July 19, 2022
# Table of Contents

- Program Welcome 3
- Program Information 4
- Program Staff & Instructors 5
- Symposium Agenda 6
- Scholar’s Abstracts 7
- Special Thanks 16
Dear Members of the USC Community & Guests:

With great pleasure, we welcome you to the 2022 USC Research Gateway Scholars Summer Institute Symposium. The Symposium is designed to provide Scholars with the unique opportunity to present their summer research projects before an academic audience. Each project represents the Scholars' individual work under the advisement and mentorship of program staff, USC faculty and graduate students.

While working on individual projects, the Scholars' excitement, curiosity, and diligence was at an all-time high. We expect that they will continue their research explorations and further expand their projects. Please join us in celebrating their early contributions to scholarly research.

Thank you for attending today's Symposium. We hope you enjoy meeting the Scholars and learning about their research interests and graduate school objectives.

Sincerely,

Dr. David Glasgow
Director, USC Research Gateway Scholars Program
Assistant Vice Provost, Office of Undergraduate Education

Sabina Hills-Villalobos, Ph.D. Candidate
Academic Advisor & Program Coordinator

Divina Montejano, M.A. Candidate in Educational Counseling
Administrative Coordinator & Program Advisor
Program Information

The USC Research Gateway Scholars Program is a student academic services initiative sponsored by the University of Southern California. The program provides graduate school preparation, research training, professional development, and competitive scholarships to a select group of high-achieving undergraduates from first-generation, low-income, and underrepresented ethnic minority backgrounds. It builds on the best practices and remarkable success of the USC McNair Scholars Program and is administered by the USC Office of Undergraduate Programs, along with the support of various USC academic and student services departments.

USC staff and faculty work closely with program participants as they complete their undergraduate requirements and encourage them to enroll in graduate programs. All academic disciplines are eligible, including the arts and humanities, social sciences, and STEM. The program tracks students’ progress all through their undergraduate years until the successful completion of advanced degrees. The goal is to increase the attainment of graduate-level degrees, specifically the Ph.D. and other doctorates. The program aims to diversify higher education at the graduate-level and the professoriate ranks.

In summary, the Research Gateway Scholars Program provides the following services: opportunities for research or other scholarly activities; summer internships; workshops and seminars designed to prepare students for graduate-level study, specifically the doctorate; academic tutoring; academic counseling; and advising designed to assist students with securing graduate-level admission and financial assistance. Furthermore, the program may provide the following: counseling services designed to improve the financial and economic literacy of students; mentoring programs involving faculty members and graduate students; and exposing students to cultural events and academic programs not usually available to underserved populations.
Program Staff and Instructors

David Glasgow, Ed.D., MPA
Director, USC Research Gateway Scholars Program
Assistant Vice Provost, Office of Undergraduate Education

Sabina Hills-Villalobos, Ph.D. Candidate, American Studies and Ethnicity
Academic Advisor & Program Coordinator

Divina Montejano, M.A. Candidate in Educational Counseling
Administrative Coordinator & Program Advisor

Jenn Bankard, Ph.D.
Faculty, Dornsife College for Letters, Arts and Sciences, Writing Program

Alisa Sanchez, Ph.D.
Faculty, Dornsife College for Letters, Arts and Sciences, Writing Program

Bo Cheng Jin, Ph.D.
Faculty, Viterbi School of Engineering, Aerospace and Mechanical Engineering

Sofia Cardenas, Ph.D. Candidate, Psychology Department
Graduate Assistant
Symposium Agenda

Continental Breakfast: 9:00AM – 9:25AM (foyer)

Welcome & Introductory Remarks: 9:25AM – 9:30AM

Group 1 STEM: 9:30AM – 11:00AM
   Sebastian Wojtowicz
   Akasha Fobbs
   Dahiana Bertran

Break: 11:00AM – 11:10AM

Group 2 Non-STEM: 11:10AM – 12:00PM
   Dionee Simmons EAAS
   Enrique Martinez III

Lunch: 12:00PM to 1:10PM (foyer)

Group 3 Non-STEM: 1:10PM – 2:00PM
   Stephanie Portillo
   Alan Wang

Closing Remarks: 2:00 – 2:10PM
Dahiana Bertran

Major: Biological Sciences (B.S.)

Faculty Advisor: George Sánchez, PhD., Professor of History and American Studies & Ethnicity

Title: The Lasting Effects of the Guatemalan Genocide

Abstract: Between 1960 and 1996 in Guatemala, injustices against the indigenous and poor ladinos (non-indigenous Guatemalans) led to an outbreak of war. Guatemala experienced years of violence and mass killings, where the military targeted and eliminated the majority of the country’s indigenous population. Drawing from a series of taped interviews with genocide victims collected by The USC Shoah Foundation’s Institute for Visual History and Education, as well as interviews conducted with young Guatemalans between the ages of 18 and 32 years of age living in Los Angeles, California, I present each generation’s history and examine the effects the genocide has had on the lives of these individuals. By learning about and understanding the history of the Guatemalan genocide, I found differences in migration and identity patterns differentiated amongst the two different groups. I was able to confirm that although the genocide and violence occurred decades ago, Guatemalans are still experiencing the effects. Although other scholars have conducted research on the Guatemalan genocide, it was crucially important to study the difference between genocide victims living in Guatemala and those born post-genocide living outside of the country because it not only demonstrates differences between the two groups, but it also brings awareness to the genocide.
Akasha Fobbs

**Major**: Environmental Engineering

**Faculty Advisor**: Kelly Sanders, PhD., Associate Professor of Civil and Environmental Engineering, Viterbi School of Engineering

**Title**: Stitching a Community Together: Youth as Agents of Community Transformation

**Abstract**: Previous research, such as Evans (2007), demonstrates that marginalized youth can serve as agents of community change or transformation when they receive support, whether in the form of financial aid or mentorship, from adults. Previous research was conducted with programs aimed towards giving youth the opportunities to create community change, but has not considered how youth-led movements can transform their communities. I utilize interviews, textual/visual content analysis of social media posts, and personal anecdotes to understand how the youth-led art collective Stitches is transforming the community of Springdale, Arkansas. My project was shaped within the already established theories of sense of community (Evans 2007) and the “revitalization movement” (Wallace 1956). The preliminary findings of my research are that Stitches is transforming the youth community by giving them a voice and a place in the larger physical transformation of Springdale. Yet, this project cannot fully assess the impact of Stitches in the Springdale community due to the 10-week time constraint of this project and the novelty of the organization. Hopefully, this project serves as an ode to the diverse and beautiful community of Springdale.
Enrique Martinez III

Major: Narrative Studies

Faculty Advisor: Erika Wright, PhD., Assistant Professor of Clinical Medical Education, Keck School of Medicine

Title: Validity of the Common Working Memory Tests in L2 Individuals

Abstract: This study investigates the validity of the common working memory test, called the digit ordering task, by examining if the language of test administration influences the test results. Another aim of this study is to investigate the difference between the working memory performance when the test is administered visually as opposed to verbally to the L2 subjects. Working memory tests were administered visually and verbally to English monolinguals and Persian-English L2 Participants. This continuing study may direct the research towards finding more accurate measures of the working memory in neurological conditions, psychological assessments and job placements.
**Stephanie Portillo**

**Major:** Public Policy, Management and Planning

**Faculty Advisor:** Mark Phillips, PhD., Associate Professor-Instructional, Program Director of Public Policy Masters Program, USC Sol Price School of Public Policy

**Title:** Fusion Ion Confinement in Spherical Ion Trap

**Abstract:** Fusion energy has the potential to meet the growing global demand for energy and end the reliance on fossil fuels, however it has proven to be an elusive goal. Previous magnetic and inertial confinement fusion devices have failed to achieve fusion rates high enough to be viable power sources. Fortunately, there are charged particle confinement methods that have yet to be studied as potential fusion devices. This study investigates the feasibility of using a spherically shaped quadrupole ion trap to confine charged particles at fusion energy conditions. SIMION, a charged particle trajectory simulation program, was used to determine the particle density and energy of trapped particles. Experimental fusion reactivity data, NACRE II, was used with density and energy data to determine the fusion rate within the device. These results provide evidence for the use of this device as a source of fusion energy and constituted the first design iteration towards a spherically shaped quadrupole ion trap for fusion energy. In addition, it demonstrates the possibility of enhancing ion traps, traditionally used for low density ion experiments, for use as fusion energy devices.
**Dionee Simmons**

**Major:** East Asian Area Studies

**Faculty Advisor:** Victoria Chonn-Ching, PhD., Professor of

**Title:** Identity Formation Among Monoracial and Multiracial Individuals

**Abstract:** My research project studies the identity formation of monoracial and multiracial individuals. Specifically, I explore three research questions: how monoracial and multiracial individuals form their own racial identity; whether their familial experiences or social interactions have a more significant impact in the way they racially identify; and in what contexts monoracial and multiracial individuals come to the realization of race. I first created a personal information questionnaire to get an overview of participants’ racial background, awareness about their culture, and parents’ racial identification. Then, I interviewed three monoracial and three biracial/multiracial individuals to gain insight on how they formed their racial identities. During my research, I found that familial experiences and social interactions equally influence the racial identity of monoracial and multiracial individuals. When these individuals come to the realization of race, they are able to distinguish they are different from other individuals and often begin searching for their racial and ethnic niche. This research project establishes the significance of determining a racial identity and how that impacts one’s interactions with family members, friends, and colleagues. Most of all, establishing a racial identity affects the way an individual perceives him or herself.
Alan Wang

Major: Linguistics

Faculty Advisor: Sandra DisnerMorgan Polikoff, PhD., Associate Professor of Education

Title: Resource Disparities in Rural and Urban Public Education Systems and its Impact on Student Achievement

Abstract: This is a quantitative and qualitative case study of public high schools in California examining resource disparities between rural and urban high schools to determine how they affect student achievement. Using income and locale, I established four school categories: low income rural, low income urban, high income urban, high income rural. In the quantitative section of my research, I identified ten schools in each category and provided a comparative profile of their resources and student outcome. Through qualitative methods, I interviewed 11 individuals to determine resources available to students in eight high schools across these four school categories. Analysis of the collected data from both methods reveal that while student achievement is more affected by income than locale, it is the interaction of high income and urban that produces the highest student achievement. Results from qualitative methods also indicate that urban schools attribute success in student achievement to professional teacher development, whereas rural schools attribute success to numbers of counselors and personnel.
Sebastian Wojtowicz

Major: Environmental Studies (Biology)

Faculty Advisor: Carly Kenkel, PhD., Assistant Professor of Biological Sciences, Dornsife College of Letters, Arts and Sciences

Title: A Call for Community Planning: Higher Education Attainment and the Influence of the Built Environment on Attitudes Towards Higher Education

Abstract: This study evaluates how a neighborhood’s built environment shapes residents’ higher education attainment and attitudes towards education, focusing on two neighborhoods in Oxnard, California. The Oxnard Mobile Home Lodge operates as the target site while Rose Park acts as the comparison site. A vetted survey was utilized to gather information regarding the residents’ highest level of school completion and residents’ attitudes towards educational buildings. The study collected a sample of 40 survey responses and assessed the data by using a Geographic Information System (GIS). Analysis shows that while the target site had a higher number of residents attending school or college in the past three months than the comparison site, the comparison site had a higher number of residents who had completed an associate’s or bachelor’s degree. In regards to attitudes, the residents in the comparison site felt satisfied with the access to educational buildings compared to the target site. Overall, the study indicates the residents of the target site are less likely to attain a higher education degree when contrasted to the comparison site. The analysis showcases how an association exists between the built environment and education attainment. Thus, a more holistic approach of planning should be introduced when creating neighborhoods to assure equal academic opportunities are available to all residents.
Special Thanks:

USC Career Pathways
Octavio Avila
Kristine Anassian

USC Graduate School
Kate Tegmeyer

USC Kortschak Center
Julie Loppacher, Ed.D Candidate

Former McNair Scholars
Olivia Gonzalez
Blanca Ramirez