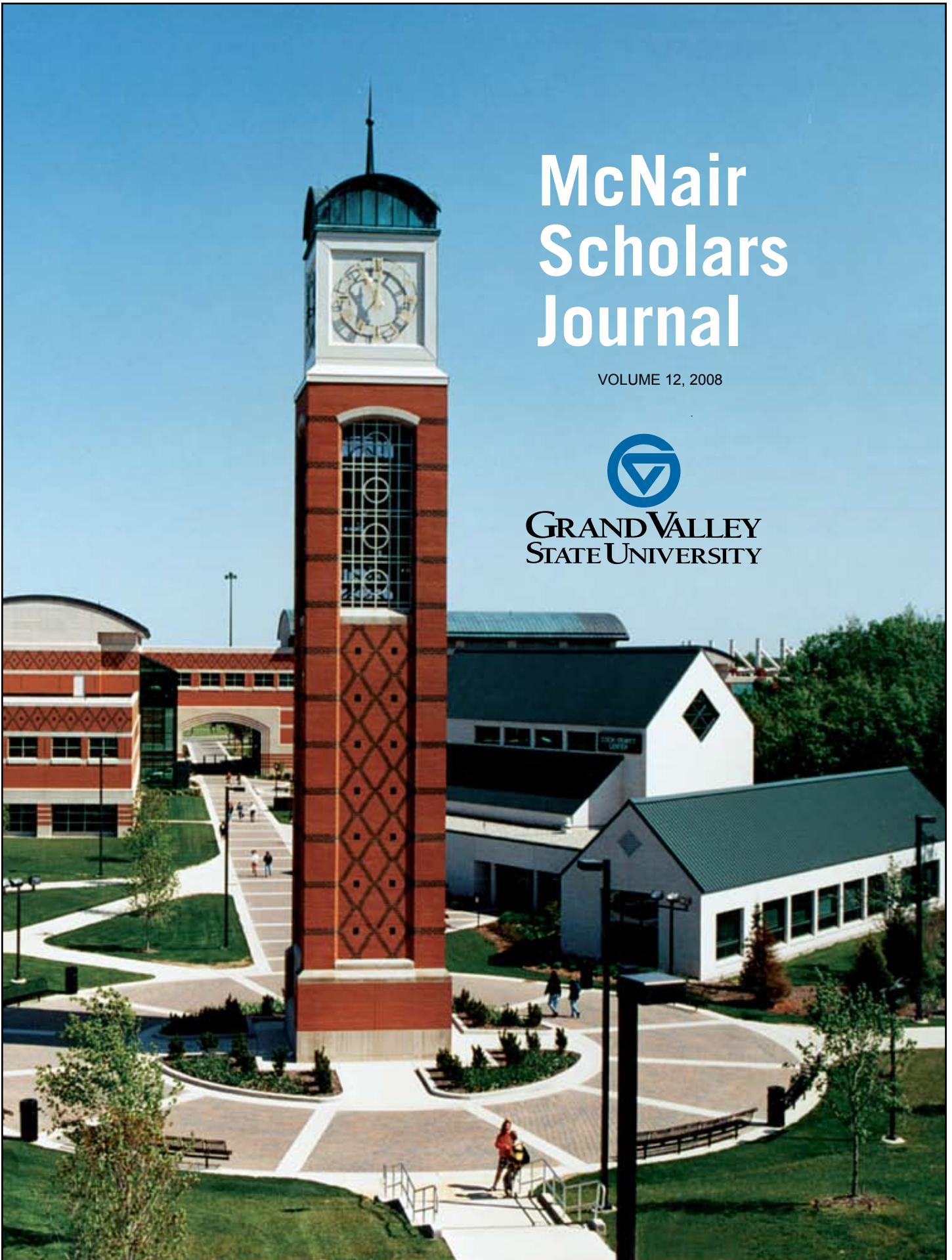


McNair Scholars Journal

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GRAND VALLEY
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Message from Nancy M. Giardina

Assistant Vice President for Academic Affairs

We are proud to present the twelfth volume of the Grand Valley State University McNair Scholars Journal. It is the culmination of intensive research conducted by our student scholars and their faculty mentors through our Ronald E. McNair Scholars Program.

The Ronald E. McNair Scholars Program, now in its 14th year here at Grand Valley State University, provides an opportunity for students and faculty to apply much of what is learned within the classroom by engaging, outside the classroom, in research activities in a particular area of scholarly interest. These research activities provide a journey through the challenges and affirmations of scholarly work and better prepare students for graduate study and the pursuit of a doctoral degree.

Thank you to the faculty mentors who have worked so closely with our McNair Scholars to propel their research skills towards the next level of educational challenges.

Congratulations to the ten McNair Scholars whose research is presented here. Your journey and the challenges you have met during this scholarly activity speak to your talents and persistence in pursuing both your educational and life goals. Thank you for sharing your talents with the university community and continuing the spirit of this program.

Finally, thank you to all the people behind the scenes that work to sustain this program and produce this journal. Your work is valued as well.



Nancy M. Giardina, Ed.D.

Assistant Vice President for Academic Affairs



**GRAND VALLEY
STATE UNIVERSITY**

*“Before you can make a dream come true,
you must first have one.” - Ronald E. McNair, Ph.D.*

Ronald Erwin McNair was born October 21, 1950, in Lake City, South Carolina, to Carl and Pearl McNair. He attended North Carolina A&T State University where he graduated Magna Cum Laude with a B.S. degree in physics in 1971. McNair then enrolled in the prestigious Massachusetts Institute of Technology. In 1976, at the age of 26, he earned his Ph.D. in physics.

McNair soon became a recognized expert in laser physics while working as a staff physicist with Hughes Research Laboratory. He was selected by NASA for the space shuttle program in 1978 and was a mission specialist aboard the 1984 flight of the USS Challenger space shuttle.

After his death in the USS Challenger space shuttle accident in January 1986, members of Congress provided funding for the Ronald E. McNair Post-Baccalaureate Achievement Program. The goal is to encourage low-income, first generation students, as well as students who are traditionally underrepresented in graduate schools, to expand their opportunities by pursuing graduate studies.



Ronald E. McNair Post-baccalaureate Achievement Program

The Purpose

The McNair Scholars Program is designed to prepare highly talented undergraduates to pursue doctoral degrees and to increase the number of individuals (from the target groups) on college and university faculties.

Who are McNair Scholars?

The McNair Scholars are highly talented undergraduate students who are from families with no previous college graduate, low-income background or groups underrepresented at the graduate level for doctoral studies. The program accepts students from all disciplines.

Program Services

The McNair Scholars are matched with faculty research mentors. They receive academic counseling, mentoring, advising, and GRE preparation. In addition to the above services, the McNair Scholars have opportunities to attend research seminars, conduct research, and present their findings orally or written via poster presentations. In the first semester of their senior year, the scholars receive assistance with the graduate school application process.

Funding

The Ronald E. McNair Post-baccalaureate Achievement Program is a TRiO Program funded through the United States Department of Education and Grand Valley State University.

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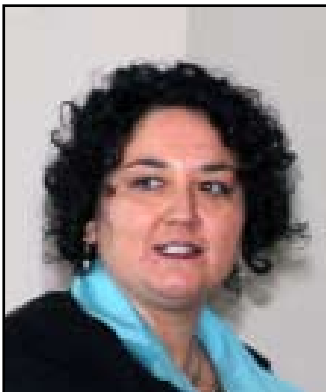
Palestinian and Iraqi Women Refugees: An Examination of the Past Sixty Years



Kim Anthony
McNair Scholar



Sebastian Maisel, Ph.D.
Faculty Mentor



Danielle DeMuth, Ph.D.
Faculty Mentor

Palestinian and Iraqi women refugees face daily challenges that many women throughout the world do not. These refugees cope with issues like poverty, deprived living conditions, violence, and sexual abuse, while access to medical and educational facilities remains limited. They depend on assistance provided by the United Nations, the United States, and host nations. According to several refugee commissions, the chronic underfunding of the United Nations' humanitarian organizations threatens to force a severe financial cut in the number and level of services provided to refugees. Urgent action is needed to ensure basic supplies, health care, adequate education, and psychological support reach families sheltered in occupied countries.¹

Researchers have investigated Palestinian refugee women to better understand their situation and to help alleviate the historical and social conditions that challenge the diaspora. This project is a comparative analysis that examines the research conducted on Palestinian refugees to determine how well that body of work can apply to Iraqi refugee women internally displaced following the American-led invasion in 2003. This paper seeks to answer the following questions: From which social and economic background do these women originate? How did this affect their displacement? Where did they go and what was their social situation? By better understanding Palestinian and Iraqi women's roles in their societies and histories, researchers can reject personal biases and make well-informed recommendations to help alleviate the collective concerns of these refugees.

The relationship between war, violence, occupation, migration patterns, and the social role women fulfill continues to pique academics' interest. It

is important to study women in conflict areas because on October 31, 2000, the U.N. Resolution 1325 on Women, Peace, and Security expressed concern that "[c]ivilians, particularly women and children, account for the vast majority of those adversely affected by armed conflict, including as refugees and internally displaced persons, and increasingly are targeted by combatants and armed elements, and [the international community has recognized] the consequent impact this has on durable peace and reconciliation."² The Security Council believed without women's protection, involvement in peace negotiations, and appointment to positions of power, the troubled area cannot achieve peace. Resolution 1325 addressed the adverse impact of armed conflict on women, and recognized that women's contributions to peacekeeping and peace-building help promote stability.

Taking from the Palestinian's sixty-year experience and projecting my findings onto Iraqis, I would suggest the following: First is for policy makers to recognize that Iraqis, men and women, do not make up one monolithic bloc of ethnicities, religious identities, and personal beliefs. Secondly, the Iraqi authority and American forces need to protect and help serve the best interests of women by providing a safe environment for women to voice their concerns, taking into consideration the importance of the role the family plays in Middle Eastern society. Thirdly, increase awareness of the resources available to women as victims of violence and sexual abuse. Lastly, to implement these recommendations, it is necessary to allocate more funds to successfully run these programs.

¹ World Vision Staff, "Middle East/East Europe: Five Years after War, Refugee Crisis Looms Large for Iraq," World Vision International, <http://www.wvi.org/wvi/wviweb.nsf/maindocs/5033B7CC8863D4EF88257412005E3119?openDocument>.

² United Nations Security Council, *Resolution 1325 (2000)*, United Nations, <http://daccessdds.un.org/doc/UNDOC/GEN/N00/720/18/PDF/N0072018.pdf?OpenElement>.

Exploring Permanent Property: An Exploration of the Tattoo Acquisition in the Midwest



Tiffany Cross
McNair Scholar



Ann Kroll Lerner, Ph.D.
Faculty Mentor

Irma Falls is a midsize Midwestern city located on the southwestern side of Michigan. It is the site of my pilot study, which focuses on the acquisition of tattoos outside of large urban centers like Los Angeles, New York City, Miami, and Chicago. Tattoo acquisition has increased nationwide in the last eighteen years, and it is not surprising that social scientists have taken notice. Their studies have acknowledged the tattoo's once exotic cross-cultural roots, its tumultuous American history, and its growing acceptance in late-20th-century American culture. There are four prevalent themes used in the discussion and analysis of modern American tattoo acquisition: class, identity, commoditification/consumerism, and culture-subculture. The goal of this research was to examine how Irma Falls compares to the expectations derived from the four themes. The underlying questions that this study presents center on cultural transmission. Essentially, how is trend imported and exported and what does the Midwest have to offer in that sense?

To gather data, I used survey and conducted interviews with Irma Falls residents, as well as tattoo artists in two of Irma Falls' most popular and well-known tattoo studios. To appropriately evaluate the demographics of the clientele in comparison to the neighborhoods, I observed both of the areas in which the two studios are located.

Based on the literature, I expected that most individuals acquiring tattoos today to be from middle-class families, that individuals would attach a sense of identity to their tattoo, that the increase in tattoo acquisition would be attached to American consumerist habits, and that there would be drastic differences between people with tattoos and "tattooed individuals." Tattooed individuals would

be those who see the tattoos as another part of their body.

Although this research is preliminary, what I have found is that the data are consistent with my expectations for the class and commodification themes but inconsistent with expectations of the identity theme. For the culture-subculture theme, the data acknowledge the existence of a small subculture within Irma Falls but suggests that the location, small size, and population of the city limits it from being at the forefront of tattoo culture. As for the identification within the tattoo world, there is a definite difference between a person with tattoos and a tattooed person.

Apatite Fission-Track Thermochronology, Northern Range, Trinidad (and Paria Peninsula, Venezuela)



Chris W. Denison
McNair Scholar



John C. Weber, Ph.D.
Faculty Mentor

The Northern Range of Trinidad is an east-west trending mountainous exposure of metamorphic rocks located in the Caribbean-South American plate boundary zone. With a maximum elevation of ~1km, the Northern Range is the only place in Trinidad where metamorphic rocks have been exhumed to the surface. Prior to ca. 10 Ma the Caribbean plate was obliquely converging relative to the South American plate and began creating the geologically young mountains that we see today. However, ca. 5-10 Ma, the Caribbean plate shifted from oblique convergence to dextral shearing (strike-slip faulting), and near Trinidad is currently moving at ~20mm/year toward $N86^{\circ}E \pm 2^{\circ}$ with respect to the South American plate. Using apatite fission-track methods, we test whether the Northern Range rocks were exhumed before or after this shift in plate motion to better understand the processes by which they were exhumed (unburied). Samples were collected over the past decade, and then the fission-track analysis was performed at Apatite to Zircon Inc. in the summer of 2008. We studied apatite fission tracks in fifteen samples: fourteen from the Northern Range, and one from the Paria Peninsula in Venezuela. All samples gave reset fission-track ages, between ~4 Ma and ~20 Ma. We recognize a spatial pattern in the ages: older fission-track ages (ca. 13 to 18 Ma) are located in the eastern Northern Range and younger fission-track ages (ca. 5 to 6 Ma) are located in the western Northern Range. The younger fission-track ages in the western Northern Range postdate oblique convergence of the Caribbean plate motion relative to South America. The older fission-track ages in the east predate the shift in plate motion. Inverse modeling using the HeFTy program also shows that exhumation occurred at

a faster rate (ca. $15^{\circ}C/m.y.$) in the west than in the east (ca. $5^{\circ}C/m.y.$). Our interpretation is that a thick, buoyant crustal root is present in the western Northern Range and this resulted in isostatic uplift and associated erosion, exhuming rocks of the western rocks long after oblique convergence (transpression) shut off.

Mini-Kingdoms and Ivory Towers: A Critical Analysis of Higher Education in Modern Civil Society



David Martin
McNair Scholar



Michael Ott, Ph.D.
Faculty Mentor

Critical analysis of institutions of higher education has shown that many professors instill a sense of dependence into their students, which is attributed to the colonization of educational systems by class antagonism and proliferation by the capitalist class means of production that values profit over humanity. Critical thought has been suspended in favor of what Paulo Freire termed the “banking” style of education, in which students are seen as repositories to be filled rather than people to be educated. This method of educating drastically reduces individuality and creates an environment that takes on the characteristics of worker-training rather than that of true education. The meaning of the word “educate” is derived from the Latin root *e-duca*, meaning to lead or draw out, to grow or become, and to develop potential. This purpose has shifted from an etymological pedagogical perspective, which understands education to be a life dynamic that leads humanity out of ignorance toward wisdom, into a means of replenishing the industrial reserve army and solidifying the indoctrination of dominate elite values and ideologies. This study shows that the student-professor relationship now functions to streamline the transition from student-professor to worker-owner in modern civil society. This interdisciplinary content analysis, drawing from scholarly journals and texts in the areas of critical theory, social psychology, philosophy, Marxism, and critical pedagogy, specifies the conditions of higher education in modern civil society, explicitly calling attention to the relationship between student and professor and how it is affected by the overarching economic system. This study addresses the cultural and structural forces working to perpetuate those effects and why they do so, concluding with a means of implement-

ing a dialectical approach that serves to combat the antagonisms found within the classroom and presents an alternate method of educating more in-line with the original purpose of education. Critical pedagogical reform must be initiated in order to reconcile our system of higher education through determinate negation, which is a method of identifying negative characteristics in any given object of knowledge in order to nullify them, thus bringing said object that much closer to an ideal reconciled form.

Global Positioning System (GPS) Determination of Motions, Neotectonics, and Seismic Hazard in Trinidad and Tobago.



Anthony B. Rodriguez
McNair Scholar



John C. Weber, Ph.D.
Faculty Mentor

The twin island nation of Trinidad and Tobago is located in the actively deforming Caribbean-South American (Ca-SA) plate boundary zone. Geodetic GPS work over the past decade has accurately determined Ca-SA current relative plate motion and clearly shows the Caribbean plate presently moves approximately eastward relative to the South American plate at ~20 mm/yr (Weber et al., 2001; Lopez et al., 2005).

A low-precision triangulation-to-GPS comparison at 23 sites showed that significant strike-slip faulting is probably occurring on the Central Range Fault (CRF) (Saleh et al., 2004). However, earthquakes do not clearly mark this or other active faults in Trinidad. The lack of recent seismic activity on the CRF could indicate that it is elastically locked. Locked faults store motion and then release it infrequently during big earthquakes, whereas creeping faults produce continuous, small earthquakes. One of our main goals is determining (geodetically) whether a future large earthquake is possible in Trinidad.

Our research uses new GPS data from 19 high-stability sites that were built and measured in 2005, then measured again in 2007; it also includes data from a few sites that extend back to 1994. The campaign-style GPS field measurements were collected by coauthor Weber and associates at the University of the West Indies. The new data allows us to test and refine the previous results from lower-precision geodetic work (Saleh et al., 2004). We hope to better quantify the rate of slip across the CRF and its mechanical behavior. We compiled these data and processed them using GIPSY/OASIS II (Release 5.0) software at the University of Miami RSMAS Geodesy Lab. We find that, in a South American reference frame (Weber et al., 2001),

sites north of the CRF move at about 20 ($\pm 1-5$) mm/yr, and sites south of the CRF are stationary ($\pm 1-8$ mm/yr). Tobago site velocities are slightly oblique to the overall Caribbean plate motion due to a major dextral-normal earthquake (magnitude 6.7) that occurred off Tobago's south coast in 1997. Our new results support the hypotheses that the CRF is an active strike-slip fault. We find that sites in northern Trinidad are on the Caribbean plate and move at a rate of about 20 mm/yr eastward (relative to South America). Sites in southern Trinidad move slowly if at all relative to South America. We are fitting locked fault (elastic dislocation half-space) models to these data; we will look more closely at the mechanical behavior of the CRF and establish whether it is locked or creeping to evaluate its seismic hazard. These data will provide critical information for determining the potential seismic hazard of the CRF and for better informing and preparing the citizens of Trinidad and Tobago.

Considering Language Convergence in Ontario: An Examination of Variation in Hearst French



Ryan Rosso
McNair Scholar



Janel Pettes Guikema, Ph.D.
Faculty Mentor



Dan Golembeski, Ph.D.
Faculty Mentor

Language contact and its effect on change have proven difficult to explain in modern linguistics. While language change is a historically difficult process to prove while it is happening, it is even more difficult to show decisively that certain changes are contact-induced. Furthermore, an abundance of social and linguistic factors that can play a role in contact-induced changes only add to the uncertainty of these studies. The position of French in Ontario, Canada, is a clear example; a lack of sufficient data impedes the ability to perform the proper study and thereby prove contact-induced changes in the minority language. However, previous studies have made the case that some instances of variation in Ontario French point toward the possible existence of ongoing contact-induced change (Beniak, Mougeon, & Valois, 1984; Rehner & Mougeon, 1997). This paper seeks to contribute to this body of research by analyzing French variation found in Hearst—a small community in Northern Ontario which is a prime example of language maintenance—and applying the results to the findings of other scholars. The data is a corpus of informal spoken interviews in French with 34 inhabitants of Hearst who range in age from 11 to 81 and are composed of 18 males and 16 females. The chosen examples of variation are two which previous research in Eastern Ontario and Quebec has examined. I first look at the variable usage of the prepositional constructions *chez* + Noun Phrase and *à la maison*, meaning “at/to one’s home.” I then consider variation between the restrictive expressions *rien que*, *seulement*, and *juste*. The results show elevated use of the variants which are more similar to English forms despite the unrestricted nature and large percentage of Francophones—as compared to Anglophones—

living in Hearst. These findings are counterintuitive in light of the conclusions of Beniak, Mougeon, and Valois (1984) and Rehner and Mougeon (1997), which attributed similarly elevated use of these variants in Francophone minority communities to English language convergence. This paper concludes with a consideration of other possible factors which could play a role in these instances of variation as well as the implications these results have on the study of contact-induced variation and change in Ontario and in general.

Cyber-Sexual Harassment: The Development of the Cyber-Sexual Experiences Questionnaire



Samantha Schenk
McNair Scholar



Donna Henderson-King, Ph.D.
Faculty Mentor



Ellen Shupe, Ph.D.
Faculty Mentor

Research on sexual harassment has shown that although half of all women experience unwanted sex-related behaviors in work and school, only 4 to 20 percent label those experiences as sexual harassment (Magley, Hulin, Fitzgerald, & DeNardo, 1999; Stockdale, Vaux, & Cashin, 1995). Moreover, while research and literature on face-to-face sexual harassment continues to grow, little research has examined sexual harassment in an Internet context. Because of this, much of what is known about Internet-based sexual harassment comes from research conducted on face-to-face sexual harassment. The current study establishes a foundation for understanding and develops a measure of experiences of sexual harassment on the Internet (i.e., cyber-sexual harassment).

Cyber-sexual harassers use the Internet as a way to connect with acquaintances from offline social interactions (i.e., work and school), or complete strangers, to perpetrate their victims through gender harassment, the exhibition of unwanted sexual attention, and/or the use of sexual coercion. In a British survey, 41 percent of female regular Internet users reported being sent unsolicited pornographic materials, harassed, or stalked on the Internet (Griffiths, 2000). Such a large number of women encountering offensive sex-related experiences on the Internet prompts further understanding of these experiences and others like them. The purpose of the current study is to add to the developing body of literature on cyber-sexual harassment by creating a measure of cyber-sexual harassment. Twenty-four female undergraduate students participated in focus groups of two to six people. Guided by predetermined questions, these groups discussed their positive and negative experiences on the Internet. Information gathered was used

to create the Cyber-Sexual Experiences Questionnaire, modeled after the Sexual Experiences Questionnaire (Fitzgerald, Gelfand, & Drasgow, 1995). The 21-item measure consists of questions related to the participant's cyber-sexual harassment experiences and whether the participant labels her experiences as cyber-sexual harassment. Responses for the frequency of each item range between one (never) to five (most of the time).

School of Choice and Diversity



Megan Taliaferro
McNair Scholar



Jennifer Stewart, Ph.D.
Faculty Mentor



Lisa Hickman, Ph.D.
Faculty Mentor

In recent decades, public school choice has become increasingly popular. Expanded availability of choice plans has led to many substantial changes in public education (Plank & Sykes 1999). Accompanying this change, public schools are also undergoing rapid resegregation (Orfield & Eaton 1996; Orfield 2001; Clotfelter 2001). According to these studies, segregation in schools is more pronounced than it was just 12 years ago, specifically in mid-sized and large cities.

To address any relationship that may exist between the two issues, this case study analyzes the effects of interdistrict choice on levels of diversity within 19 school districts located in or near a mid-sized city in Michigan. The focus in this study is primarily on interdistrict transfers for two main reasons. First, there is much more literature that analyzes the relationship between school segregation and other types of choice. Second, there has been a recent expansion of such policies, specifically in the area being studied.

There are two main research questions addressed in this study: 1) What, if any, trends in demographics occurred within districts as a result of interdistrict transfers? 2) What overall implications do interdistrict transfers have on the documented resegregation occurring in American public schools?

The first question was analyzed using three secondary data sets. One was of student transfers, which was provided by the Intermediate School District (ISD) being studied. The second set of data was provided by the urban district and identified the school of choice transfers by race/ethnicity, gender, free/reduced lunch status, and grade level. The final set of data was from the Center for Educational Performance and Information (CEPI) and provided overall demograph-

ic statistics for each district.

Through quantitative analysis of the secondary data, it can be determined that there were disproportionate numbers of white and middle-class families transferring out of the urban district through interdistrict transfers. Where white students consisted of only 21 percent of the urban district's total enrollment, 53 percent of the students transferring out of the urban district are white. In addition, 70 percent of those students transferring out of the urban district are not eligible for a free or reduced lunch, while only 17 percent of the total enrollment are not eligible for a free or reduced lunch. The majority of students, of all races, were transferring from the urban district to schools that had similar racial composition as their own. Therefore, the findings of this study suggest that interdistrict transfers are further advantaging majority white and middle-class families and further stratifying the urban district by both race and class. Considering the steady increase in the use of interdistrict transfers, it is also likely that this trend will continue.

Future research should include parent interviews regarding what motivates them to use choice. This will add crucial information to the overall understanding of the role that race and class play in school choice. Although this case study is limited in scope and therefore cannot be generalized, it is important for research to continue in this area to better understand the relationship between school choice and segregation.

What we have here is a failure to communicate: Using a model to explain textbook representations of human evolutionary theory.



Ben Winegard
McNair Scholar



Robert Deaner, Ph.D.
Faculty Mentor

Evolutionary theory has long been attacked by religious fundamentalists. In recent decades, however, social scientists have also attacked evolutionary theory especially as applied to human cognition and behavior. These attacks have isolated the social sciences from theoretical and empirical developments in relevant fields of inquiry such as behavioral ecology and evolutionary psychology. Sociologists, in particular, have failed to incorporate insights offered by evolutionary theory into their explanatory models.

One plausible explanation for social scientists' hostility toward, and ignorance of, evolutionary theory is that the subject is systematically misrepresented in undergraduate social science textbooks. The authors tested this general hypothesis and four specific predictions by coding 15 social science textbooks focusing on human sex differences. We selected the 15 most popular textbooks using data supplied by Monument Information Resource, a textbook consulting company.

Specific predictions were as follows: (P1) Sex and gender textbooks systematically misrepresent evolutionary theory; (P2) Sex and gender textbooks with higher levels of hostility make more types of errors when discussing evolutionary theory; (P3) Sex and gender textbooks that are more popular make more types of errors when discussing evolutionary theory than do less popular textbooks; (P4) Sociologically based sex and gender textbooks contain more types of errors and display more hostility than do psychologically based sex and gender textbooks.

To test these predictions, common errors were identified and labeled. Errors included the moralistic fallacy, the naturalistic fallacy, accusation of biological determinism, ad hominem attacks, the necessity of a mechanical demonstration

fallacy, the intentionalistic fallacy, and accusations of a conservative agenda. These errors were chosen specifically because introductory evolutionary-based textbooks urge students to avoid their use and perpetuation. Attitude was assessed using a five-point Likert scale, with 1 scored as extremely hostile toward evolutionary theory, 3 as neutral, and 5 extremely positive.

All four of our predictions were supported. First, most textbooks made multiple types of errors ($M = 2.8$, $Med = 3$, $SD = 1.97$) and were hostile toward evolutionary theory ($M = 1.87$, $SD = .64$). Second, hostility was significantly correlated with the number of types of errors made by textbooks ($r_s = -.59$, $p = .018$). Third, popularity was correlated with the number of types of errors made by textbooks, but this relationship was not quite significant ($r_s = -.42$, $p = .11$). Finally, sociology textbooks contained more types of errors (Sociology: $M = 3.83$, $SD = 1.94$. Psychology: $M = 2.11$, $SD = 1.76$) and hostility (Sociology: $M = 1.5$. Psychology $M = 2.1$) than did psychology textbooks.

These results strongly support our general hypothesis that undergraduate social science textbooks serve as conduits of misinformation about human evolutionary theory. The ramifications of this distortion are potentially very large. A firm grasp of the precepts of evolution are increasingly needed to understand important phenomena such as antibiotic resistance, cancer, sexual coercion, and child abuse. It is hoped that this study spells out some of the specific misunderstandings that social scientists have, addresses their discipline specific concerns, and moves the discussion forward to more productive grounds.



About the TRiO Programs

To fight the war on poverty, our nation made a commitment to provide education for all Americans, regardless of background or economic circumstances. In support of this commitment, Congress established several programs in 1965 to help those from low-income backgrounds and families with no previous college graduates (first generation). The first three programs established were Talent Search, Upward Bound, and Student Support Services. Thus, they are known as the TRiO Programs.

Since then, other programs have been added, including Upward Bound Math and Science, Educational Opportunity Center, The Training Authority, and in 1989, The Ronald E. McNair Post-Baccalaureate Achievement Program. The goal of all of the programs is to provide educational opportunity for all.

The Ronald E. McNair Post-Baccalaureate Achievement Program is designed to prepare highly talented undergraduates to pursue doctoral degrees. In addition, the goal is to increase the number of students from low-income backgrounds, first generation college students, and under-represented minorities on college and university faculties.

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