse piezoelectric effect is where a strain is produced due to an applied electric field1). Equations 3 and 4 describe the converse and direct effects of piezoelectric materials, respectively.

$$[c^E]\{S\} - [e]\{E\} = \{T\} \tag{3}$$
$$[e]\{S\} + [\varepsilon^S]\{E\} = \{D\} \tag{4}$$

Where e is the piezoelectric coefficient and the superscript t indicates transpose. Additionally the superscripts S and E indicate that the quantities are defined at constant strain and electric field, respectively.
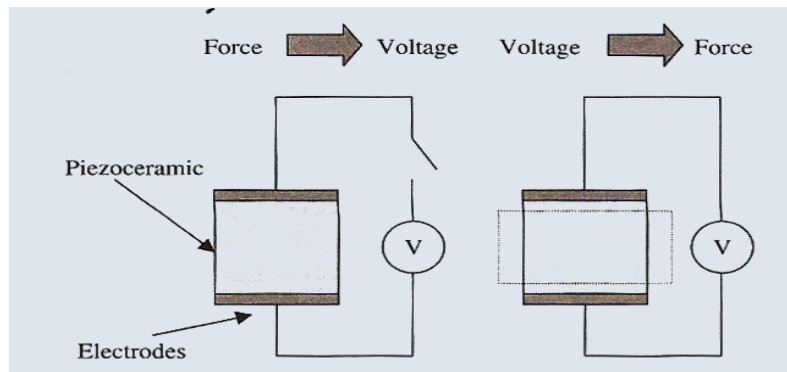
Figure 1: Direct and Inverse effects of Piezoelectric Materials [Staszewski 2004]

As mentioned in the preceding discussion, the electro-mechanical impedance technique uses both the direct and converse effects of piezoelectric materials. The behavior of structures with piezoelectric elements can be modeled using Equations 5 and 6.

Equations of Motion:
$$[M]\{\ddot{x}\}+[K^E]\{x\}-[p]^t\{V\}=\{f(t)\} \qquad (5)$$

Charge Equation:
$$[p]\{x\}+[C^S]\{V\}=\{Q\} \qquad (6)$$

where M is the mass, K is the stiffness of the structure, p is the coupling term, V is the voltage, f is the external force, C is the capacitance, Q is the charge and x is the displacement.

Assuming that f is equal to zero, then taking the first derivative of Equation 6 with respect to time and taking the Laplace transform of Equations 5 & 6, the resulting equations, neglecting the initial conditions, are

$$\{X\}=\frac{[p]^t}{(s^2[M]+[K^E])}\{\Delta\} \qquad (7)$$

$$s[p]\{X\}+s[C^S]\{\Delta\}=\{\varphi\} \qquad (8)$$

where X, Δ, φ are the Laplace transforms for the displacement, voltage and current, respectively. Substituting Equation 7 into Equation 8 and collecting similar terms results in

$$\left(\frac{s[p][p]^t}{s^2[M]+[K^E]}+s[C^S]\right)\{\Delta\}=\{\varphi\} \qquad (9)$$

Electrical impedance is defined as the ratio of the voltage to the current; hence the impedance can be written as

$$\{Z\}=\frac{\{\Delta\}}{\{\varphi\}}=\frac{1}{\left(\dfrac{s[p][p]^t}{s^2[M]+[K^E]}+s[C^S]\right)} \qquad (10)$$

Converting the electrical impedance equation, Equation 10, from the Laplace domain to the frequency domain by evaluating it at s = iω, the final impedance equation is

$$\{Z\}=\frac{1}{\left(\dfrac{(i\omega)[p][p]^t}{(i\omega)^2[M]+[K^E]}+(i\omega)[C^S]\right)} \qquad (11)$$

From Equation 11 it is clear that the electric impedance depends on the mechanical stiffness of the material [K]. Since the stiffness of a structure is affected by damage, electrical impedance measurements can in principle be used to detect damage in the structure. This is the basic idea behind the "electro-mechanical impedance" method used in this research.

3. <u>Experimental Procedure</u>

The experimental procedure for this experiment can be divided into three main sections. The first section involves preparing the transducers for the experiment, the second is mounting the transducers on the structure, and the third is carrying out the experiment to measure the electrical impedance.

3.1 Preparing the Transducers for the Experiment

Two 1.01 mm (0.0397 inches) thick piezoelectric ceramics, manufactured by APC, were used during this experiment. The ceramics were cut to the desired length and width, 12.7 mm x 12.7 mm (0.5"X0.5"), as shown in Figure 2.
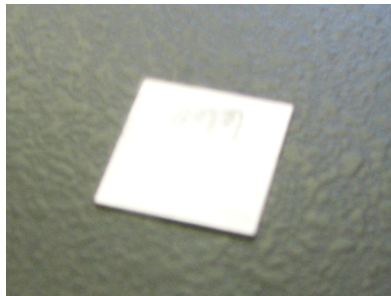
Figure 2: Piezoelectric Transducer

3.2 Experimental Setup

Two mirror-finished Aluminum 6061 plates were used in this experiment. The thickness of each plate was 1.575 mm (0.062 inches) and the dimensions were 30.48 cm x 30.48 cm (12"x12"). Both the negative side of the transducers and the plates were lightly sanded and cleaned to give better adhesion. Epoxy was used to attach each transducer to the center of its corresponding plate, as shown in Figure 3. After ensuring that the piezoelectric transducers were well-adhered to the surface of the aluminum structure and after running several conductance tests, wires were soldered to the transducers.
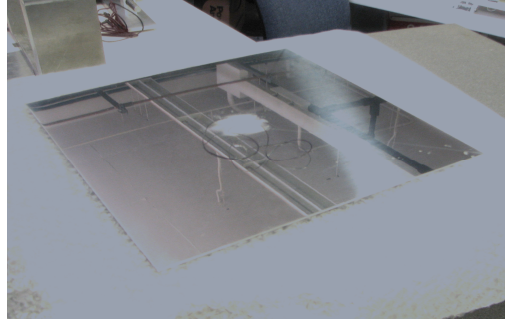
Figure 3: Transducer mounted on the corresponding Plate

3.3 Experimental Procedures

Several frequency bands were used during this experiment. These bands were 10-500 kHz, 50-80 kHz and 380-480 kHz. The plates were placed on foam to simulate the free-free boundary conditions. Electrical impedance measurements were collected using an Agilent 4294A precision impedance analyzer, shown in Figure 4. The electric impedance, both magnitude and phase, were measured over all frequency ranges for the undamaged plates. The data were compared to ensure that both plates were similar. Figures 5a and 5b show the similarity between the impedance signals for the undamaged plates.

Figure 4: Agilent 4294A Impedance Analyzer
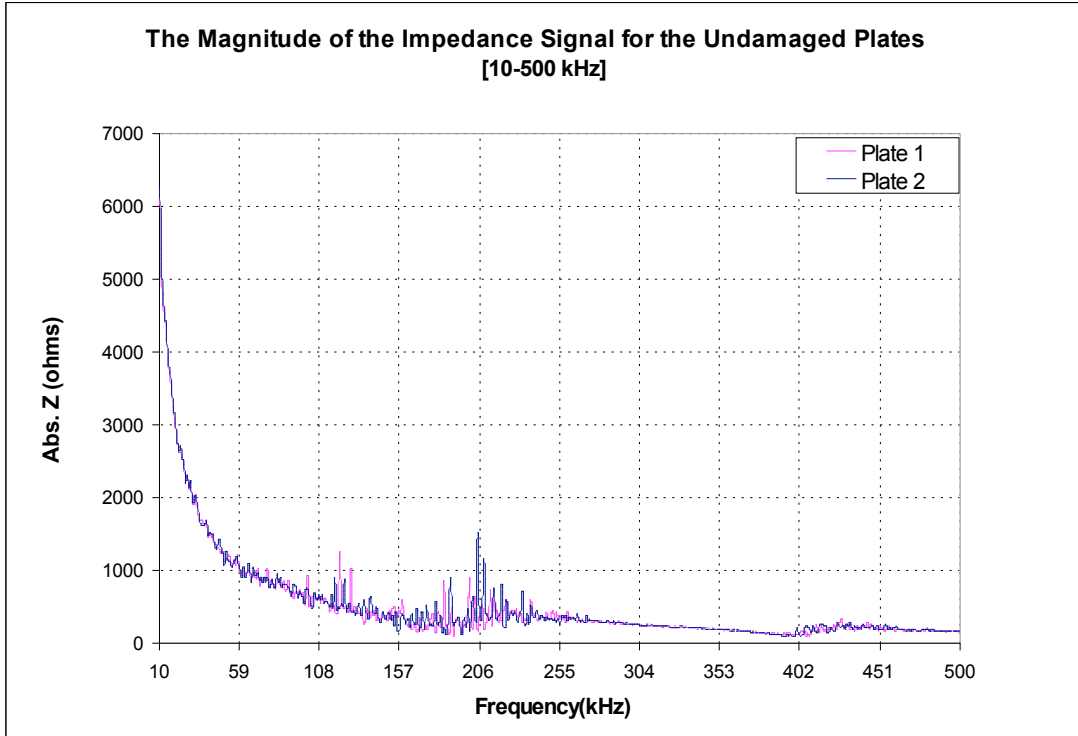
Figure 5a: The magnitude of Electric Impedance Signal for the Undamaged Plates
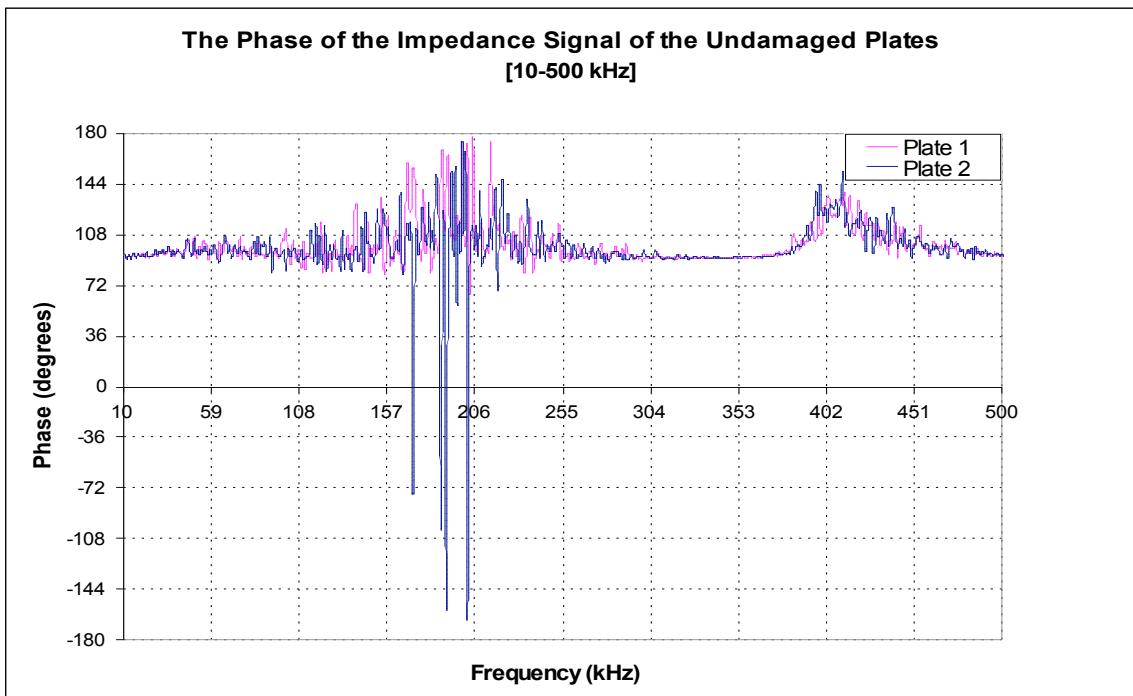
Figure 5b: The Phase of Electric Impedance Signal for the Undamaged Plates

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A Dremel was then used to introduce a 15 mm slit 15 mm away from the end of the transducer on the first plate and the same size slit was introduced 5 mm away from the end of the transducer on the second plate as shown in Figure 6. The electric impedance, both magnitude and phase, of each plate was recorded again and compared against that of the other plate, as well as that of the corresponding undamaged plate. The slit sizes were then increased in increments of 5 mm until they reached a width of 40 mm as shown in Figure 7.
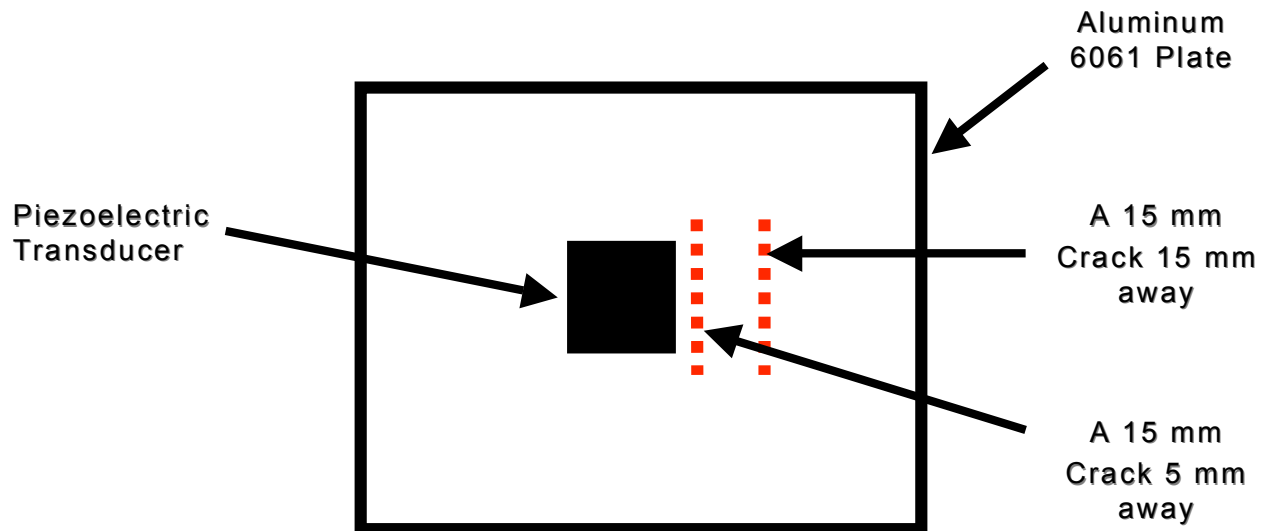
Figure 6: A schematic diagram of the Slit location
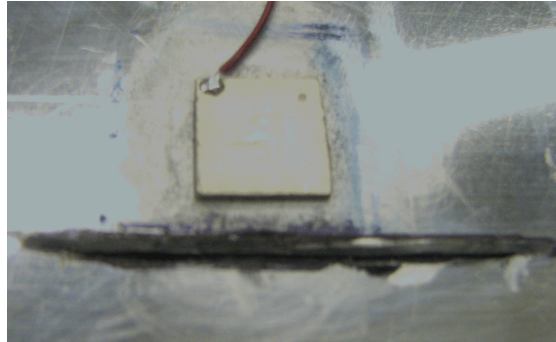
Figure 7: 40 mm slit introduced in the Plate using the Dremel

After collecting the impedance and phase data for all the damage sizes and locations, the impedance was expressed in terms of real and imaginary parts. The real part was plotted against the frequency to detect the effect of the damage presence, as well as its location and size [Giurgiutiu 2002].

A damage index calculation was carried out using the real part of the electric admittance [Y] of the damaged and undamaged structures. Electric admittance is defined as the ratio of the resulting current to the energizing voltage, or the inverse of the impedance. The damage index metric (M) used in this experiment is expressed in Equation 12 [Chaudhry 1995] and it was used

to investigate the relationships and the correlations between the damage size and location and the impedance signal.

$$M = \sum_{i=1}^{N}[\text{Re}(Y)_{undamaged} - \text{Re}(Y)_{Damaged}]^2 \qquad (12)$$

4. Results and Discussion

The results of this experiment can be divided into several parts. The first part addresses the general effects of the damage presence on the real part of the impedance signal. The second part addresses the effect of the damage location on the real part of the impedance signal, and the third part addresses the effect of the damage size on the real part of the impedance signal.

4.1 The General Effects of the damage Presence on the real part of the impedance signal

The presence of damage affected the impedance signal at all frequency ranges as shown in Figures 8 through 10. Figure 8 shows a general shift in the frequency of the impedance peaks to lower frequencies over a wide range of frequencies, 10-500 kHz.
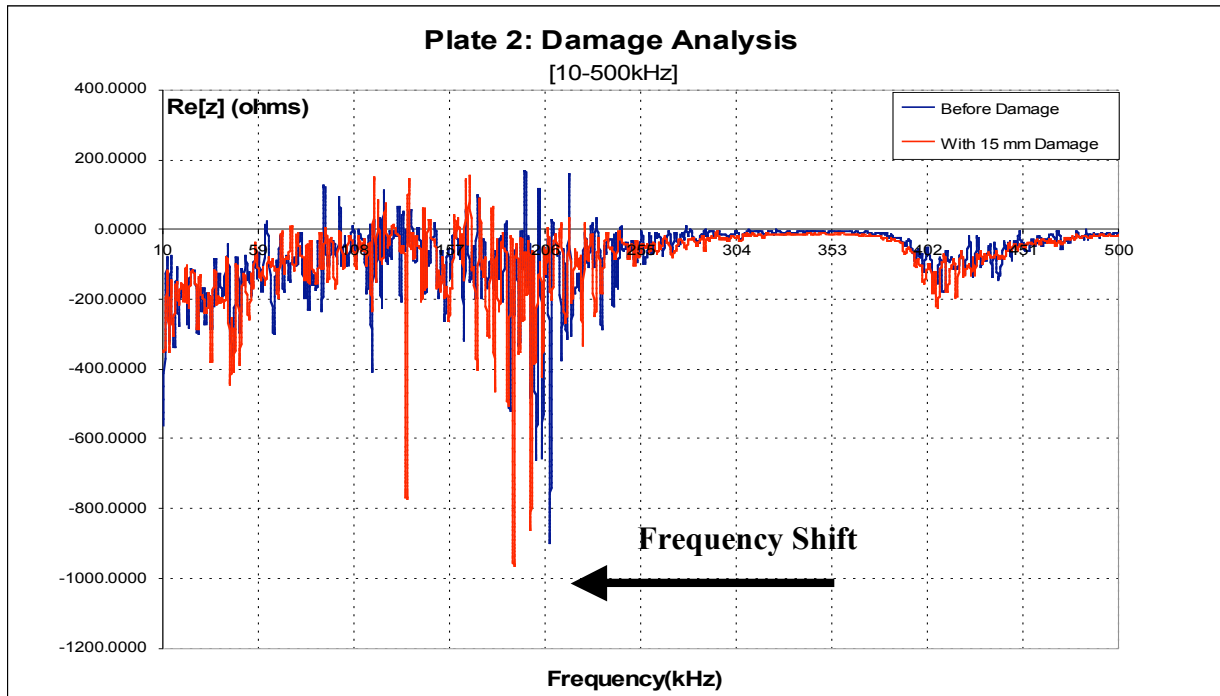

Figure 8: Damage Presence Analysis at 10-500 kHz

Also in Figure 9, which shows the behavior of the real part of the impedance signal in the 50 kHz to 80 kHz frequency, one sees a considerable decrease in the amplitude of peaks in the real part of the impedance.
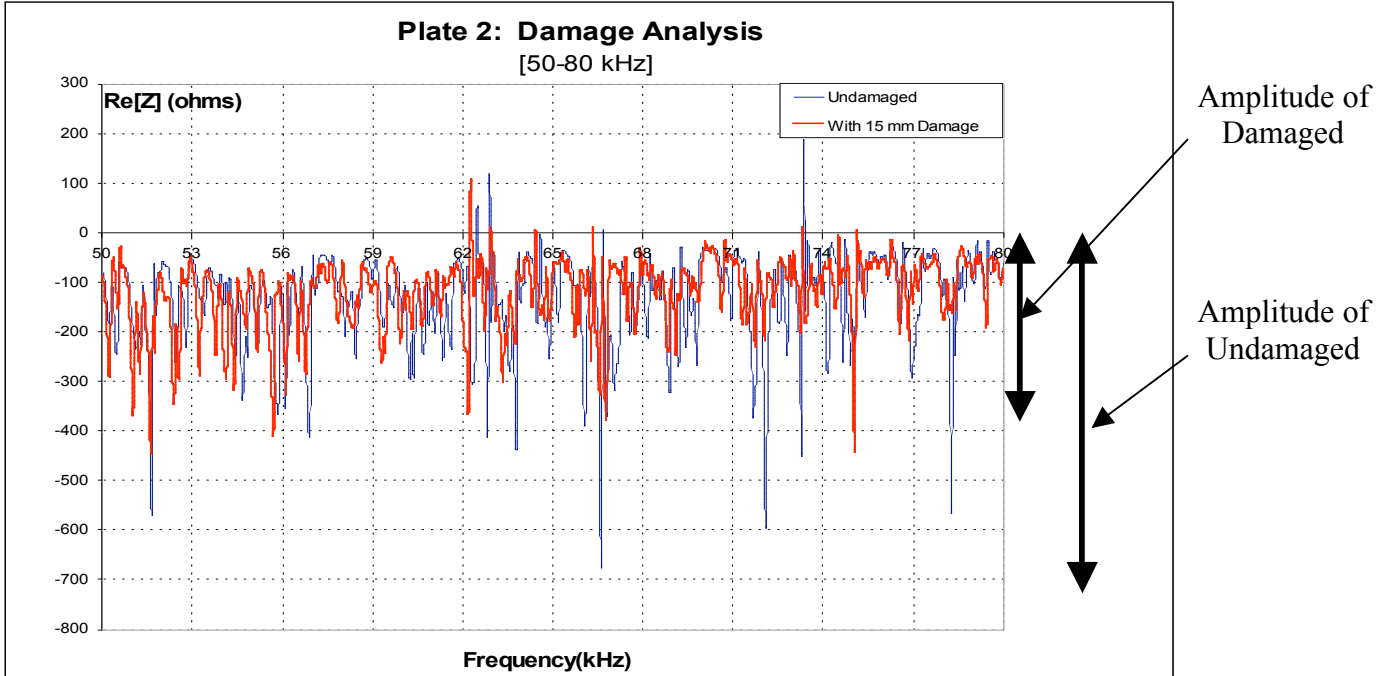
Figure 9: Damage Presence Analysis at 50-80 kHz

Meanwhile, Figure 10 that describes the behavior of the real part of the impedance signal at the higher frequency band, 380-480 kHz, shows both a downward shift in the frequencies of the impedance peaks and a decrease in the amplitude of the peaks. At this frequency range, the impedance peaks tend to occur at lower frequencies and with lower amplitudes.
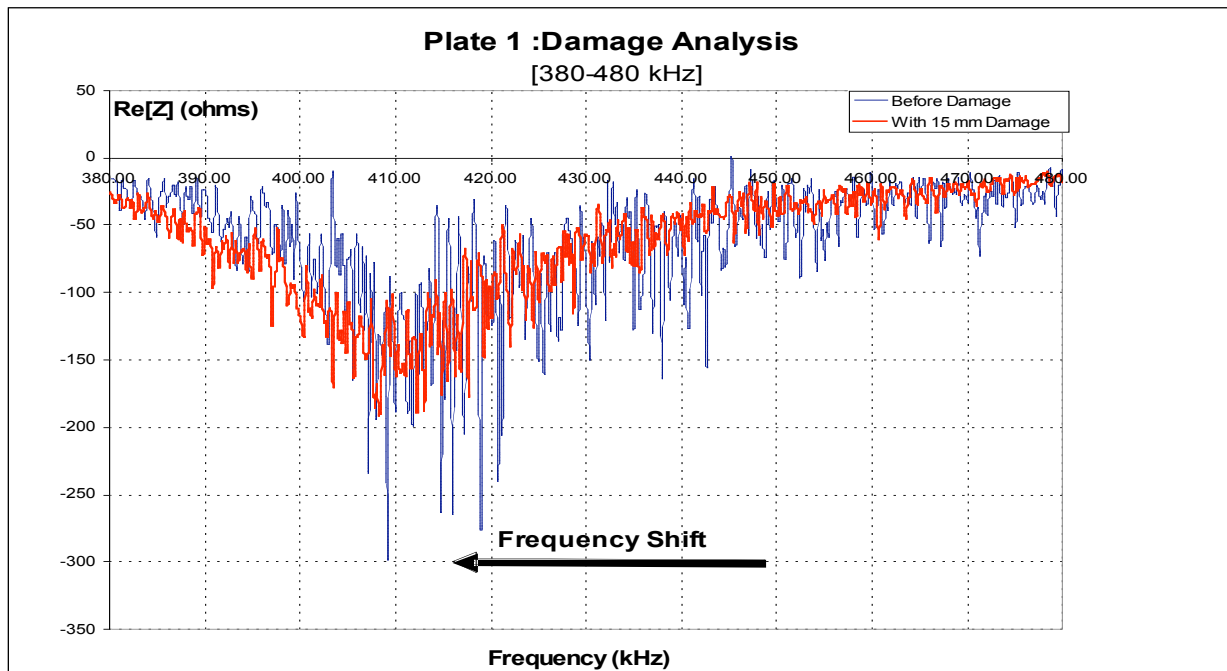

Figure 10: Damage Presence Analysis at 380-480 kHz

4.2 The Effect of Damage Size on the Impedance Signal

The damage size was increased from 15mm to 40 mm in increments of 5mm. As the damage size increased, the effects mentioned for the presence of damage became more. Figure 11 shows that increasing the damage size to 40 mm, at the higher frequency range, led to a greater decrease in the amplitude of the frequency peaks and a larger frequency shift in the impedance peaks.
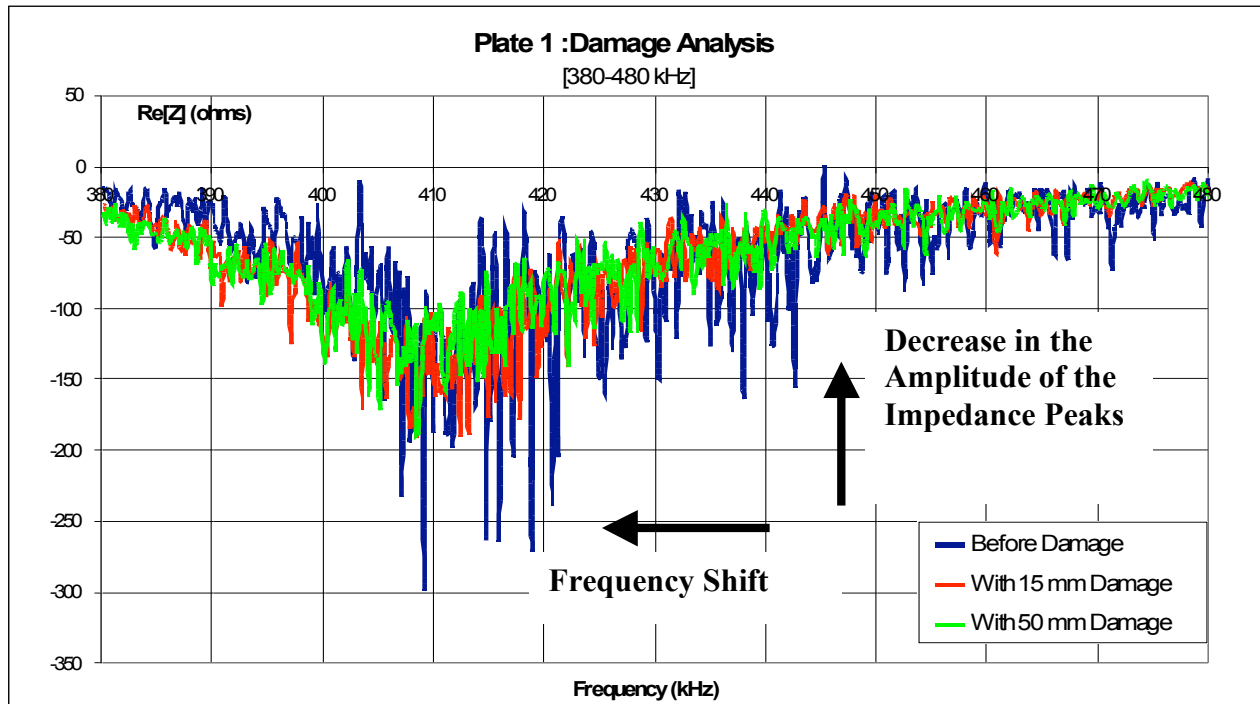

Figure 11: The Effect of increasing the Damage Size on the Impedance Signal at 380-480 kHz

After plotting the real part of the impedance against frequency over the different frequency ranges, Equation 12 was used to calculate the damage index for each damage size. Figure 12 indicates that as the damage size increased the damage metric increased and the increase was almost logarithmic with the size, as shown in Equation 13.
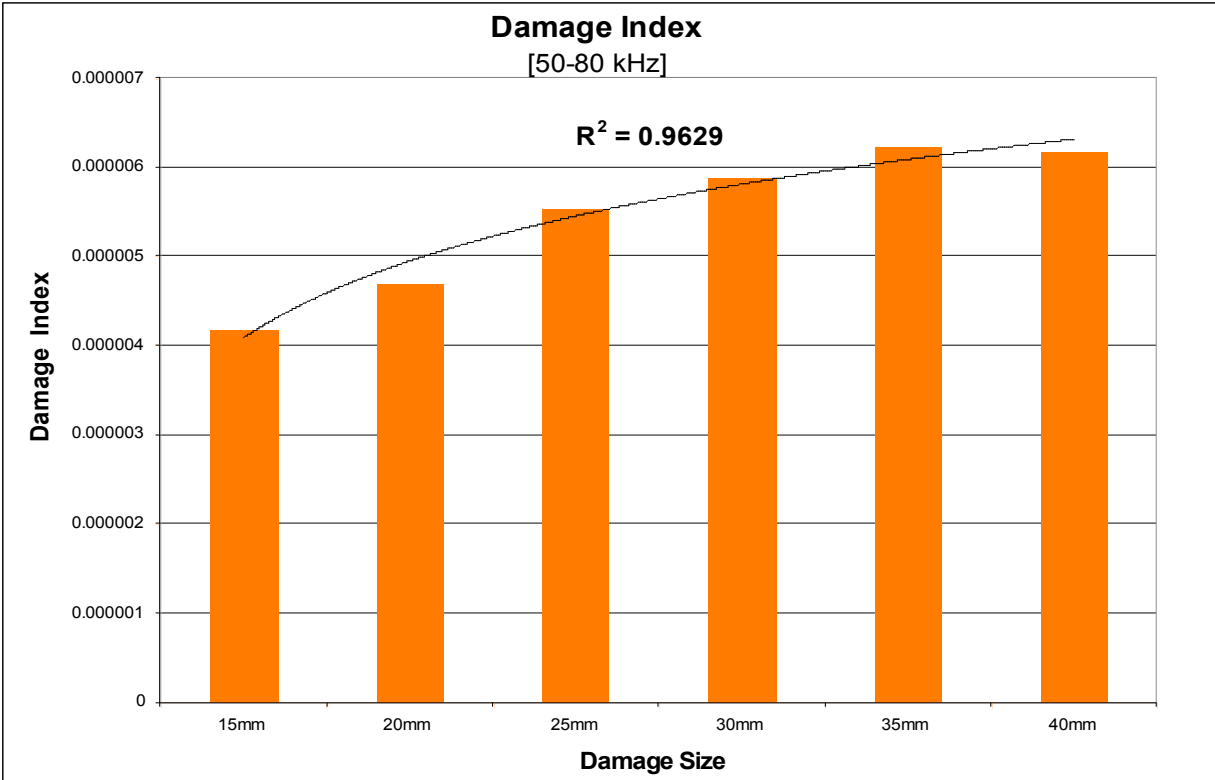
$$y = 1E - 06\ln(x) + 4E - 06 \qquad (13)$$

Figure 12: The Damage Index Metric for detecting the Effect of the Damage Size at 50-80 kHz

4.3 The Effect of the Damage Location on the Impedance Signal

Other literature mentioned that the electro-mechanical impedance method is better at detecting local or near-field damage [Giurgiutiu 2002, Balageas 2006]. In the present experiment, as the damage distance increased the damage index decreased for every damage size. Figure 13 shows the effect of the damage location on the damage index at the various damage sizes. This indicates that global or far-field damage is less likely to be detected using the electromechanical impedance method. Also, from the same figure, Figure 13, the increase in the damage index of the far field damage is less accurate than that of the near-field. This can also be related to the fact that far field damage is not as accurately determined by this method.
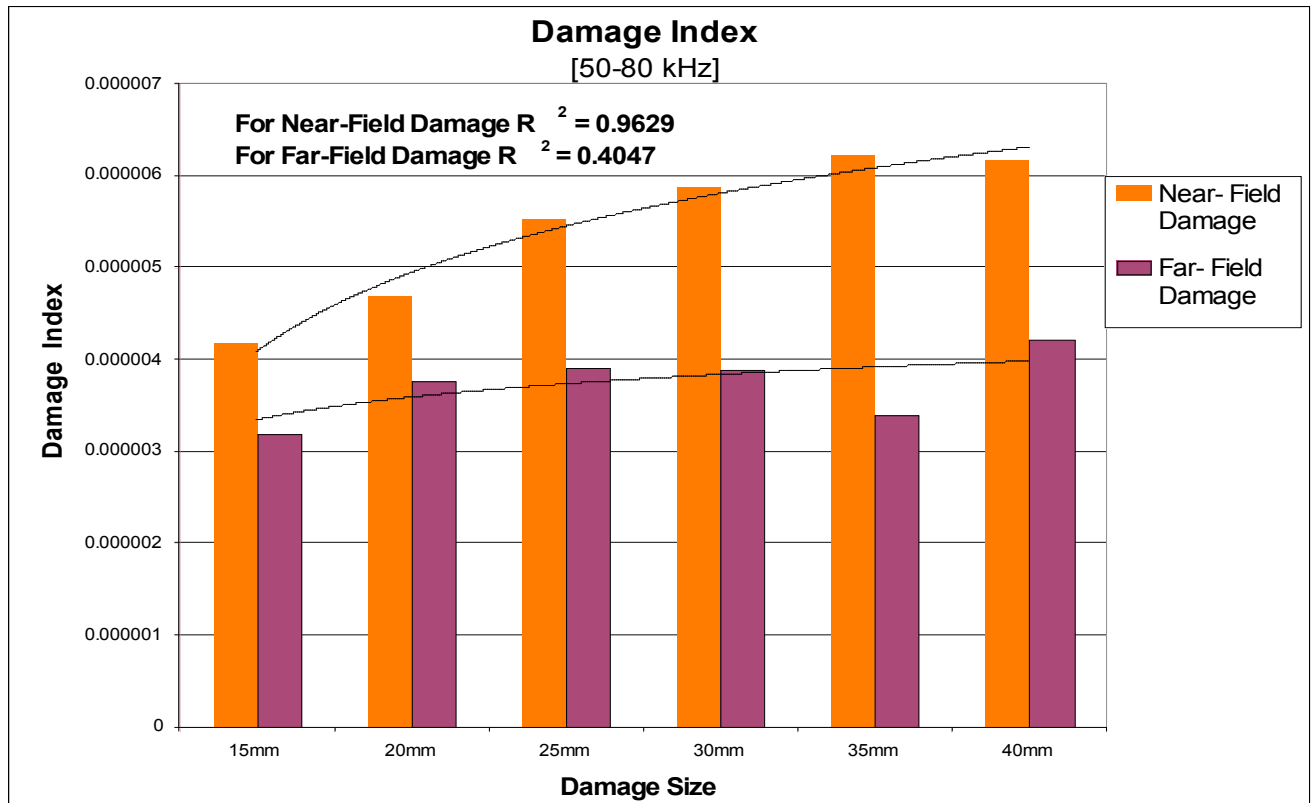

Figure 13: Near Field and Far Field Damage Index

5. Conclusion

In this paper the electro-mechanical impedance method was used to detect damage in two aluminum 6061 plates. The method used piezoelectric transducers both actively and passively. The electro-mechanical impedance method using the piezoelectric transducers proved its ability in detecting the presence of damage, as well as its location and size.

The effect of the damage presence was evident in the reduction of the magnitude of peaks in the real part of the impedance, as well as the frequency shift of the peaks. The effect of increasing the damage size was detected through a damage index calculation. The results indicated that increased damage increased the damage index. Furthermore, the electro-mechanical impedance method was more accurate in detecting near-field (local) damage than it was detecting far-field (global) damage. The difference in the damage location was observed through the same damage index calculations showed that distant damages produced smaller damage indices than these located closer to the transducers.

6. Recommendations and Future Work

Although the E/M impedance method was effective in detecting both near- field and far-field damage, with different degrees of accuracy, further efforts are needed to determine the distance at which the transducer can no longer detect damage using this method. Also a detailed study of the best location for the transducer at the different boundary conditions is needed. Finally, in order to integrate the electro-mechanical impedance method in the aerospace industry, further efforts are needed to decrease the amount of wiring involved in this method and the size of the hardware used.

7. Acknowledgments

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Foreign Aid and Terrorism:
An Empirical Test of the Two-Good Theory of Foreign Policy

Daniel J. Zaccariello, McNair Scholar, Penn State University

Faculty Research Adviser: Glenn Palmer, Ph.D
Professor of Political Science
The College of Liberal Arts
Penn State University

Abstract: This study begins to answer the question of why states choose the policies they do in response to terrorist events. The analyses situate state policy responses to terrorism within the general framework of foreign policy decision-making developed by Palmer and Morgan (2005). We use statistically analyses to test hypotheses regarding state preferences derived from the two-good theory of foreign policy. Specifically, this study examines terrorist incidents and foreign aid allocations for the period 1968-2005. We find that terrorist events do cause change in state preferences over policies not normally considered in the counterterrorism literature.

For many, the provision of security is the most important charge of government. The dramatic breach of internal security exhibited by the 9/11 attacks naturally led governments to take action to deal with the threat. The phrase "Post-9/11" and the ensuing "Global War on Terror" identify that tragic day as monumental and simultaneously identify a time of uncertainty regarding American security, and indeed, global security as a result of the threat of international terrorism.

The responses to the 9/11 attacks involved nearly all the tools of state foreign policy, among them diplomacy, sanctions, and war (Zimmermann and Wenger, 2007). After the 9/11 attacks the U.S. launched wars in Iraq and Afghanistan and increased its official development aid 800% from 2001 to 2005, much of it to the Middle East and South and Central Asia (OECD, 2007; Perlez, 2007). The EU countries have engaged in more law enforcement cooperation, aid giving, and some participated with the U.S. in pre-emptive military action in the same period (Rees, 2006). The U.S. frequently provides aid to countries in order to bolster counter-terrorism efforts in the form of bi-lateral and multi-lateral counter-terror agreements (Ministry of Foreign Affairs, 2007; State Department, 2006). However, this raises the question of why do states choose the policies they do. What sorts of responses do states take after terrorist events and how do those choices affect the use of other foreign policies?

This study seeks to begin answering that question and advance thinking about state responses to terror within the framework of a general theory of foreign policy. We utilize the two-good theory of foreign policy developed by Palmer and Morgan (2006) to derive our hypotheses about a single foreign policy. We then test those hypotheses empirically using data in the International Terrorism: Attributes of Terrorist Events (ITERATE 3-4) dataset and the Organization of Economic Cooperation and Development (OECD) statistics database for the period 1968-2005.

Literature

      Work on state responses to terrorism has largely focused on traditional counterterrorism policy responses. Specifically, policies are often categorized based on whether they are *defensive* or *offensive/proactive, forward-looking* or *backward-looking* (Enders and Sandler, 2006, Ch. 4; Frey and Luechinger, 2003; Heymann, 2001). Defensive measures are policies that raise the costs to terrorists of carrying out an attack or reduce the perceived benefits through protective measures.[1] In contrast, offensive[2] measures attack the terrorists, their supporters, or hosts directly in order to reduce their capability to carry out further attacks (Enders and Sandler, 2006, p. 86).

      An alternative view, presented by Frey and Luechinger (2003), sees responses in terms of deterrence or benevolence. For them, deterrence raises the material costs for terrorists, which would capture policies considered defensive and offensive mentioned above, and leads to increased violence whereas benevolence raises the opportunity costs and, at least potentially, leads to outcomes that are more likely to be peaceful. Deterrent policies include target hardening, preemptive, or retaliatory strikes. Benevolent policies raise the cost of choosing terrorism over "ordinary activities" by providing more opportunities or higher incomes. For example, benevolent policies can come in the form of payment (bribes) for cooperation, investment in education, or negotiation.[3]

      The different views of state responses above are derived from economic analysis of rational actors and have success upon empirical analysis. Both views get at explaining different outcomes given differing policy efficacies or preferences of states. However, in both approaches, the preferences of states over the wide range of possible foreign policies are viewed as given, and so are implicit in the models of foreign policy selection in response to terrorist events. That is to say, they presume that there exists a set of policies which are "counterterrorist," and other foreign policy responses are not considered. We hope to add to the thought on state responses by fitting state responses to terrorist events in the general foreign policy framework developed by Palmer and Morgan (2006). This will allow for consideration of policy selection as a function, in part, of changes in the preferences of states over a policy portfolio. As an initial exploration of the applicability of the two-good theory to explanations for state responses, we look at a single policy: foreign aid, as a response to terrorist phenomena.

Why Foreign Aid?

      We choose to analyze foreign aid as our dependent variable because it is a good example of a change-seeking policy. As Palmer and Morgan (2006) argue, foreign aid "is usually given…as a reward or an inducement…to change [a state's] behavior in some regard" (p. 55). Thinking of foreign aid in the context of terrorism in this study is similar to that of Bapat (2006) in which one option target states have is to make a payment of some sort to a host state in order to induce that state to suppress terrorist organizations operating within their borders. We see foreign aid as operating as just such an incentive to change a state's behavior, in this case: changing support for terrorist groups. In addition, empirical analyses of foreign aid flows find

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[1] Examples are metal detectors in airports, tighter immigration controls, or an increase in domestic law-enforcement. In authoritarian regimes, reducing the benefits might take the form of tighter controls over media coverage so as to deny terrorists the wider psychological effect of an attack.

[2] Alternatively called proactive, preemptive, or retaliatory.

[3] For the moment, we set aside the barriers to the success of any of the policies mentioned. We only bring them up for illustration.

that there is "considerable evidence that the pattern of aid giving is dictated by political and strategic considerations" in a variety of contexts (Alesina, 2000, p. 33; Dudley, 1976). For example, foreign aid often takes on the role of payment for *quid pro quo* changes in behavior in the UN (Kuziemko, 2006). This suggests to us that foreign aid is well suited for an initial study of the effects on changes in preferences (and the strategic picture) held by states.

Definitions and Model

Since terrorist incidents are the stimulus to foreign aid change examined in this study, we will present a working definition of terrorism.[4] Defining terrorism based on particular goals or the identity of the perpetrator of violence is tempting. However, defining terrorism based on ideological grounds would exclude many phenomena commonly considered terrorism; the identities and motivations of terrorist groups and those that support them are diverse and defining based on the goals unnecessarily excludes valuable information.

Furthermore, if any violent act done for political reasons and targets or kills civilians is terrorism, then it would be difficult to exclude any violent phenomena as distinct from terrorism.[5] Therefore, the structural form the attack takes is more important than ideological reasons the attack took place, and so most definitions are limited to non-state actors, while state-sponsored terrorism refers to acts committed by or with the support of states.

An important part of any analytical definition of terrorism is the communicative intent of the terrorist act (Enders and Sandler, 2006, pp. 36-40; Li, 2005; Nacos, 2007; Schmid, 1982). That is to say, terrorists will seek to affect a wider audience by threatening future attacks, essentially a compellent threat to inflict more pain if concessions are not made on a given issue or set of issues in order to change the target government's policy.

Taking the above together, we define international terrorism as the extra-state use of force by non-state actors for political or ideological reasons against a target, intended to affect an audience larger than the immediate victims. We utilize the ITERATE [3-4] (International Terrorism: Attributes of Terrorist Events, Micklous, 2006) dataset for our data on terrorist incidents, and so the operational definition used comes from the authors of the ITERATE dataset, who state that international terrorism

> "…is the use, or threat of use, of anxiety-inducing, extra-normal violence for political purposes by any individual or group, whether acting for or in opposition to established governmental authority, when such action is intended to influence the attitudes and behavior of a target group wider than the immediate victims and when, through the nationality or foreign ties of its perpetrators [or] its location…its ramifications transcend national boundaries" (Mickolus, 2006)

An assumption made in this article is that both states and terrorist groups are rational, utility maximizing entities. Modeling states as rational actors is common in many studies. Terrorist groups, if the assumption made above is correct, may also be subject to the same economic analysis used in analyzing states' actions in international politics (Anderton and Carter, 2005; Bueno de Mesquita, 2005b; Enders and Sandler, 2006; Sandler and Enders, 2004; Sandler, Tschirhart, & Cauley, 1983; Shapiro, 2005). For example, David Lake (2002) extended this core assumption to a bargaining analysis of terrorist groups' interactions with states, stating that they

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[4] With the caveat that there does not a single agreed-upon definition of terrorism.

[5] As terrorism will be defined here, clandestine state actions which look like terrorism do not fit the definition in part because they are kept secret. That is not to say that states cannot sponsor acts of terrorism. The difficulty arises when our definition of terrorism begins to include acts which may properly be considered acts of war under common understandings of the appropriateness of force in international relations.

strategically aim their actions to alter the status quo in order to improve their bargaining position. That is to say, terrorist groups arise because of specific grievances regarding issues in the status quo and, because of asymmetric capabilities with respect to states, engage in extra-normal violent acts (Bueno de Mesquita, 2005a; Kydd and Walter, 2006; Lake, 2002; Pape, 2003).

The concept of rationality employed in this study is perhaps different than some readers are accustomed to, so we present a basic definition of rationality before summarizing the model of foreign policy utilized here and developing our specific hypotheses. The main thrust of the concept of rationality is that actors are goal-seeking subject to constraints on resources. Rationality used in economic analysis means that an actor's preferences over a set of alternatives are ordered and transitive. Stated more formally, if there exists a set of alternatives S={A, B, C}, then an actor can specify preferences orderings in S such that if A > B, and B > C, then A > C. What is contained in the set of alternatives, the actor's goals, is not part of the concept of rationality employed here. Instead, the essential part of the concept is that the actions taken fit the pattern above.

A conceptualization of the status quo is vital to an understanding of the analysis undertaken in this study. The way the "status quo" is defined here is taken from Palmer and Morgan's "A Theory of Foreign Policy" (2006), which differs from the status quo as conceived by traditional analyses of foreign policy selection.

An assumption made in much of previous theory and empirical research in international relations is that states have a single issue at the top of their list of priorities: security, achieved through the accumulation of power.[6] A key tenet of Realism is that because the international system is anarchic, states have as their primary interest corporeal security and therefore pursue both relative and absolute gains of power.[7]

The key distinction made by Palmer and Morgan is that actors in the international system care about many things and select policy portfolios to change (or maintain) the status quo in their favor (Palmer and Morgan, 2006). According to the two-good theory, the achievement of particular foreign policy aims comes about through the selection of policies that produce two abstract goods: change and maintenance (rather than one—security). Since "neither heaven nor hell exists on earth," states seek to change things on an issue making up the status quo which they do not like and maintain things about it they do like (p. 21).[8] States form foreign policy portfolios based on several factors, which are discussed in the next section. By arriving at a more complex notion about what states care about or believe is at stake (and thus are willing to act on), the concept of the status quo unfolds into a much more dynamic and interesting object in international relations. We also have a general explanation of why a terrorist event would cause change in a state's policies:-- being the target of terrorist groups is naturally not a status quo situation a state would prefer. There is still the question of how we expect a particular policy to change. We next present the relevant details of the two-good theory from which our hypotheses are derived.

The Two-Good Theory of Foreign Policy

This summary of the two-good theory is based on chapters two and five of "A Theory of Foreign Policy" (Palmer and Morgan, 2006). The formalization of the two-good theory produces a model for the general behavior of a state's policy portfolio. From the basic model, several

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[6] Based on Realist theories. Foundational works include (Carr, 1946; Morgenthau, 2006; Waltz, 1965, 1979)
[7] (Morgenthau, 2006)
[8] For more detail, see Chapter 2 of (Palmer and Morgan 2006, p. 19-27).

hypotheses regarding the effect of changes in resources or salience are deduced. We present the equations that make up the basic formal model to help develop the specific hypotheses tested in this study.[9]

Changes in foreign policy allocations occur due to two primary reasons: the availability of resources to spend on foreign policy and the preferences over types of policies. Resources are captured with the parameter *b*. Quite naturally, as state resources increase, so does production of all foreign policy goods. Furthermore, a simple, but important deduction made by Palmer and Morgan is that as resources increase, change increases at an increasing rate, and that maintenance increases at a decreasing rate, captured formally with the parameter Ω.[10]

The parameter π represents the preferences for change or maintenance, also referred to as salience. It is changes in the preferences parameter, as the change in foreign aid, which this study hopes to measure. Preferences are determined by the salience of an issue to the state. The farther away the status quo is on a particular issue, the more the state will value change (π_2). Similarly, the closer to the status quo, the more the state prefers maintenance (π_1). Another important deduction from this basic model made by Palmer and Morgan is that if a state faces challenges emanating from the international system, then it is reasonable to think that the state would increase its allocation to foreign policies generally. Equations 1 and 2 show the basic functions determining the amount of change and maintenance in a policy portfolio.

Equation 1

$$Q_{maintenance} = \frac{\pi_1 b}{(\pi_1 + \pi_2)\Omega}$$

Equation 2

$$Q_{change} = \frac{\pi_2 b}{(\pi_1 + \pi_2)\Omega}$$

After a terrorist event, we expect that the preference for a change (π_2) would increase. That is to say, a state would not care if a particular country or region hosts a terrorist group until that group becomes a real threat or otherwise provides a cause for a change in policy (such as an attack or threat of an attack). Since the preference for change should increase, we expect an increase in foreign aid.

Hypothesis 1: *After a terrorist attack from a region, the amount of per-region foreign aid will increase, controlling for GDP and allied status.*

Conditional Hypotheses

We may also derive a hypothesis for the change in foreign aid conditional on changes in the resources parameter. Since states with more resources can pursue more of all foreign policies in response to a terrorist attack:

Hypothesis 2: *After a terrorist attack originating from a particular region, the amount of change in per-region foreign aid will increase more for countries with higher GDP than countries with lower GDP.*

The effect of asymmetrical alliances

Alliances are not a term in the model, however, alliances have specific effects which we can easily test given the data for hypotheses 1 and 2. The general effect of joining alliances is to

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[9] The formal model is developed in Chapter 5 of (Palmer and Morgan, 2006)
[10] See (Palmer and Morgan, 2006, pp. 35-36).

allow states to produce more of all foreign policy goods because the alliance functions as a joint production economy where both states in the alliance produce both change and maintenance. The specific effect of being in an alliance is that a state gains more in the good that it is relatively less able to produce. Since large states are already very powerful, they produce change at a decreasing rate, but can produce maintenance more than smaller states. Smaller states, on the other hand, produce change at an increasing rate as it surpasses more countries in terms of relative power than larger states. Therefore, smaller states that ally with larger states gain maintenance and are able to produce more change (in our case, we are measuring the change-seeking policy of foreign aid). There are not states more powerful than the U.S., so we look at the effect of terrorist incidents on foreign aid for states in an asymmetrical alliance with the U.S. We expect that states allied with the U.S. will increase foreign aid more than those not in alliance with the U.S. in response to a terrorist event.

Hypothesis 3: *After a terrorist attack originating from a particular region, the amount of change in per-region foreign aid will increase more for countries allied with the U.S. than those countries that are not allied with the U.S.*

Research Design and Methodology

The hypotheses are tested with statistical analyses. An ordinary least squares linear regression model is used to test the general and, where appropriate, interactive relationships between the independent variables and the dependent variables.[11] For hypothesis 1, we use an additive model to test the general effect of the number of incidents, GDP, and allied status. For hypotheses 2 and 3, we use a multiplicative interaction model to test the change in the coefficient on incidents for different levels of GDP and allied status.

Data and Variables

The unit of analysis is a country-year-region. Following Palmer and Morgan (2006), OECD countries were selected so that the frame of analysis controlled for differences in development and political regime type.[12] The primary independent variable, terrorist incidents, data come from the ITERATE [3-4] (International Terrorism: Attributes of Terrorist Events) dataset, pruned to cover incidents for years 1968-2005 that started in or victimized citizens of OECD countries (Mickolus, 2006). The region for the source of the attack is based on the country code for first nationality of terrorists variable found in ITERATE and coded according to region based on OECD regional breakouts.[13]

The primary dependent variable, foreign aid output, is measured using the official development aid disbursed measure (ODA) employed by OECD's online statistical database in millions of constant 2005 U.S. dollars (OECD, 2007). ODA is led one year in order to measure the lagged effect of incidents. Data for the GDP control variable, meant to capture state resources, are taken from OECD's national accounts category also found in the online statistical database and are measured in billions of U.S. dollars in constant 2000 prices.[14]

The asymmetrical alliance variable was coded for based on a country's alliance status with the U.S. Finally, we create two interaction terms in our statistical model to test the conditional hypotheses 2 and 3. The first is between GDP and incidents since we expect the

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[11] For the appropriateness of using multiplicative interaction terms, see (Braumoeller, 2004; Friedrich, 1982).

[12] The only OECD country not analyzed here is Mexico because data was missing from the online database.

[13] Regions used are: North & Central America, South America, Mideast, South & Central Asia, Fareast Asia, and Oceania.

[14] In constant 2000 US $.

coefficient of incidents to change as GDP changes. The second is between allied with the U.S. and incidents since we expect that the coefficient on incidents to change as alliances change.

Results

Table 1 presents the results for the test of the general effects predicted in hypotheses 1 with our main effects model without the interaction terms. The dependent variable is the lagged per-region foreign aid led by one year. To aid interpretation, we centered GDP so its mean is zero (Jaccard and Turrisi, 2003; Young and Perkins, 2005, p. 1195).

Table 1
Main Effects Model - **Incidents and Foreign Aid[15]**, *OECD countries, 1968-2005*[a, b]

	Coef.	Std. Error	t	Sig.
Number of Incidents	3.96	1.27	3.12	.002
Allied with U.S.	92.83	10.00	9.28	.000
GDP[c]	.14	. 0031	44.54	.000
(Constant)	104.3088	8.12	12.84	.000

a. Dependent Variable: Per-region ODA led by 1 year
b. N = 6831
c. Mean centered at zero.

We find a positive and statistically significant relationship between the number of incidents in one year and the change in foreign aid the next year for states both allied and not allied with the U.S. when the GDP is at its mean value. As expected, allied states are able to spend $92 million more on foreign aid than non-allied states, on average. In addition, GDP has a positive relationship with the amount of foreign aid. Given the relatively low percentage of GDP given over to foreign aid and the breakdown by region, the coefficient on GDP is, as expected, relatively low. For an increase of $1 billion in GDP, there is, on average, an increase in per region foreign aid of $140,000. For values below the (mean centered) value of GDP, the sign on the GDP term turns negative, but that effect is the result of the mean centering. This result is consistent with the model and theoretically expected. The theory predicts that states with more resources are able to pursue more of all foreign policies.

Table 2 presents the results of the interactive model in which we expect that the general effects seen in table 1 vary over values of GDP and allied status. A simple F-test shows that the multiplicative model adds significant explanatory power to our model. Table 3 presents the predicted values for per-region foreign aid based on the interactive model and illustrates how these terms interact. In analyzing Table 3, we want to compare between allied and not allied countries as well as comparing between low, medium, and high GDP countries within their respective allied columns.

Table 2
Interactive Model - Incidents and Foreign Aid[16], *OECD countries*, 1968-2005[(a, b)]

	Coef.	Std. Error	t	Sig.
Number of Incidents	-11.26	4.10	-2.75	.006
Allied with U.S.	93.69	10.18	9.20	.000

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[15] ΔForeign Aid $= \alpha + \beta_1$(Number of Incidents) $+ \beta_2$(Allied with the U.S.) $+ \beta_3$(GDP)

[16] ΔForeign Aid $= \alpha + \beta_1$(Number of Incidents) $+ \beta_2$(Allied with the U.S.) $+ \beta_3$(GDP) $+ \beta_5$(GDP X Incidents) $+ \beta_6$(Allied X Incidents)

GDP[(c)]	.135	.0033	40.53	.000
GDP*Incidents	.0037	.00072	5.13	.000
Allied*Incidents	11.88	4.17	2.85	.004
(Constant)	105	8.22	12.78	.447

a Dependent Variable: per-region ODA lead by 1 year
b N = 6831
c Mean centered at zero

Recall that hypotheses 2 and 3 predicted that the change in aid would increase more for higher levels of GDP and countries allied with the U.S. Table 2 shows that the expected sign on the coefficients on our interaction terms for incidents and GDP and allied are positive, as expected. However, the general positive effect of incidents seen in our additive model turns negative when we account for different levels of allied status and GDP. Instead, what we see is that the effects of allied and GDP decrease the rate at which countries decrease their per-region foreign aid allocations.

Table 3
Predicted Values of Foreign Aid, Average Per Region Aid

	Allied with the U.S.				Not Allied with the U.S.			
	Number of Attacks				Number of Attacks			
GDP	1	2	5	10	1	2	5	10
Low	111.29	109.56	104.38	95.74	5.72	-7.88	-48.69	-116.71
Mid	132.46	131.29	127.80	121.99	26.89	13.85	-25.27	-90.46
High	233.63	235.16	239.77	247.45	128.06	117.72	86.70	35.00

We find that allied countries decrease their foreign aid less than non-allied countries. This means that the alliance with the U.S. allows countries to continue producing more of this change-seeking policy than their non-allied counterparts do in response to terrorist events. In addition, we find that in comparing allied countries to non-allied countries across all values of incidents, the general effect that allied countries spend more on aid than non-allied countries holds.[17]

We present Figures 1 and 2 to graphically illustrate the relative changes in the amount of aid given in response to incidents found in Table 3. The values we used for the level of GDP in the Low and High rows were one standard deviation below and above the mean, respectively. In Figure 1, we see that the rate of decline in aid decreases as GDP increases, and that High GDP countries actually increase their aid allocations. Referring back to Table 3, we note that Mid GDP countries are decreasing their aid less as a percentage than Low GDP countries. Figure 2 shows that among non-allied countries the amount of change decreases as GDP increases as well. Also, in comparing allied and non-allied countries, we can see that the slope is more steeply negative for non-allied countries for each level of GDP than for allied countries.

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[17] This is a general effect of alliances predicted in Palmer and Morgan (2005) and alluded to in our section above on alliances.

Figure 1

Predicted Aid: Allied

Figure 2

Predicted Aid: Non-allied
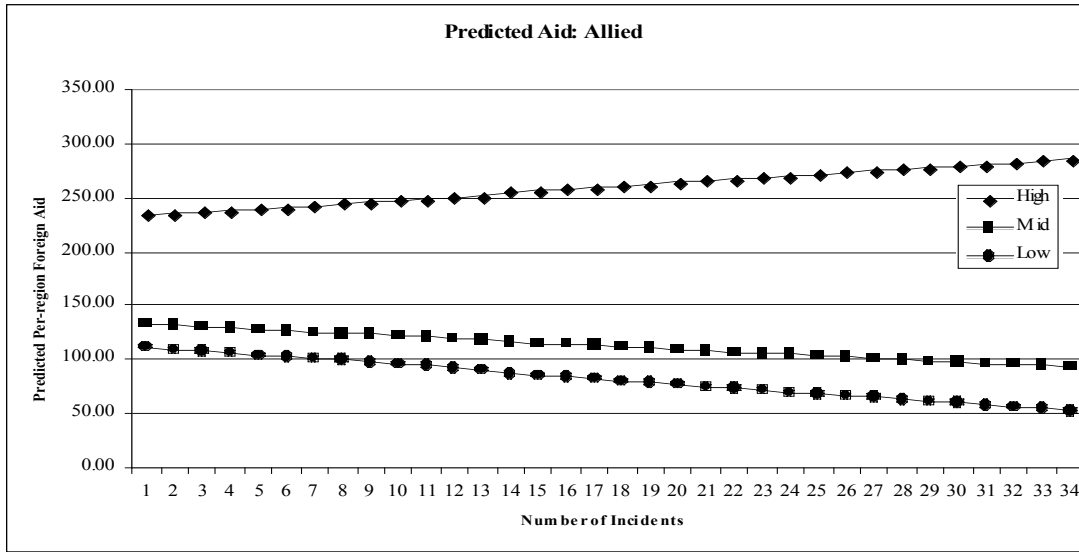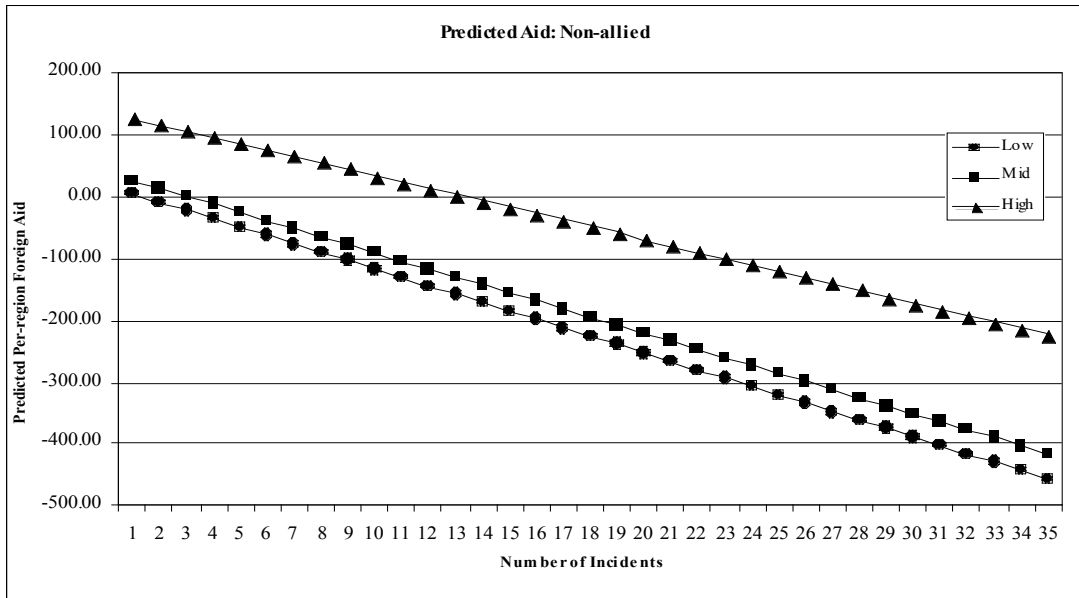
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Conclusion

This paper sought to explain how states respond to terrorist incidents within a general foreign policy framework. Theoretically, the preference for change-seeking policies will become relatively larger than maintenance-seeking policies after a terrorist event. We used foreign aid as a measure of a change-seeking policy and did not find strong support for an increase in foreign aid as hypothesis 1 predicted. We did find strong support for the general behavior of states in an asymmetrical alliance with a stronger state as well as the effect of GDP on the level of foreign aid. However, there was limited support for our conditional hypotheses 2 and 3. We predicted that allied states would increase aid more than non-allied states and that states with higher GDP would increase aid more than lower GDP countries. While the general effect of incidents for all states except high GDP allied countries was negative, we found that allied states decreased at a lower rate than non-allied states and that higher GDP countries decreased their aid less than low GDP countries. Therefore, even though the direction of the conditional effect of GDP and allied statues was positive as predicted in hypotheses 2 and 3 the negative effect of incidents on foreign aid produced an overall different effect than was theoretically expected.

While we did not find support for the first hypothesis predicting an increase in aid in general terms in response to terrorist events, we note that states have a large number of different foreign policies with which they may use for change. A more fully specified model would account for substitutability of foreign policies. Future research should include variables for other types of policies such as dispute initiation with other states (change-seeking) or military spending (maintenance-seeking). In addition, using dyad level data would specify the direction of aid giving more closely.

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