McNair Scholars Journal

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Grand Valley State University

Message from Robert P. Smart
Vice Provost for Research Administration and
Executive Director of the Center for Scholarly and Creative Excellence

It gives us great pleasure to present the 2012 Grand Valley State University McNair Scholars Journal. It is the culmination of the collaborative explorations conducted by our student scholars and their faculty mentors through our Ronald E. McNair Scholars Program. Their contributions to this journal represent the persistence and creativity of our students and the faculty mentors who exemplify the dedication of our campus to undergraduate success.

The Ronald E. McNair Scholars Program, now in its 19th year at Grand Valley State University, is a federally-funded program geared to provide research opportunities for low-income/first-generation, and underrepresented college undergraduates to better prepare them for graduate school. At GVSU, our strategic goals and values align with the McNair Scholars Program as we strive to improve both the diversity and quality of our students and prepare them for success beyond their undergraduate experience.

We would like to congratulate each of the McNair Scholars whose research is presented here. We would like to thank the faculty mentors who have worked so closely with our McNair Scholars to propel their intellectual curiosity and foster their goals and dreams. I would also like to extend my appreciation to the staff of the McNair Scholars Program; it is their dedication and hard work that help make these successes possible. We hope you enjoy learning about the great work done by our students and their faculty mentors.

Robert P. Smart Ph.D.
Vice Provost for Research Administration and
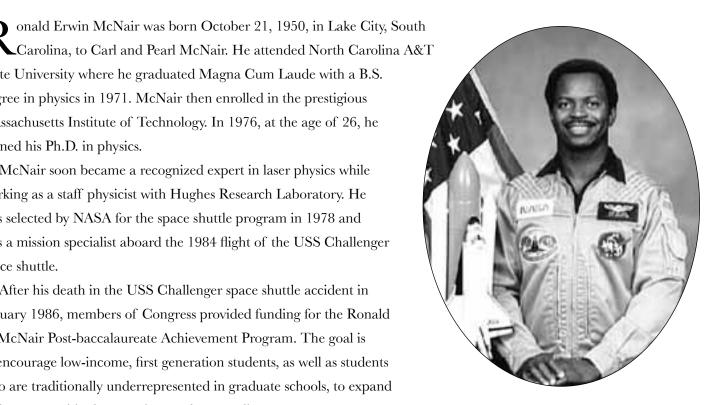Executice Director of the Center for Scholarly and Creative Excellence

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 finding 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.

Table of Contents | *McNair Scholars 2012*

The Fixed Points of the Columnar Transposition Cipher

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McNair Scholar

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The columnar transposition cipher is an encryption method in which the letters of a message are written across a number of columns. Then, one reads down the columns to find the encrypted message. The number of columns used must be greater than one.

For example, we will encrypt the message "Dinner is at five" using three columns. We refer to tables like the one below as enciphering grids. We observe that

$$\text{DINNERISATFIVE} \rightarrow \begin{array}{|c|c|c|} \hline D & I & N \\ \hline N & E & R \\ \hline I & S & A \\ \hline T & F & I \\ \hline V & E & \\ \hline \end{array} \rightarrow \text{DNITVIESFENRAI.}$$

The positions of characters in the original message can be thought of as a set, $S = \{0; 1; 2...L - 1\}$ where L is the length of the message. The columnar transposition cipher is a permutation, $Q : S \rightarrow S$.

This paper focuses on the location and existence of the fixed points of this permutation. There are two types of fixed points. A trivial fixed point always occurs in the upper left corner of the enciphering grid. If the bottom row of the enciphering grid is full, then the character in the lower right position will be a trivial fixed point. Nontrivial fixed points are any other fixed points that occur, such as the letter "S" in the example above. These points are important because they are in the same position in the ciphertext and in the plaintext and are not simply at the beginning or end of the message.

In this paper, we include proofs of which columns cannot contain nontrivial fixed points. It also includes a proof of the maximum number of fixed points that can occur depending on the length of the message and the number of columns

used. Relying on these two results, the paper contains a proven method to find fixed points. This method again relies on the length of the message and number of columns. It enables the user to check each possible column with a simple formula to determine the existence and location of fixed points. Finally, we include a theorem that classifies all nontrivial fixed points when C = 3.

The Touchiest Topic in High School: A Textual Analysis of Public High School Policies Regarding Student-to-Student Touch

Adam Burl
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Faculty Mentor

This paper opens the conversation about student-to-student touch practices, conceptions, and regulations within American public high schools. Prior research has shown that positive experiences with touch serve a vital role in child and adolescent development. Friendly touch behaviors benefit children and teen-aged persons both physiologically and psychologically. Additionally, haptic interaction is arguably the deepest form of communication. Yet scholars seldom examine how communication practices contribute to how individuals, including children, experience touch in various contexts. The current project analyzes the way touch is described, addressed, and framed in the student handbooks of public high schools from the state of Michigan. The public high school handbook provides a unique viewing angle into American discourse that evaluates both public interests and the topic of children and adolescents. Largely due to government legislation and controversy about children and sexual abuse, the topic of student-to-student touch has entered into the news media as a major issue of public debate. As more schools have instituted bans on student-to-student touching in public schools, news reports of teenagers receiving detentions and suspensions have fueled discussions on what should and should not be allowed within public schools. While the argument continues in the public sphere, the conversation fails to address how these policies may affect students' perceptions and actions outside of high school. The ways in which people talk about and think about touch, shapes and are also shaped by the broader cultural discourse in which touch resides. Touch is only contextually meaningful; any understanding of a particular touch always takes place in a particular situation. The paper provides examples of how the contextual nature of touch allows seemingly identical touch behaviors to be understood differently based on their context and environment.

A textual analysis of public high school handbooks in the state of Michigan reveals that the handbooks address the topic of touch as inherently sexual or violent. Although prior research has shown that schools aim to discourage bad behaviors and encourage good behaviors, the handbooks fail to encourage friendly types of touching between students and instead aim to focus on the potential negative potentialities of touching. Additionally, many of the handbooks speak of touching as an intrusion or embarrassment. Included in this paper are examples of high school handbook rules that aim to define, regulate and prohibit touch.

The discourse in the evaluated handbooks is reflective of the larger cultural conception of touch that damages human communication, as well as physiological and psychological health. Additionally, the removal of touch from interpersonal relations creates people who are less empathetic and have limited capabilities in sharing meaningful experiences with others. The conclusion of the paper offers a few ways to progress to a discourse that can talk about and understand touch in friendly and loving ways and, in turn, create a culture that is happier and more understanding and feeling than the current American society.

Individual Contexts Versus Group Contexts

Thomas Ewing
McNair Scholar

Ernest Park, Ph.D.
Faculty Mentor

Our research is aimed at better understanding when and why people gravitate toward groups and whether people act differently in groups versus being alone. Past research has shown that groups provide people with a sense of anonymity and diffusion of responsibility (Hirsh, Galinsky, & Zhong, 2011). For instance, when people are in groups, they feel they are less identifiable and when part of a group, people feel less personally accountable when actions go awry. Because people feel less accountable, and because groups are less likely to be targeted than individuals, groups also provide a sense of psychological safety (Park & Hinsz, 2006).
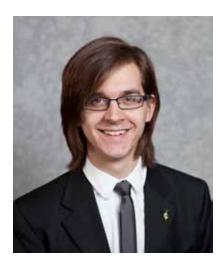
In our society, there are many lay theories and personal beliefs about groups. For example, many believe that groups are better decision makers than individuals. We see this in political, legal, educational, and business settings (e.g., congress, juries, committees, and board of directors). While we employ groups across life domains, little is known about how group contexts actually differ from individual contexts. Past research has shown that when individuals work with others, individuals and the way they think can be influenced by the presence of others. This is just one example of how group contexts can change an individual.

Using a survey method design, the current study suggests that people prefer to be in groups versus being alone when in threatening situations. For example, when asked to imagine being in scenarios that are potentially threatening, such as facing a tornado, participants show a preference to be with others over being alone. Similarly, the study supports the claim that people are less inhibited (more impulsive) and less ethical in group contexts compared to individual contexts. For example, when asked to think about the most impulsive thing that they had ever done and did not regret, 92.3% (36 out of 39) of participants report being with at least one other person. Furthermore, after envisioning scenarios that involved acting unethically alone and envisioning scenarios that involved acting unethically with others, participants report a higher likelihood of acting unethically in group contexts compared to individual contexts.

The findings suggest that an increase in the study of groups could help us to better understand why individuals prefer to be in groups and the effects that being in groups can have on the way an individual thinks and behaves.

Comparative Theories of Visual Art and Music: May I Play You a Picture?

Karel Lill
McNair Scholar

Lee Copenhaver, Ph.D.
Faculty Mentor

Relationships among the visual and aural arts, especially between color and sound, have been postulated by artists and composers for a variety of purposes. For many, a comparative theory between the two art forms functions as a guide to understanding an art form in which they are inexpert. With a comparative theory, the musician can use his expertise in music to understand a piece of visual art by comparing it to music and vice versa for the artist.

Comparative theories can be used to produce art. Some artists and musicians attempt to objectively translate a work of visual art into music or vice versa. Ann Adams diligently studied every detail of Ravel's *Bolero* and created a visual interpretation of what she heard by methodically representing each aspect of the music in her painting *Unraveling Bolero* (1994).

Comparative theories are also used to develop non-representational forms of art. Walter Pater said, "All art constantly aspires to the condition of music." Artists who created "color-music" knew that to be true. They created art that was akin to music, borrowing characteristics such as form, tone color, rhythms, development, and harmonies. Kandinsky was creative and expressive in his *Compositions* (ca. 1912), in which accurate representation of real objects were superfluous.

The desire for color-centered art led to the development of various "color-organs," keyboard type instruments used to activate colored lights during "light-only" performances and with performances of coordinated music. Plans for some of these instruments were technologically advanced for their time; some had to wait to be realized. A 1975 laser-light performance of Scriabin's 1910 *Prometheus* at the University of Iowa finally came close to realizing what the composer meant by including a color organ ("luce") in his score. Others were impractical because they relied on unsafe technology such as gas lamps.

What, specifically, do music and art have in common? Is it the framework or the details, the forms or techniques, or is it the creator's motivation? Various comparative theories exist to answer these questions. The goal of this study is to develop an understanding of how theories compare, with the intent of realizing whether or not, or to what degree, visual art and music are related.

Due to the span of time that these speculations cover—from ancient Greece to today—putting them into historical context will be necessary. Explaining how theories were inspired by ancient Greek ideas (or how they reacted against them), and by the scientific community of the seventeenth century, and/or by the subjective creativity of romanticism, will help to better understand them. After a historical introduction, the defining features of representative theories will be compared. For example, alignment of color and pitch can repeat throughout musical octaves, or they can change with register. This will not only show the degree to which music and art (especially color) have been compared, but also will suggest avenues for future creative speculations.

History of Emotional and Physical Abuse and Parenting

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Faculty Mentor

Childhood abuse is a social problem that is associated with many negative outcomes later in life such as an increased risk for suicide attempts, depression, and problems with communication skills. Because physical and emotional abuse is significantly correlated, it is often difficult to determine the impact of the physical versus emotional aspects of the maltreatment. Thus, this study explored the extent to which physical and emotional abuse is each associated with parenting attitudes, disciplinary choices, and risk for later abusive parenting. This study also assessed the extent to which deficits in parental empathy that may result from having had a history of abuse may contribute to parenting practices that place parents at risk for later abuse perpetration. To explore these associations, data from two different but demographically similar samples were used (n = 332, n = 181). Participants in both samples were "pre-parents" who were mainly Caucasian, female, and between the ages of 18 and 23. The assessment of the hypotheses was based on correlation and regression analyses. As predicted, a history of physical abuse predicted an increased acceptance of parental physical discipline and more punitive disciplinary choices, while emotional abuse did not have a statistically significant effect. Deficits in parental empathy were associated with an increased acceptance of parental physical discipline and more punitive disciplinary choices. These findings are consistent with previous research which has suggested that the experience of

physically abusive parenting influences later parenting responses via the formation of disciplinary attitudes and choices. These findings suggest that deficits in empathy that result from being a victim of abuse may also be associated with increased acceptance of corporal punishment and escalation to violent behavior when faced with a noncompliant child. Some study limitations include the use of a college sample and self-report instruments. Notably, however, working with "pre-parents" can be useful in helping to detect risk factors for abuse perpetration as they might exist prior to parenthood. Additionally, the use of measures with limited face validity and an analog parenting measure in the present study might have minimized impression management and demand effects.

Female Truck Drivers:
Negotiating Identity in a Male Dominated Environment

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McNair Scholar

Janet Brashler, Ph.D.
Faculty Mentor

This research explores how women negotiate their identities when working in the male dominated field of truck driving. According to the U.S. Bureau of Labor Statistics, of the over three million people who make their living as truck drivers, only six percent are female. By combining data gathered using various ethnographic research methodologies, several aspects related to women working in the truck driving industry were interpreted from the theoretical perspectives of performance theory and optimal diversification theory. A literature review revealed that little academic research has been published on the field of truck driving, and even less is written about female truck drivers. Central to the research in this paper is identification of the roles women occupy in the trucking industry, why they choose this particular career, as well as how they confront issues of gender stereotyping. Duality of identity is explored in instances where a woman must balance her identity as both a female and a truck driver. Identity markers such as CB handles and decoration of trucks further indicate ways in which women drivers assert and define their identities. Content analysis of 24 issues of *The Trucker* magazine compares how men and women are identified and represented in a publication geared toward truck drivers. Finally, interviews with female truck drivers were conducted as a means of understanding why these women entered this career and how they negotiate their identities.

From the African American Oral Tradition to Slam Poetry: Rhetoric and Stylistics

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Veta Tucker, Ph.D.
Faculty Mentor

Slam poetry is one of the most recent cultural innovations of African Americans. As with many cultural innovations, the artistry of slam poetry is undervalued while its entertainment appeal is overvalued. Although slam poetry's artistry lies in both verbal and non-verbal aspects of performance, this research project focuses mainly on selected verbal features of slam poetry. This research seeks to balance the artistic and entertainment appeal of contemporary slam poetry by demonstrating that its verbal features derive from a linguistic heritage in early forms of Black English vernacular oral storytelling and from new styles of performance poetry produced by African Americans in the mid-twentieth century, specifically during the Black Nationalist/Black Arts movement.

Based on sociolinguistic principles, there are historical and sociological rationales for seeking continuities between early forms of Black vernacular speech and slam poetry. Black vernacular English was an oral language created by involuntary immigrants from the African continent to North America. The early African immigrants inhabited a unique speech community, and they were forced to invent a unique form of language to communicate in a new natural, political and cultural environment. Once linguists began to study the unique Black vernacular language that early Africans invented, linguists found distinctive verbal patterns. Many of these verbal patterns or features have endured in modified form over several centuries and are present in today's slam poetry.

This research uses sociolinguistics, descriptive linguistics and discourse analysis as methodologies to isolate and describe artistic and rhetorical features that slam poetry shares with texts in the Black vernacular oral tradition and in performance poetry from the mid-1960's-70's Black Nationalist/Black Arts Movement. This research will discuss the historical formation of the Black vernacular speech community and its continuation in slam poetry as well as analyze in detail one rhetorical feature: performativity including two verbal stylistic features, signifying and tonal semantics. Two questions, "What is slam?" and "What does the 'slam' in slam poetry mean?" will be addressed from a sociolinguistic perspective to give readers a better understanding of this recent poetry form.

An original slam poem written by the researcher will be analyzed. It is important to note that none of the poetry texts used as examples in this research, specifically the poem written by the researcher, was written with any prior knowledge of Black vernacular's unique verbal features. This analysis will also feature excerpts from an interview with a practicing slam poet. She will provide an overview of slam poetry's performance power in her own life and in the audience's appreciation of her work.

Individuals who have dismissed or misunderstood the literary merits of slam poetry should be intrigued after learning about its verbal artistry. This research will also introduce contemporaries who are better informed of slam poetry's cultural legacy.

From Politics to "Popular": Commercialization of Broadway Musicals and How It Affects the Public Sphere

Bridgett Vanderhoof
McNair Scholar

James Bell, Ph.D.
Faculty Mentor

Theaters have been used for centuries as places where people can critically discuss the nature of their lives, but a recent rise in mega musicals that focus on spectacle degrades the purposes of theatre. To ensure theatre's place in the present and future public sphere, an examination of current theatrical production must occur. In this project I discuss how the commercialization of theatre is detrimental to the public sphere by using the musical *Wicked* as an example. I compare the musical to its supposed source material, Gregory Maguire's *Wicked*: *The Life and Times of the Wicked Witch of the West*, to show how musicals are adapted to entertain mainstream audiences. To understand why commercialization is debasing theatre's position, I use public sphere theory along with theories of spectacle to explain theatre's past and present situation in the public sphere. I perform a content analysis of the musical *Wicked's* characters, plot, and theme in comparison to the same elements in the novel. These differences support the claim that musicals are not critical pieces of drama in comparison to other forms of media. The results support the claim that musicals do not contribute as much to the realm of critical and rational debate as straight plays do. This is due to the general nature of the musical: structure, characters, and themes are reused, and as a result there are limited alternative viewpoints. This trend is also due to the ridiculous amount of spectacle in musicals, which often outweighs the plot, characters, and themes. When spectacle overcomes character and plot, there is less room for critical discussion of any kind since the production focuses on entertainment rather than informing. *Wicked's* abundant use of elements from *The Wizard of Oz* movie from 1939 illustrates how musical creators manipulate an audience to increase ticket sales. The rise of the mega musical in American culture has led to a deterioration of theatre within the public sphere. Mass audiences have been trained to enjoy these musicals and to expect certain structural elements, such as heterosexual romances and characters that break out into song and dance. The audiences involved in the musical theatre world have become disconnected and lazy, disregarding rich thematic story elements in exchange for more spectacle. Broadway musicals are becoming larger and therefore need more money to be produced. This means less money for critically engaging pieces of theatre to be produced on a nationally-recognized venue. This small-scale public sphere issue may be reflective of a larger commercialized culture in which spectacle overcomes substance.

Inventing a Mexican Cubism: Diego Rivera in Paris

Kelsey Winiarski
McNair Scholar

Kirsten Strom, Ph.D.
Faculty Mentor

My research, through an extended literature review, focuses on what attracted Diego Rivera to Cubism. I also explore how and why Rivera modified the cubist style. By analyzing Rivera's artistic training in Mexico and his Cubist period, I have discovered that the artistic training prepared him for Cubism. The rigid, traditional training that Rivera received in Mexico primed him for Cubism. This logical approach to art that was instilled in him in San Carlos by both Velasco and Rebull engendered a focus on the rational processes behind creating art. However, the Eurocentric focus of the academy was detrimental to Rivera's psychological state, and he developed an inferiority complex that was later exacerbated while working in Europe.

Rivera traveled to Spain after being awarded a scholarship to master new styles and broaden his horizons. While studying in Spain, Rivera was introduced to the avant-garde through his friendships with fellow artists, writers, and critics. Familiarizing himself with the avant-garde style created a more abstract and diverse style throughout Rivera's work. Although realism remained prominent in Rivera's work, he opened himself to the styles of newer, more abstracted movements such as Cubism. Rivera later traveled and moved to Paris understanding that this relocation was necessary to gain respect and establish himself as a prominent artist in Europe.

An artistic movement led by Braque and Picasso, Cubism became established shortly after Rivera relocated. This style of art focused on multi-point perspective, giving the viewer various viewpoints simultaneously and breaking down subject matter into simpler geometric forms and plans. Rivera worked closely with Picasso who taught him the logic and process behind Cubism. Rivera's Cubist work demonstrated a profound understanding of the style, but his deviations in subject matter, color, and tone established a connection between Rivera and Mexico, one which helped him to construct a Mexican artistic identity in xenophobic Paris. Xenophobia was rampant in Paris during this time due to factors such as the Moroccan Crisis and the international success of Cubism. Foreign artists were seen as competition by the galleries, salons, and European artists.

Rivera combated this xenophobia through an embrace of Mexican themes and iconography juxtaposed with a Cubist style. While Rivera used multi-point perspective and geometric shapes in his work, he abandoned the monochromatic palette that many Cubists used; his works used bold, bright colors. Unlike other Cubists, he also did not focus on neutral themes. Rivera depicted the Mexican Revolution in his works *Zapatista Landscape* and *Portrait of Martin Luis Guzman*. Through these paintings, Rivera connected himself to Mexico, the individuals in these works, and the Mexican Revolution. Rivera reserved color for subject matter and objects that relate to his national identity and heritage, which is seen in his work *Joven con sueter gris*, a largely monochromatic portrait with hints of color in a fragmented serape, a Mexican blanket. Rivera's modification of Cubism allowed him to combat xenophobia, establish himself as a prominent artist in Europe, and visually celebrate his Mexican identity.

From the Enlightenment to Genocide:
The Evolution and Devolution of Romanian Nationalism

Shawn Wooster
McNair Scholar

Jason Crouthamel, Ph.D.
Faculty Mentor

In the eighteenth and nineteenth-centuries attempts at gaining national and political recognition through the work of Uniate priests in Transylvania and secular intellectuals in the Regat eventually culminated in the 1848 revolution, leading to the recognition of an autonomous Romanian state in 1878. Romania was further enlarged at the end of World War I with the Treaty of Trianon. Along the path to nationhood nationalism took on an ever-increasing exclusivity. Using Romania as a case study, this article addresses how nationalism occasionally becomes murderous. More specifically it addresses the origins of Romanian nationalism and how it influenced Romania's support of and participation in the Holocaust. Lastly, Romanian nationalism developed not only within the context of modernization, but it also has roots within the similarly broad historical contexts of absolutism and the Enlightenment. I argue that Ernest Gellner and Benedict Anderson's modernist conceptions of nationalism's origins are pertinent to explaining the conditions necessary for the appearance of nationalism, yet they must be molded to fit Romania's unique geographical, political and cultural conditions.

Romanian nationalism was initially patriotic, if somewhat exclusivist, and was based upon long traditions of hostility toward non-Romanians. Several factors contributed to the devolution of Romanian nationalism: resentment towards Western-promoted Romanian legislation that guaranteed the protection of minorities, the intensification of Romanian identity production through the bureaucratization of schools that explicitly excluded minorities from its definition, the flourishing of racist political parties that were competing for newly enfranchised citizens in the interwar period, and the precarious social and economic conditions in rapidly industrializing cities. These factors all colluded to create conditions conducive to the scapegoating and

resentment of minorities, especially Jews, which eventually culminated in the extermination of Jews and Roma in Romania during World War II.

In order to illustrate the distinct path along which Romanian nationalism developed, I have used the works of Benedict Anderson and Ernest Gellner as guideposts for considering the evolution and devolution of Romanian nationalism. Anderson and Gellner are both modernist historians of nationalism whose theories predict that certain structures of modernization need to be in place before nationalism can flourish. Anderson proposes that print-capitalism, which spurs vernacular literacy, needs to be in place in order to foster an "imagined community" of individuals who relate to one another across space and time on the basis of shared culture, language and history. Gellner submits that in order for nationalism to arise society needs to first experience a marked break from medieval agricultural norms to a new society based upon industrialization, which in turn spurs the creation of a standard culture that facilitates communication and production. In Romania's case, nationalism arose in the eighteenth-century before the advent of print-capitalism, literacy, industrialization and homogenous, state-propagated culture, meaning that it falls entirely outside the theories of nationalism proposed by Ernest Gellner and Benedict Anderson. Romania's unique path from the birth of national consciousness to exclusive nationalism raises questions as to whether one standard theory of nationalism can ever be applicable to every nationalist ideology.

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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