



MARQUETTE UNIVERSITY

*Ronald E. McNair Summer
Research Symposium*

JULY 27, 2020 – JULY 28, 2020

Presentation Schedule

July 27, 2020

10:00am – Opening remarks
10:10am – Albert Reyes
10:25am – JaMisha Matos
10:40am – Andrea Jainga
10:55am – Willencia Louis-Charles
11:10am – Alanna Johnson
11:25am – Break
11:40am – Raphael Gray Jr.
11:55am – Veronica Cruz
12:10pm – Prince Beniana
12:25pm – Nathan Ireland
12:40pm – Frances Thurston
12:55pm – Closing remarks

July 28, 2020

10:00am – Opening remarks
10:10am – Jamie Crawford
10:25am – Joseph Loredó
10:40am – Kathia Castellanos
10:55am – Lisset Perez Jaramillo
11:10am – Areli Herrera
11:25am – Break
11:40am – Tigran Ovsepyan
11:55am – Vanecia McCullough
12:10pm – Biluge Ntabala
12:25pm – Karina Falcón González
12:40pm – Chika Okoro-Osademe
12:55pm – Closing remarks

Session One

JULY 27, 2020

10:00 AM - 1:00 PM

MARQUETTE UNIVERSITY

OPENING REMARKS

Dr. Donte McFadden, Director of McNair Scholars Program, EOP

Sonia Garcia, Coordinator of McNair Scholars Program, EOP

ALBERT REYES, CHEMISTRY

"Copper-Catalyzed Transfer Hydrogenation/Deuteration of Aryl Alkynes"

A copper-catalyzed reduction of alkynes to alkanes and deuterated alkanes is presented under transfer hydrogenation and transfer deuteration conditions. Commercially available alcohols and silanes are used interchangeably with their deuterated analogs as the hydrogen or deuterium source. Transfer deuteration of terminal and internal aryl alkynes occur with high levels of deuterium incorporation. The alkyne scope contains complex natural product analogs which readily undergo transfer hydrogenation and transfer deuteration in high yield and excellent selectivity.

Faculty Mentor: Dr. Joseph Clark, Chemistry

JAMISHA MATOS, PSYCHOLOGY/DANCE

"Exploring the Relationship Between Race Essentialism and Teacher-Student Relationships"

Understanding racial essentialism is important to understanding relationships between the melting pot of cultures the world hold. The majority of school systems within the United States have a high population of white teachers in comparison to the high number of minority students within these systems. Race essentialism looks at one's beliefs on the biological aspects of race, This research is taking that and looking at its connection to white teachers who teach majority minority students. This research is important to understanding the quality of teacher-student relationships within the eyes of the students based on the teachers race essential beliefs. This research looks to answer, "Do teachers race essential beliefs affect the student perception of the quality of the student's relationship with their teachers"? This longitudinal study will understand quality of teacher-student relationships through student perspectives and teachers race essential beliefs; statistical analysis will be used to assess the relationships the students have with their teachers. It is anticipated that teacher who have high race essential beliefs will have a low reports of student-teacher relationship quality.

Faculty Mentor: Dr. John Grych, Psychology

Session One

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10:00 AM - 1:00 PM

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ANDREA JAINGA, PSYCHOLOGY

"A Comparison of Mastery Criterion on Vocabulary Acquisition and Maintenance"

In applied behavioral analysis (ABA), mastery criteria are applied to sets of stimuli to evaluate if people with autism spectrum disorder (ASD) mastered the skills by responding to them correctly for a certain number of times. However, not all stimuli in a set would be learned at the same time which could delay skill acquisition. Thus, the research question focuses on if setting a mastery criterion for each stimulus in a set would be more efficient for vocabulary acquisition and maintenance than applying it to a set of stimuli. Research methods included adapted alternating treatments experimental design in which research subjects, five children with ASD, learn sets of stimuli in both conditions where mastery criteria were applied to them differently. To evaluate the efficiency of their learning, data was analyzed one, three, and five weeks after subjects completed their training in both conditions. According to preliminary results, using individual mastery criterion for each stimulus led to faster mastery of vocabulary compared to applying it to sets of stimuli altogether. However, both conditions produced similar outcomes regarding maintenance.

Faculty Mentor: Dr. Tiffany Kodak, Psychology

WILLENCIA LOUIS-CHARLES, ENGINEERING/BIOMECHANICS

"Effects of the Artificial Sweetener Acesulfame Potassium on the Endothelial Cell Surface"

The past couple decades has seen an increase in people who are overweight and obese. This has been due to, in part by, diets with higher sugar content. These diets can lead to health complications such as diabetes, and cardiovascular disease. Non/low-caloric artificial sweeteners have been promoted as a replacement for sugar for people trying to avoid these issues. However, it is not until recently have the negative impacts of these products been recognized. In previous studies, it was discovered that in diabetes susceptible BB-DR rats that regularly at either glucose or acesulfame potassium, those that had eaten acesulfame potassium had a greater degree of metabolic flux and the vascular cell function was altered. Due to the results of this study, we will be testing how acesulfame potassium has an effect on the endothelial cell surface. It will be determined whether or not acesulfame potassium has the ability to cross the cell membrane.

Faculty Mentor: Dr. Brian Hoffman, Biomedical Engineering

Session One

JULY 27, 2020

10:00 AM - 1:00 PM

MARQUETTE UNIVERSITY

ALANNA JOHNSON, INTERNATIONAL AFFAIRS

"Exploring the Growth of ISIS from an Ideological and Social Perspective"

Since 2004, Al Qaeda paved the way for ISIS to grow and resurge almost ten years later. Once ISIS had the ability to mobilize, it reached a point in which the fight against terrorism would be harder than ever before. ISIS uses violence as a show of authority and power, and those who perpetuate the violent acts are not exclusively from the region where ISIS operates. There have been dozens of reported cases of North American and European citizens leaving home to join ISIS. This research explores the growth of the Islamic State of Iraq (ISIS), a terror organization, focusing on how ideology and social structure have affected its development. The research explores the following question: How important ideology and social structure the growth of ISIS? Specifically, the project focuses on the capacity of ISIS to recruit North American and European citizens. By using ideas developed by Mark Knapp, relational development theory assists in understanding why these individuals are so willing to participate in extreme acts of radicalization. This work contributes to research on international security and terrorism by providing insight into the factors that facilitated the growth of ISIS. The project contributes a new perspective to the debates about ISIS and applies the research of other scholars in understanding the inner workings of ISIS.

Faculty Mentor: Dr. Risa Brooks, Political Science

RAPHAEL GRAY JR., DIGITAL MEDIA/PUBLIC RELATIONS

"The Influence of Archetypes of Black Women in Fiction Film & Television on the Adolescent Mind"

Movies and television shows perpetuate stereotypes and archetypes of the Black community and can impact the adolescent minds and identity development of young Black women, from this; the questions answered throughout this research are: "How do adolescent females adapt behaviors they believe to be representative of their culture?" and "In what ways do the archetypes presented on television impact the self-esteem of Black adolescent females?" A series of focus groups were conducted in which a television show or film was screened in front of an audience of young Black women. The audience was then surveyed on their reactions and opinions on what they viewed. Thorough research has also been performed in regard to 20th and 21st century movies and television shows that highlight Black culture and those with a majority black cast. A major finding from the focus groups is that adolescent Black girls view historical archetypes of Black women as doing more harm to their culture than good. This harm can then potentially lead to conflicts in the media's role in identity formation of adolescents, especially in a growing age of technology.

Faculty Mentor: Dr. Amanda Keeler, Digital Media

Session One

JULY 27, 2020

10:00 AM - 1:00 PM

MARQUETTE UNIVERSITY

VERONICA CRUZ, PSYCHOLOGY/BIOLOGICAL SCIENCES

"Examining the Relationship between Cortisol and Familial Stress within the Midlife in the United States (MIDUS) Dataset"

Cortisol is the body's main stress hormone and it functions in specific parts of the brain to regulate motivation, mood, and fear. In healthy individuals, cortisol secretion follows a diurnal rhythm meaning that cortisol levels are at their highest approximately 30 minutes after waking, and then slowly throughout the day cortisol levels decline. However, when acute stressors arise cortisol levels will increase. Past research has shown that perceived stress negatively affects daily cortisol rhythms and its response to stress, even though these studies have used smaller samples. The current study aims to validate this effect by using two separate large, community-based samples. Archival data were acquired from the publicly-available MIDUS Boston Longitudinal of Cognition in Midlife Study. The current study also seeks to understand how daily stressors like financial stress, emotional stress, etc. affects familial stress as a whole. In N=87, seven cortisol samples were collected before, during, and immediately after post cognitive challenge. In a separate group of N=95, four samples were collected throughout the day. Two groups were found in each sample - Diurnal cortisol rhythm: group 1 (N=80) exhibited expected diurnal rhythm, group 2 (N=15) exhibited hypoactivation. Our findings suggest that perceived stress negatively impacts cortisol secretion.

Faculty Mentor: Dr. Jacklynn Fitzgerald, Psychology

PRINCE BENIANA, FINANCE & ENTREPRENEURSHIP

"Privacy and Customization in Financials: Can FinTech Be the Answer?"

Finances and Technology, or "FinTech," stems from various sectors such as innovation, technology, finances such as information technology (IT), innovation (venture capital, angels, incubators), and finances (ie. mobile payment, banking, investing, and cryptocurrency). It is described as "the connection of modern, such as internet-related, technologies with business activities typical of financial services industry, for example, loans, payments, transfers of monetary values and diverse banking operations. The issue within Fintech mobile applications is to assess the security within the application. It is important to know and understand why FinTech apps (ie. Cashapp) are constructed how it is. With a steady progress in the industry of FinTech, it is vital that users have a strong comprehension of the system's interface, awareness of the system's interface, and an agreement to utilizing the system's interface. These are all intact with the related security and privacy issues many users face daily.

Faculty Mentor: Dr. Michael Zimmer, Computer Science

Session One

JULY 27, 2020

10:00 AM - 1:00 PM

MARQUETTE UNIVERSITY

NATHAN IRELAND, COMPUTER SCIENCE

"How Online Platforms Handle Discriminatory Selling on Marketplace Platforms"

In my project, I will be studying marketplace platforms to understand how they handle discriminatory selling practices. The purpose of this research project is to understand the modern-day forms of redlining on online platforms. I will do this by studying these platforms to see if they are allowing sellers to prevent listed items from being made available to people based on age, race, gender, & sex. The methodologies that I will be using in this project will be the walkthrough method. The walkthrough method will allow me to analyze each platform's UI to see if they are doing enough to warn a seller of their actions that could lead to discriminatory practices. Anticipated outcomes of this project would be to find that a majority of marketplace platforms are doing the bare minimum in terms of preventing discriminatory actions from happening. An anticipated conclusion of this project is that I will expand the set of platforms that will be studied.

Faculty Mentor: Dr. Michael Zimmer, Computer Science

FRANCES THURSTON, CRIMINOLOGY & LAW STUDIES

"Overruling the Best Interest Doctrine for Migrant Youth"

The UN Convention on the Rights of the Child (CRC), espouses the principle that in legal proceedings, "the best interests of the child shall be primary consideration," in which the U.S. has signed but not ratified. Reliance on local courts allows for unpredictable interpretations of federal immigration law which creates inconsistency in the application of the law, therefore could regulations from DHS or USCIS and ratification of the CRC, that define the clear meanings of statutes and laws, make it clear and fair to consider vulnerable immigration children. The reliance of important decisions of local and state government are based off of statutes and laws, that can be interpreted in many ways, causing room for bias from immigration law and inconsistencies in family court. Ultimately, until federal immigration policy recognizes the special rights and needs of children by ratifying the CRC and family courts move away from the best interest doctrine when dealing with immigrant children, domestic family and U.S. law will absolve itself of the responsibility to consider the best interest of immigrant children to exemplify that America is the land of opportunity.

Faculty Mentor: Mr. Robert Rondini, J.D., Criminology & Law Studies

CLOSING REMARKS

Ayaa Shanaa, Graduate Assistant for McNair Scholars Program, EOP
Ricardo Vega, Graduate Assistant for McNair Scholars Program, EOP

Session Two

JULY 28, 2020

10:00 AM - 1:00 PM

MARQUETTE UNIVERSITY

JAMIE CRAWFORD, ELEMENTARY EDUCATION/SPANISH

"Black Students' Perceptions' of School Discipline in a Public-School System"*

Disciplinary policies in K-12 public schools disproportionately affect minority students. In particular, Black students experience higher suspensions and expulsion rates which lead to lower graduation rates. For many students in large, urban school districts, schools are becoming jail-like environments. Harsh penalties, the presence of metal detectors and police officers, and the role of the court system create a phenomenon known as the School to Prison Pipeline. Students are being pushed out of classrooms and pulled into the court system by schools implementing overly harsh disciplinary penalties in racially inequitable ways. The Zero Tolerance policies of these schools, along with other disciplinary strategies, further help create the pipeline. Although the racial disparity in school disciplinary practices has been well documented (Berlowitz 2017), little work has been done to investigate students' perspectives of this phenomenon. Hence, the research question guiding the current study was, how do Black students perceive the disciplinary practices in their schools? Ten Black students in Milwaukee Public Schools (MPS), in grades ranging from 5th to 12th, were interviewed to explore their perceptions and experiences of the disciplinary practices utilized in their schools. Interviews were analyzed qualitatively using content analysis procedures and produced common themes among the students'.

Faculty Mentor: Dr. Karen Evans, Educational Policy

JOSEPH LOREDO, BIOLOGICAL SCIENCES/CHEMISTRY

"Small Molecule Inhibitors for Pyruvate Carboxylase"

Pyruvate carboxylase (PC) is an important anaplerotic enzyme that gives rise to oxaloacetate through the conversion of pyruvate. Pyruvate activity has also been linked to many different health related diseases such as in some cancers and also in diabetes. Through previous studies, manipulating PC may be a promising therapeutic for both of these. Pyruvate carboxylase gives rise to many amino acids and lipids which are vital to the normal to the healthy human being. However, some tumor lines are going to over-express PC which gives fuel for uncontrolled cell division. In terms of diabetes, there seems to also be promising effects of reducing PC in both blood glucose and plasma levels. Synthesis of carboxyl-acids and through Knoevenagel condensation will hopefully allow other molecules to be found. This is to attempt to limit the expression of PC in the TCA cycle. This paper works both with the Donaldson lab and Dr. St. Maurice lab in order to be able to identify potent molecules, and selective inhibitors to try and inhibit PC. It explains the role of PC and the profound effects of overexpression has on various health conditions. There will be an explanation for the synthesis of the carboxyl acids through oxaloacetate. In addition to this, there will be a fixed time assay to attempt to find inhibitors.

Faculty Mentor: Dr. William Donaldson, Chemistry

Session Two

JULY 28, 2020

10:00 AM - 1:00 PM

MARQUETTE UNIVERSITY

KATHIA CASTELLANOS, SOCIAL WELFARE & JUSTICE

"Central American Erasure: How Silences in Language Rupture Communities"

The Mexican immigrant narrative dominates the discourse of migration in the United States (U.S.) and often times, obscures the experiences of other Latinx individuals, specifically Central Americans. Latinx individuals oftentimes have to cope with the community pressures to conform to Mexican stereotypes, a common occurrence within communities and U.S immigration policies. This includes the way Spanish dialects are spoken, given that accents and word choice vary among Latin American countries and regions. In this paper, I argue that the loss of distinctive linguistic traditions disrupts the sense of belonging among Central Americans and also affects future generations. Central Americans feel forced to hide their accents and learn to speak in Mexican vernacular while crossing through Mexico to get to the U.S. These pressures continue after their arrival, as Central Americans try to fit into established Latinx-American images and communities. This loss of language and identity affects two demographics, Central American immigrants who feel as though they have to "pass" as Mexicans when crossing through Mexico and the children of these immigrants who feel pressured to conform to the American assumption of Latinx culture/ identity. In order to understand the impacts this has on Central American communities I utilize personal narratives from Central American immigrants and their children to understand the affects linguistic conformity has on the formation of Central American communities within the U.S.

Faculty Mentor: Dr. Noelle Brigden, Political Science

LISSET PEREZ JARAMILLO, PEACE STUDIES

"The Bracero Program, the Lost "American Dream" of the Mexican Laborer Influencing Legal Patterns"

Lasting between 1942 and 1964, the Bracero Program was the largest guest-worker program in United States history, giving temporary jobs to Mexicans to aid in World War II. An estimate of two million Mexican laborers had to go through intensive documentation and medical examination where they needed to be "cleansed" with the chemical DDT, in order to receive short-term labor contracts, government authorization to work, and certain rights under the official Bracero Agreement. Despite this agreement, near the end of the Bracero program the United States government limited the number of admitted Braceros authorized for temporary work in the United States. Through an investigation of the Bracero archives, oral histories and published works on the Bracero Program, this research looks at how the Bracero program's ramifications have led to an influx of unauthorized legal patterns. The purpose of the research is to bring an awareness on the factors influencing Braceros and their families to come to the United States for work, regardless of government authorization, and how the Braceros Program affects such decision. The opportunity for authorized work decreased near the end of the program yet it did not decrease employer demand for cheap Mexican labor, increasing the presence of unauthorized immigration. Given that, the Bracero Program left a generational effect on the families of Braceros.

Faculty Mentor: Dr. Sergio Gonzalez, History/Languages, Literatures and Cultures

Session Two

JULY 28, 2020

10:00 AM - 1:00 PM

MARQUETTE UNIVERSITY

ARELI HERRERA, SECONDARY EDUCATION/ENGLISH

"Reclaiming Childhood: Feminist Pedagogy as A Protective Factor For Adolescent Black and Latina Girls"

The present research explores how feminist philosophy of education and feminist pedagogy might serve as a protective factor for Black and Latina girls experiencing early puberty and adultification. Young girls of color are in an especially vulnerable position in society- growing up experiencing intersectional marginalization through sexism, racism, and the inherent vulnerability that comes with childhood. This is further punctuated for Black and Latina girls, whom research demonstrates are more likely to experience early puberty and its negative effects on mental health. Additionally, Black children experience "adultification" wherein they are perceived as being more mature than their actual age. Through the framework of standpoint theory and care ethics, this research examines feminist theory and philosophy of education (including works by bell hooks, Nel Noddin, and Michelle Fine) to articulate what effective practice of feminist pedagogy looks like for Black and Latina girls. Intersectional feminist pedagogy grants value to the experiences of marginalized students, so the educational environment can be one that mitigates these forms of marginalization instead of enforcing them. This research asserts that it is an inherent responsibility of feminist educators to nurture these students as children and minimize the risk factors for the loss of childhood.

Faculty Mentor: Dr. Terry Burant, Educational Policy

TIGRAN OVSEPYAN, CRIMINOLOGY & LAW STUDIES

"Geographical Survey of Drug Crime Statistics in Milwaukee"

My research will focus on neighborhood crime in relation to drug incarceration in the city of Milwaukee using data analysis. The research question that I am curious about is, "How does the distribution of drug-related crimes impact the surrounding neighborhoods in the city of Milwaukee?" Using GIS (Geographic Information Systems) mapping software, I will analyze the most recent crime databases and create a correlation between drug-related incidents and distinct neighborhoods. Therefore, the majority of the research will be analyzing quantitative data. The main outcome is to see if there is a correlation between the increased number of drug-related crimes and the decrease of standard living (socioeconomic status of the neighborhood) within the majority of neighborhoods in Milwaukee. The potential outcome of this research is to find a solution within these neighborhoods that may increase their standard of living and simultaneously reduce the number of drug-related crimes within that area.

Faculty Mentor: Dr. Aleksandra Snowden, Social and Cultural Sciences

Session Two

JULY 28, 2020

10:00 AM - 1:00 PM

MARQUETTE UNIVERSITY

VANECIA MCCULLOUGH, PSYCHOLOGY

"The Relationship of Generativity and a Black Women's Well-being and Correlation to Anxiety and Depression"

Generativity is the concern in establishing and guiding the next generation. Research from other studies found that generative practices have been associated with many beneficial effects for the broader population. This research examined if generativity benefits are replicated for Black women, considering this group is affected by intersectionality. Intersectionality describes how a person's multiple identities can affect their life experiences and the way they experience oppression from society. The variables of interest are psychological well-being, social well-being, anxiety, depression, and generativity levels. These variables were correlated and analyzed to see if they have positive, negative, or no correlation with the generativity level. The results from these variables derived five self-report surveys the participants completed. Participants also responded to an interview question about what lessons they would pass on to younger black youth. The lower scoring and higher scoring generative participant's responses were evaluated and the common themes were found. The results were that Black women's generativity levels correlated positively with well-being, but had no correlation to anxiety and depression. Differences in themes were found from lower and higher scoring generative participants. The conclusion is that Black women produced similar results in some areas but not others, because they are a marginalized group.

Faculty Mentor: Dr. Ed de St. Aubin, Psychology

BILUGE NTABALA, POLITICAL SCIENCE

"Wisconsin's Media Coverage of Gun Dealers From 1999-2019"

How have media portrayals of gun dealers changed in the past 20 years and has a lack of media portrayal affected background checks licensures in Wisconsin? This project considers if the lack of news articles that cover the practices of retail and private gun dealers affect gun sale practices in Wisconsin. In addition, does more media coverage of gun dealers influence the public and policymakers to enact or enforce gun policies? This project aims to determine the capability of the media's influence on Wisconsin gun laws.

Faculty Mentor: Dr. Robert Smith, History

Session Two

JULY 28, 2020

10:00 AM - 1:00 PM

MARQUETTE UNIVERSITY

KARINA FALCÓN GONZÁLEZ, PSYCHOLOGY/LATINX STUDIES

"Racial Microaggressions & General Self-Efficacy Among Racial/Ethnic Minority University Students"

Previous research has shown that racial/ethnic minority students experience racial and ethnic microaggressions, but it remains unclear how these negative experiences are related to the general self-efficacy (GSE) of this population. The current study looks at various factors including age, gender, race/ethnicity, and experiences of depression and racial/ethnic microaggressions and the impact these factors have on general self-efficacy. An independent T-test between age and GSE, one-way ANOVA comparing race and GSE and a regression comparing all the factors and GSE were run in order to determine the impact. Among a sample of 204 racial/ethnic minority participants it was found that neither age nor gender had a statistically significant impact on GSE. In regard to the regression analysis, depression resulted as the most impactful variable on GSE. This is not to say that the other variables do not have an impact on GSE but that in this particular study depression showed the highest impact. The findings are discussed within a stress and coping framework that highlight the internal stress responses that are connected with GSE.

Faculty Mentor: Dr. Lucas Torres, Psychology

CHIKA OKORO-OSADEME, POLITICAL SCIENCE

"Partisanship vs. Morality: Examining the Influence of Heightened Political Polarization on Attitudes towards Immigration in the United States"

An abundance of research within political science suggests that there has been a rise in political polarization amongst the American electorate. One important factor in this growing divide is how it has affected party identity. Democrats and Republicans have been getting farther apart on many public policy issues. In the last couple of decades, it has been suggested that party identity can be a major factor of influence in regard to democratic political behavior. This project will examine the relationship between partisanship and moral values in a politically polarized state. The research in this study will answer the following question: does political polarization influence individuals to adjust their moral beliefs to align with their preferred party's policy positions. The different topics that this research is comprised of may be categorized by partisanship and identity, morality, moral policy, and polarization. The data used to in this study was collected through a convenience sample of voluntary respondents that were asked a series of questions about their moral beliefs, attitudes towards immigration, and partisan prejudice. Although there is limited research on this specific topic, it is anticipated that the data collected will suggest a relationship between polarization and shifts in the policy positions made by partisans. Producing similar results to previous studies conducted in other democratic countries.

Faculty Mentor: Dr. Karen Hoffman, Political Science

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*Congratulations to
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P O S T B A C C A L A U R E A T E
A C H I E V E M E N T P R O G R A M