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A Qualitative Study of How First-Generation Chican@/Latin@ Students Experience Access and  
Engagement in Undergraduate Research

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**ABSTRACT**

A Qualitative Study of How First-Generation Chican@/Latin@ Students Experience Access and Engagement in Undergraduate Research

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Chican@/Latin@ students are underrepresented in higher education and even fewer are accessing and completing graduate degrees. In order to continue on the doctoral pathway, students must have accessed services that will enhance their learning and help them define their goals during the undergraduate experience. Experiential opportunities such as undergraduate research have been identified as high-impact practices that extend undergraduate students' learning and help them define their goals within their academic field and increase their awareness and knowledge about continuation onto graduate and professional schools. Prior studies have found these opportunities to be especially important for students from underrepresented populations in higher education who would not know of future academic possibilities or see themselves in graduate or professional schools. This study explored seven first generation Chican@/Latin@ undergraduate students accessed and engaged in undergraduate research. This qualitative multiple case study draws from higher education, sociology, and information behavior literature.

Findings convey that institutional actors enacted empowerment agent roles by reaching out to students to provide long-term guidance, encouragement to pursue research by reinforcing the value of research, encouraging students to identify with the domain of research, and supporting students in cultivating relationships with other institutional actors. Findings also found that information grounds ranged from informal and student-centered spaces, to community cultural spaces, and structured support programs. Further, once students engaged in research, research was a space that served as a “safe space” for students. The research space helped nurture students’ sense of self-efficacy, aspirations, personal agency in learning, and it validated the intersectionality of their multiple identities.

Key words: Chicano/a-Latina/o undergraduate students, first generation, engagement, undergraduate research, navigational capital, aspirational capital, social capital, information grounds

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## **DEDICATION**

Mi Tío

My cousins, the first generation in the United States to complete college.

## CHAPTER 1:

### INTRODUCTION

High impact practices for teaching and learning have garnered increasing attention in higher education. High impact educational practices are active learning practices that have been found to show benefits to students' cumulative learning (Kuh, Schneider, & Association of American Colleges and Universities, 2008). Undergraduate research (UR) with faculty mentorship is considered to be one of these high impact practices along with first-year seminars and experiences, learning communities, service learning, and study abroad. Studies have found that the students' interaction with members of the college community plays a role in college retention and that in particular for underrepresented students; a more direct faculty contact leads to less racial tension and competition among groups (Pascarella & Terenzini, 1991; Hurtado et al., 1998). Learning outcomes that are attributed to undergraduate research include fostering broad knowledge of human cultures and the natural world, strengthening intellectual and practical skills, and practicing of integrative and applied learning (Kuh et al., 2008).

In order for these services to impact the students' undergraduate experiences, it must first become part of their lives. It is this point of access to research experiences of students' undergraduate years that this study explores. This study addresses how first generation in college Chican@/Latin@ students learn about and experience the process of engaging in undergraduate research.

## **Background**

In this chapter, I provide an overview of the emergence of undergraduate research, first generation college Chican@/Latin@ students in higher education, and the engagement of Chican@/Latin@ students in undergraduate research.

### **Rise of Undergraduate Research**

Undergraduate research (UR) has risen as a high impact practice in teaching and learning within the last few decades. Undergraduate research is touted as an opportunity to engage students in “actively contested questions, empirical observation, cutting-edge technologies, and the sense of excitement that comes from working to answer important questions” (Kuh et al., 2008, p. 10) . Increasingly, higher education institutions are providing research experiences for students in a range of disciplines. However, this was not always the case.

During the increase in funding for academic research in the 1960’s, tension arose between the role of research and education in U.S. universities. What was seen as the faculty’s responsibility for teaching was being threatened by the time they invested in research. Faculty’s commitment to teaching was viewed by many outside academia as how much time is placed in the classroom (Bauer & Bennett, 2003). As a result, there were increased efforts to prioritize teaching in higher education with limited success. Bauer and Bennet (2003) claim that the urge to uphold research within higher education overshadowed the research versus teaching conversation. Further, studies that looked at the relationship between faculty time spent on research and teaching effectiveness found little to no relation between these (Feldman, 1987; Hattie, 1996; Hoyt & Spangler, 1976). Yet, other scholars had already moved towards a dialogue of co-existence by positing that research and teaching complement each other. Abelson

(1967) argued that it is the faculty's responsibility as a scholar to be at the forefront of research in order to provide appropriate guidance to students, exemplify high standards of scholarship, and "inspire enthusiasm for learning (pp. 759)."

The end of the 1960s brought about the establishment of institution-wide undergraduate research programs. In 1969 the first institution-wide program was established at MIT followed by Stanford, CalTech, and the University of Delaware. The start was slow, however, and it was not until the late 1980s that there was an increase in institutional effort to establish undergraduate research programs (Bauer & Bennett, 2003). The growth in institution-wide programs led towards greater emphasis on understanding learning outcomes for students. Since the beginning of the conversation on research and education, the research has evolved from looking at the impact of researchers on instructional effectiveness (Feldman, 1987; Hattie, 1996; Hoyt & Spangler, 1976), to student benefits and learning outcomes (Ishiyama, 2002; Kardash, 2000; Kremer & Bringle, 1990; Lopatto, 2004; Malcom, 2010; McCormick, Kinzie, & Gonyea, 2013; Seymour, Hunter, Laursen, & DeAntoni, 2004; Styles, 2009), retention in undergraduate studies (Nagda, Gregerman, Jonides, Von Hippel, & Lerner, 1998), impact on decision to pursue graduate studies and attendance in graduate programs (Bauer & Bennett, 2003; Hathaway, Nagda, & Gregerman, 2002; Kremer & Bringle, 1990). As research in learning outcomes increased, there was an increasing argument for being more intentional on how to incorporate research as part of the educational experience of undergraduate students.

In 1998, The Boyer Commission's report on Educating Undergraduates in the Research University shifted the conversation from research versus teaching to integrating research and education (IRE) (Boyer Commission on Educating Undergraduates in the Research University,

1998). As a result, opportunities for undergraduate participation in research have taken on an increasingly greater role in how institutions extend undergraduate students' learning and experience beyond the classroom.

Research opportunities have the potential to not only improve students' academic, technical and problem-solving skills (Bauer & Bennett, 2003; Lopatto, 2004), but also benefits their personal and professional growth (National Survey of Student Engagement (NSSE), 2013; Seymour et al., 2004). Students engaged in undergraduate research are more likely to seek a graduate degree (Hathaway et al., 2002) and are more competitive for admission to graduate school (Crowe, 2006). In the case of students of color, undergraduate research is especially instrumental in increasing the number of under-represented students in graduate and professional schools (Crawford, 1996; Russell, Hancock, & McCullough, 2007).

Experience in research is crucial for increasing the pathways towards graduate/professional schools and careers in sciences. Engagement in research also impacts retention (Nagda et al., 1998) and career and graduate program aspirations (Lopatto, 2007; Yang, Byers, Salazar, & Salas, 2009). Russell et al. (2007) conducted surveys with 4500 undergraduate researchers, 3600 faculty, graduate student, and postdoc mentors working on research funded by the National Science Foundation. Student respondents indicated that engagement in research helped them identify their interest in research and for 29 percent of respondents, the research experience helped redefine their academic aspirations to go to graduate school. That is, they had no intention of going to graduate school until they became involved in research. Student respondents (73%) also reported an increase in their awareness of what to expect in graduate

school (Russell et al., 2007). All of these factors indicate that research experiences can be instrumental in defining students' academic aspirations and trajectories.

While studies have found undergraduate research to be a high-impact practice for undergraduate students' academic and professional growth (National Survey of Student Engagement (NSSE), 2013), it is not as clear how undergraduate students initially become aware of and engage in research opportunities. High-impact practices include service learning, study abroad, internships, and research with a faculty member. In the case of undergraduate research with a faculty member, NSSE found that seniors reported those faculty members were instrumental in providing academic advice and also took the role of a mentor (National Survey of Student Engagement (NSSE), 2013). According to the National Survey of Student Engagement (NSSE), the number of seniors at doctoral granting research universities who had engaged in research with a faculty member outside of courses was 15% in 2013. This percentage was higher at 24-28% for seniors at a range of research universities. This may mean that the rest of the students simply were not interested in engaging in the research and that only less than 28% sought this engagement or perhaps it is what Kuh, Kinzie, Shuh, Whitt and Associates (2005) denote as the result of serendipity and students' own efforts.

The researchers proclaim that there are two major components to engagement: student and institutional efforts (Kuh, Kinzie, Schuh, Whitt, & Associates, 2005). To have potentially serendipitous events and students' efforts be the catalysts for student engagement in research opportunities leaves room to question what students are experiencing during the access process and whether student experiences may differ for first generation Latin@/Chican@ students. It is unclear whether students who have thought about engaging in research ultimately acquire access

to such an opportunity. If so, there may be institutional components that promoted the awareness of research opportunities and access to undergraduate research. Yet, it is also unclear how students become aware of these opportunities. Even less evident becomes the stories of first generation in college Chicana/Latina students at predominantly White institutions, where campus racial climate may be a factor in how students experience the institution and may or may not navigate towards high-impact practices outside the classroom.

### **Chicana/Latina Students in Undergraduate Research**

The experiential nature of undergraduate research opportunities may be especially important for students who have been historically under-represented and under served on college campuses. In the case of Chicana(o)/Latina(o), African American, and Native American students, engagement in experiential opportunities play a pivotal role in providing support and increased awareness of institutional norms thereby leading toward increased retention (Fry, 2002; Hurtado, Milem, Clayton-Pedersen & Allen, 1998; Nora, Barlow, & Crisp, 2006; Nagda, B.A. 1998; Réndon, 1994). Based on prior studies, Nora et al. (2006) included engagement in mentoring experiences and outside-of-class learning communities as factors in student persistence models within higher education. Additional studies support these findings and further detail the role that student experiences in labs, study groups (Réndon, 1994) and research experiences (Nagda, B.A, 1998) have in student persistence in college. For example, Réndon's (1994) study found that Latina/o students with positive experiences in labs, classrooms and learning communities were encouraged to continue their college enrollment the following year. In a study of students in an undergraduate research program, Nagda (1998) found that involvement in research opportunities had the strongest effect in retention rates for African

American and sophomore students than for their peers. In particular, African American students with academic performance below the median for their race/ethnic group benefited most from their research experience. This study also found positive trends in retention for White and Latino students in the first and second year of college. These experiences serve as catalysts for increasing social integration of students within higher education, an instrumental component for students' persistence in college (Metz, 2004; Tinto, 1987). All these studies continue to identify engagement in undergraduate research invaluable for these students' academic and professional growth.

In the case of first generation Chican@/Latin@ students, undergraduate research may provide experiences that nurture not only persistence in an undergraduate degree, but may also be instrumental in helping students to shape their aspirations post graduation and develop relationships and social networks which may help them attain additional information and mentoring towards those endeavors.

### **Research Problem Statement**

Higher Education institutions have a range of programs and services intended to support undergraduate student engagement in high-impact experiential learning opportunities such as undergraduate research. Kuh et al. (2008) found that there is a correlation between students' participation and their gains in learning and argued that colleges and universities should make these types of "high-impact" experiences an expectation for undergraduate students. Yet, reports suggest that there is a range of engagement in undergraduate research depending on type of institution, where between 15-29 percent of students are engaged in undergraduate research with faculty (Kuh et al., 2008). Further, when looking at student engagement in UR by race/ethnicity,

they found that Latina/os (17%) and African American/Black (17%) students tended to be involved in UR less than their Asian/Pacific Islander (22%) and Caucasian/White (19%) peers. In comparison to other high-impact practices that are relatively local or on campus, UR has the lowest engagement overall and especially by Latino/as and African American/Black students. Service learning, internships, and senior experiences had greater representation of participation by all students (see Table 1).

Understandably, most of the literature to date starts at the point of access, investigating students' experience in research with faculty mentors and the impacts of that experience on various outcomes (Hunter, Laursen, & Seymour, 2007; Nagda et al., 1998; Russell et al., 2007; Seymour et al., 2004). But the steps leading up to the students' decision to participate in and actually get engaged in a research opportunity – including their awareness that such opportunities exist, their perception that such opportunities might be of interest AND open to them, their understanding of the processes by which one might pursue such opportunities, and their ability to present themselves appropriately for inclusion in such an experience – are both under-theorized and under-researched. What is not clear is how do students' experiences shape their navigational, social, and cultural capital during their journey in higher education. In what contexts do students become aware of and engage in research, the roles that people and place have in those experiences, and how the students' own identities, aspirations and other attributes might intersect with these experiences to help students make sense of and shape their engagement in undergraduate research.

## Study Focus and Research Questions

There is limited research on the experiences of first generation Chican@/Latin@ students in accessing high-impact practices such as undergraduate research. There is even less information about the intersection of how first generation Chican@/Latin@ students experience access to undergraduate research. This study explores the ways that Chican@/Latin@ first generation undergraduate students become aware and decide to get involved in undergraduate research under the mentorship of faculty. This process of engagement includes the context that nurtures access to these forms of engagement, such as the places and people that play a role in students' awareness about and access to research.

The following central questions and sub-questions will help explore what institutional factors promote Chican@/Latin@ students' engagement in research opportunities.

- 1) What experiences and relationships in a higher education institution motivate first generation Chican@/Latin@ students' awareness of research opportunities, interest in, pursuing these opportunities and understanding of how to engage in research opportunities, as well as their actual engagement in the opportunities?
  - a) How do students' initial aspirations or other attributes they bring to higher education impact their engagement practices?
  - b) In which contexts within the institution do these experiences and relationships occur?
  - c) What interactions between students, staff and faculty take place in these contexts? How do students experience and interpret these interactions?

- 2) What does “research” – as pursuit, culture, and possible career goal mean to these students?
  - a) How do these meanings change through the process of gaining access to undergraduate research opportunities?
  - b) How do students perceive “research” and how do these perceptions inform their engagement decisions?

To explore these questions, I conducted a multiple case study of seven first generation in college Chican@/Latin@ students at varying stages of engagement in undergraduate research at a public research university in the United States.

### **Rationale for this Study**

Much of the work on engagement of students in higher education focuses on persistence which is often conceptualized as retention of students from year one to year two or first term to a second term of enrollment (Pascarella & Terenzini, 1991; Tinto, 1987, 1999). Further, engagement in undergraduate research and its impact is often studied once students are involved in the experience. While the focus of many research studies have been on the impact of undergraduate research on student learning, the likelihood that students proceed on to graduate school, it is yet unclear how students actually decide to engage in and eventually become engaged in undergraduate research. In the case of first generation college students who may not hold the same social networks and/or generational knowledge as peers who have family in higher education, how they go about to learn of opportunities and eventually engage in undergraduate research is of interest in this study.

This study extends knowledge of the first generation in college Chican@/Latin@ student experience in the access of and engagement in undergraduate research. This study seeks to do so in three ways: (1) centering first generation Chican@/Latin@ students' perspectives of their experiences; (2) acknowledging a strengths based model rather than the traditional deficit model used in research of the Chican@/Latin@ student experience; and (3) acknowledging Chican@/Latin@ intersectionality of identities.

### **Relevant Terminology**

Some terminology in this study may differ from how they are generally used and I provide some ways to define these terms here to help frame the literature and demonstrate the complexity of Chican@/Latin@ students' lived experiences.

- First Generation College students are students who identify as being the first generation in their family to attend higher education in the U.S. In this study, students self-identify as being the first to experience U.S. higher education in their family.
- Identity – is more than how an individual chooses to define her/himself, whether one identifies as immigrant, college educated, researcher, indigenous, and/or queer. Identity is also shaped by how one's self interacts with other selves within contexts that work to “constitute, inform, and transform” one another (J. M. Rodriguez, 2003).
- Immigrant refers to individuals who are foreign born and either are undocumented residents, legal permanent residents, or naturalized citizens (Erisman & Looney, 2007)
- Chican@ – The term Chicana (female) or Chicano (male) is grounded in a philosophy of Chicanismo, not a nationality. Chicanismo is a process that rejects assimilation and privileges the preservation of cultural heritage. It is rooted in the awareness of the

socioeconomic and historical aspects of la Raza's (the people's) experiences as a way to educate about the history and culture towards a movement of self-determination for descendants of Aztlán. As such, this identity is seen as evolutionary, where an individual takes on an increased self-awareness of their own cultural identity, political consciousness, and commitment to community ("Movimiento Estudiantil Chican@ de Aztlán: Official National Website," 1999). In this study, Chican@ is used in conjunction with Latin@, and when speaking about specific participants in this study, it is used only when they self-identify as Chican@. I use "@" to denote male, female, gay, lesbian, queer, and other genders. When speaking of an individual who identifies as either Chicano or Chicana, I will use the relevant term to how they identify.

- Latin@- Latina/o is defined geographically in relation to Latin America, encompassing individuals from Mexico to the end of the Islands at the tip of Chile (J. M. Rodriguez, 2003). In this study it includes descendants of individuals from Latin America as defined geographically and is used interchangeably with Hispanic. Traditionally, Latino is used to refer to someone from the male gender and Latina is used to refer to someone from the female gender. I use Latin@ to denote male, female, queer, and other genders.
- Mexican American, Mexican refers to individuals who are born in Mexico or the United States and identify as Mexican or Mexican American. In this study, I use Latin@ more broadly to include geographic definition which includes Mexico. Only when used to specify participant's way of identifying, is Mexican/Mexican American used.
- Minority/Students of color are students who have been traditionally under-represented in higher education institutions. This includes Native American, African American, Latin@/Chican@ students.

- Queer is used to challenge normative ways of defining sexuality that traditionally has been used to include gay, lesbian, bisexual, two-spirited people, and transsexuals (J. M. Rodriguez, 2003). In this study, certain terms are *queered* to be inclusive of participants who identify as queer. In the case of participants, the pronoun selected by him/her is used, which may be different than the one that would otherwise be ascribed as a result of the person's biological birth.
- Race/ethnicity – Race refers to the “notion of a distinct biological type of human being based on skin color or other physical characteristics” (Delgado & Stefancic, 2001)

**CHAPTER 2:**

**CONCEPTUALIZING STUDENTS' ENGAGEMENT PROCESS IN  
UNDERGRADUATE RESEARCH**

This study focuses on understanding the pathways that first generation Chican@/ Latin@ students undertake to get involved in research. This includes the contexts in which and processes by which interactions with key persons, such as faculty, peers and staff, occur and also what helps encourage students to decide to pursue such opportunities. To better understand these contexts and processes, this study is situated within theories of sociology, communication, and education. In this study, I explore specific factors within higher education contexts and students' contexts that may impact how students experience the access process for engagement in undergraduate research. When referring to contexts, I include a focus on the places, people, and students' backgrounds.

The literature that frames this study includes: (1) research on the role of place as conduits of information flow; (2) theoretical and empirical scholarship on the role of institutional effort in increasing student engagement; (3) the institutional context and its role in Chican@/Latin@ students' experiences; (4) theoretical approaches of students' community cultural wealth; and (5) theoretical approaches on how students' identities and experiences may intersect with the ecological context to shape the engagement process.

These areas of literature come together to conceptualize what may be happening during the process of awareness and seeking access to undergraduate research opportunities with a focus on the role that institutional entities take in this process. In this chapter, I describe the literature that informs this study and I present the conceptual framework for this study.

## **The Role of Place as Grounds for Student Awareness and Engagement**

“Place” is a concept used in geography where meanings are shaped through the actors that inhabit that space (Dobrowolsky, 2005; K. Fisher, 2004; Tuan, 1977). In this study, I recognize place as having a role in how students engage in higher education. To situate an understanding of how place may be connected to how information flows, I include information behavior research which looks at *context* and its role among other factors that impact information behavior. However, it is only recently that a closer examination at how the social settings impact information flow has been studied.

Information behavior is defined as the activities people engage in that may be conducive to active and passive information-seeking (Wilson, 2000). Information grounds extends the information behavior research to include the concept of place as playing a role in information flow (Dobrowolsky, 2005; K. Fisher, 2004; Pettigrew, 1999). More specifically, information grounds is defined as the “environment temporarily created by the behavior of people who have come together to perform a given task, but from which emerges a social atmosphere that fosters the spontaneous and serendipitous sharing of information” (Pettigrew, 1999, p. 811). The theory of information grounds has been used within information science to understand various contexts, including how immigrants in Queens, New York use library resources (Fisher, 2004), within medical settings and community settings (Dobrowolsky, 2005; Pettigrew, 2000), and also in higher education (Fisher, Landry, & Naumer, 2007).

Applying information grounds to a higher education setting may be especially useful for understanding how undergraduate students gain initial access to research opportunities. In a study of students at a large research university, Fisher et al. (2007) sought to identify what were

students' information grounds, what types of information are obtained through these information grounds, and what makes these information grounds conducive to information sharing. Further, the researchers developed a trichotomy of categories – people, place, and information –that shape information grounds. The researchers conducted surveys with 729 college students and found that students' most frequent information ground was the campus (22%), which included common spaces such as hallways, student lounges, classrooms, studios, outdoor gathering areas and study centers. However, when asked which was their best information ground, students identified restaurants or coffee shops (27.7%) as providing more information flow than the campus (14.4%). This finding is interesting in that while institutional spaces served as some of the most common grounds for information, students perceived restaurants and coffee shops to be the best. This study also found that students tend to share spaces within homogenous groups. Students shared the importance of having common interests, backgrounds, and situations as helping to strengthen the information flow (Fisher et al., 2007). These findings are instrumental in applying to the access process for research opportunities in that they provide insight on how information may flow between students, staff, and faculty and in what contexts this information is more likely to occur.

In a case study specific to the Chican@/Latin@ student experience, place was found to have a role in how students navigated the institution towards experiential learning opportunities such as study abroad, research, and scholarships (Salvador, 2009). Chican@/Latin@ students shared that they met and formed relationships with faculty and peers within student centered and informal spaces. Student-centered spaces were defined as places where students drove the agenda and institutional actors may have attended, but were not always present. Informal spaces included lobbies, hallways, and other places that did not have a structured event occurring, but

provided spatial opportunities for students to sit and interact with others while they waited for either their next class, student organization meetings, or just hanging out. Informal spaces that students mentioned in this study often were located within the cross-cultural center of the university. It was in these student centered and informal spaces that students from this case study learned about opportunities from faculty and their peers.

Using information grounds begins to address how students may be hearing about and perhaps even encouraged to pursue research opportunities. In order for students to seek information, they must first know that it exists, decide to pursue it, find the appropriate information to secure such an opportunity, and finally seek and secure the research opportunity. This serves as a basis for understanding how the social organization of a setting may or may not be conducive towards enhancing engagement of students in research. Further, research on how information grounds may play out within minority students in predominantly White institutions is limited. To date, research has not explained whether certain information grounds are more open, welcoming, or productive for first generation Chican@/Latin@ students.

### **The Role of Institutional Effort on Student Engagement**

Information grounds may result from an intentional effort, or be the informal result of students interacting with each other and other community or institutional actors, or both. I use *institutional actors* in this study to denote people within institutions who may be interacting with students at various levels – either supporting students to engage in undergraduate research directly, indirectly, or not at all. They may be faculty, staff, post doctorates, graduate students, and/or their peers. This study is based on the premise that engagement is the result of not just student effort alone, but also institutional effort. Kuh et al (2005) define engagement as having

two components: students' efforts that may lead towards enhanced academic and extracurricular outcomes and institutional efforts to allocate resources and organize services that "induce" student participation (Kuh et al., 2005, p. 7).

### **Institutional Engagement Models for Chican@/Latin@ Students**

Scholars and institutions have conceptualized models to help frame how institutions may help shape students' engagement. In many of these cases, however, engagement is defined as persisting in higher education. Nora, Barlow, & Crisp (2006) developed a student/institution engagement model with a focus on Latino students' first year. Their framework was guided by other first-time-in-college theoretical perspectives and like many studies about persistence, defines successful outcomes as degree attainment or re-enrollment after first year in college (Astin, 1993; Amaury Nora et al., 2006; Pascarella & Terenzini, 1991). Prior studies do not address the intricate fabric of what student engagement experiences within various out-of-class activities look like; even more particularly, what it looks like for Chicano/a-Latina/o students. This study re-defines success as engagement in undergraduate research. It is these important connections to the institution that help students define their aspirational goals which lead to defining graduate and professional school goals that this study addresses.

### **Campus Services and Programs for Students of Color**

Many higher education institutions have established cultural centers and targeted campus services to provide students of color with spaces within the university setting where they can make connections with others that relate through at least one of their multiple identities. In a study of multiple ethnic groups (African American, Asian-Pacific American, Latino, and Native American), Jones, Castellanos, and Cole (2002) found that ethnic minority students at a predominantly White institution (PWI) saw the cross-cultural center on their campus as a place

where they could spend time outside of class and relax, connect with students within their ethnic groups, garner support, and felt safe. Latino students referred to the space as “a home away from home (p. 30).” Salvador (2009) found that the cross-cultural center was not only a place where students felt safe and garnered socio-emotional support, but it was also a space where students learned from each other about various experiential learning opportunities and also garnered support towards those opportunities.

The Jones et al. (2002) study conducted focus groups with four student groups – African American, Asian-Pacific American, Chicano/Latino, and Native American. Students mentioned feeling that the cross-cultural center needed to be in a more visible location on campus as opposed to its remote location. This connection to space and its representation on campus as a central location played a role in how students perceived the institution prioritizes diversity on their campus.

### **Professional Socialization of Undergraduate Students**

The work on professional socialization helps (Antony, 2002; Taylor & Antony, 2000; Tierney & Bensimon, 1996) examine how institutional programs work towards socializing students into academia and students may or may not engage in activities that enhance their academic and professional development. The actors in the students’ information grounds, for example, may also be participating in a process of socialization at the same time that they increase access. Various concepts have been developed to help theorize how students are socialized into academia to engage in activities that enhance their academic and professional development. Professional socialization (Tierney & Bensimon, 1996; Antony & Taylor, 2001) has addressed graduate education by looking at the acculturation process that occurs to orient graduate students into the world of academia. Socialization is defined as the “formal orientation,

information sharing and overt instructions as well as informal modeling of behavior” that occur to create an understanding of a particular culture such as academia (Taylor & Antony, 2000, p. 186).

Scholars have explored the role of socialization in graduate education by looking at the acculturation process that occurs to orient graduate students into the world of academia. Socialization is defined as the “formal orientation, information sharing and overt instructions as well as informal modeling of behavior” that occur to create an understanding of a particular culture such as academia (Taylor & Antony, 2000, p. 186). This work helps illuminate how certain cultural frameworks in higher education may or may not be conducive towards an identification with academia for students. Further, this may inform how undergraduate students are socialized to identify with the domain of getting involved in research opportunities and understanding of the culture they must navigate to access such opportunities.

Scholarship on the socialization of minority youth introduces the role that non-kin persons have in youth’s social development and educational attainment and conceptualizes how these non-kin persons may be engaging in ways that promote empowerment for these youth (R. D. Stanton-Salazar, 2010; Ricardo Stanton-Salazar, 1997; R Stanton-Salazar & Spina, 2006). Stanton-Salazar defines an *institutional agent* as a person not related to the students who are positioned within institutions with access to resources and information and provide social and institutional support (R. D. Stanton-Salazar, 2010). Stanton-Salazar proposes a conceptual framework that addresses the role that institutional agents have in the ways that students navigate within institutions.

Research often points towards the role of social integration (Guiffrida, 2006; Tinto, 1999)

in persistence of under-represented students within higher education and the role of socialization (Tinto, 2000) as equally important in establishing a culture of learning that leads towards student persistence. While researchers have traditionally used these concepts to understand retention and persistence, this study incorporates an understanding of the various factors, including people, that may play a role in persistence to understand how those factors may also play a role in successful engagement beyond the classroom that such as research opportunities.

### **Institutional Context and its Impact on the Chican@/Latin@**

#### **Student Experience**

Institutions possess a historical legacy of inclusion and exclusion that continues to permeate how policies have been implemented and how students experience the campus. Scholars have examined the impact of the campus racial climate on students of color (Eagan, Sharkness, Hurtado, Mosqueda, & Chang, 2011; Graham & Gisi, 2000; Hurtado, ERIC Clearinghouse on Higher Education., & Association for the Study of Higher Education, 1999; Hurtado & Ponjuan, 2005; Solorzano, Ceja, & Yosso, 2000) and further scholarship on the Chican@/Latin@ experience in Predominantly White Institutions (PWIs) have provided insights into how Chican@/Latin@ students experience higher education institutions, and in particular their experience within predominantly white institutions (Loo & Rolison, 1986; Yang et al., 2009).

#### **Impact of Campus Racial Climate on Experiences of Students of Color**

To further understand the complexity of the role that place has when shaping students' experiences, it is also important to acknowledge the institution's campus climate. Hurtado, Milem, Clayton-Pederson and Allen (1999) describe four dimensions towards understanding the

campus climate: historical legacy of inclusion/exclusion, structural diversity, psychological climate, and behavioral dimensions. Institutions carry with them the historical legacy of inclusion and exclusion via their policies and their missions (Hurtado et al., 1999). While some policies change, the repercussions of these policies and the attitudes that preceded them often persist, leaving a legacy difficult to overcome. These may inadvertently trickle down to the ways that programs or services continue to represent themselves in their recruitment efforts. The structural diversity of the institution is exhibited through its student, faculty and staff diversity. This in turn impacts the psychological climate, which is how students perceive racial/ethnic tension, discrimination and attitudes. The behavioral dimension is how interactions result from the other components of the campus climate, impacting campus involvement, classroom diversity and social interactions across race/ethnicity (Hurtado et al., 1999b). An inclusion of the dimensions of the campus racial climate can help understand the stories of the people in the study and how their interactions may also be impacted by how they perceive their place is constructed along these dimensions. Further, these dimensions exist within a larger government/policy and sociohistorical context.

Cues contribute to how students perceive an institution's racial climate. Cues are certain features, often subtle, that signal a "degree of threat or safety a person will experience" (Purdie-Vaughns, Steele, Davies, Ditlmann, & Crosby, 2008, p. 615). These features may be visual, verbal or situational, and cues may present themselves at the institutional or interpersonal level (Purdie-Vaughns et al., 2008; D., Ceja, Miguel, Yosso, Tara Solorzano, 2000; D. G. Solorzano, 1998). In addition, threatening cues perceived by students may be in the form of microaggressions. Solorzano, Ceja, and Yosso (2000) found that African American students from three universities experienced racial microaggressions in academic and social spaces. For

the analysis, I focus on institutional cues, but include interpersonal cues when it relates to faculty and staff of the university.

Research on perceptions and attitudes towards campus climate has found that racially and ethnically diverse administrators, students and faculty tend to have different views depending on their position and status within the institution (Hurtado, et al, 1998). For students of color who complete graduation, their levels of social alienation are higher and they have less satisfaction than students who leave the university prior to graduation (Bennet & Okinaka as cited in Hurtado et al, 1998). This finding is problematic because while the students have graduated, the level of engagement may not have been one that nurtured a sense of belonging, integration, and post-baccalaureate academic aspirations. Pascarella and Terenzini found that increased involvement in campus life outside of the classroom produce better short and long term outcomes (Pascarella & Terenzini, 1991; Astin, 1999). Examining the campus climate can help uncover any perceived barriers to students during the process of access for research opportunities. The relationship between the level of integration and social networks may be influenced by how students perceive the campus racial climate.

Institutional effort and the campus racial climate are not alone in its impact on student experiences. The effort that institutions may or may not be promoting may also intersect with students' background, sense of self, and other experiences at home, in the community, and among their peers.

## **First Generation Chican@/Latin@ Students at Predominantly White Research Universities**

Chican@/Latin@, African American, and Native American student enrollment in higher education has been a concern for decades in the United States. Latinos are the fastest growing minority in the United States and about four percent of Latinos attained a bachelor's degree within six years, acquiring six percent of all bachelor degrees conferred in 2000 (Santiago & Brown, 2004). By the year 2020, Latinos are expected to represent one in four of the college-age population (Santiago & Brown, 2004). In 2009, one fourth of Latinos ages 18 to 24 reported to be enrolled in higher education (Lopez, 2009). Although Latinos have shown an increase in entering college, they are still not graduating at a comparable rate to their White, African American, and Asian peers (Gandara & Contreras, 2009; Llagas & Snyder, 2003; A Nora & Crisp, 2009; Strayhorn, 2012).

Recent studies have found that about 26 percent of Latinos enroll in college and only eight percent actually graduate with a bachelor's degree (Yosso & Solorzano, 2006), where a disproportionate amount of Latino students are enrolling in two year colleges and Hispanic Serving Institutions (Llagas & Snyder, 2003; Nora & Crisp, 2009; Strayhorn, 2012). In 2000, 14 percent of Latino students were enrolled in a two-year college and 7 percent were enrolled in four-year universities, where first generation in college students are more likely to enroll in the two year colleges (Llagas & Snyder, 2003). Further, studies have found that on average, many Chican@/Latin@ students are more likely to take longer to complete their degrees (Strayhorn, 2012). While these numbers convey the state of the educational attainment of Chican@/Latin@ students, it does not expand on the perceived opportunities of engagement for Chican@/Latin@ students while in college.

How Chican@/Latin@ students experience and navigate within predominantly White institutions (PWIs) as they move towards completing their degrees is also useful in understanding student engagement. Studies that address the ethnic minority student experience at PWIs have found that the stress that students experience can be embodied in many forms. Smedley, Myers, and Harrell (1993) define minority status stressors as those that are unique to ethnic minority students in a higher education institution. These stressors include social climate stresses, interracial stresses, racism and discrimination stresses, within-group stresses, and achievement stress (Smedley et al., 1993). Social climate stresses may include those that make the student feel isolated or underrepresented (e.g. not enough professors of same race, few students of same race in classes, White students and faculty expect poor academic performance). Interracial stresses may include difficulties building relationships with White peers, negative relationships between different ethnic groups, lack of unity/supportiveness among members of the same race, feeling tensions of trying to maintain ethnic identity while attending college. Racism and discrimination stresses relate to experiences being discriminated against, when others lack respect for the students' racial group, and feeling they have to "prove" their abilities to others. Within group stresses may include tensions in relationships between males and females of the same race, pressure to show loyalty to same race, and perception of people close to them thinking they are acting "White." Achievement stresses may include students feelings of doubts about their ability to succeed academically, feeling less capable than others or that their academic background is inadequate, pressures by family's high expectations, and lack of understanding by family about college pressures (Smedley et al., 1993). Smedley et al. (1993) propose that PWIs should provide various intervention programs that focus on helping first year

students to understand and cope with these stressors. Further, the authors posit that universities need to be made “more culturally and emotionally accessible” to diverse student populations.

Racial and ethnic minority students at PWIs have also reported feelings of isolation and feeling different, lack of institutional support for diversity, lack of cultural support from White peers and other ethnic groups, ethnic segregation and separatism between ethnic groups, and feelings of not belonging within non-ethnic specific organizations (Jones et al., 2002).

Chican@/Latin@ students in particular have expressed an importance to being active on campus with a willingness to work towards being a change agent. Both Chican@/Latin@ and Native American students reported having experienced racism (Jones et al., 2002).

For many Chican@/Latin@ students, as well as their ethnic minority peers, multiple identities intersect. An understanding about the intersectionality of their multiple identities helps to acknowledge the complexity of how they experience the university. It is important not to essentialize the student experience within ethnic groups. Further, students may identify within categories that diverge from systemic ways of categorizing them. For example, students may be mixed race, yet for institutional audit purposes, they may be categorized within one racial group instead of two. Further, additional identities (e.g. gender, race, class, class, sexuality, faith, etc.) may intersect in ways that impact students’ lived experiences (Anthias, 2013).

In the 2000 U.S. Census, more than 40 percent of individuals who identified as mixed race were under 18 years old. The mixed race experience helps inform that of Chican@/Latin@ students in two ways. First, Chican@/Latin@ students are mixed race as a result of the historical conditions, yet are only classified by their ethnicity in various institutional auditing systems, negating their mixed race status. Second, as a result of the mixed race status, Chican@/Latin@

students may face similar situations that have been found among studies with mixed race individuals. Biracial and Multiracial students have expressed experiences where the power of phenotype comes up in the ways that others in society perceive them. They are judged and categorized by their physical appearance and features rather than by the way they prefer to identify (Talbot, 2008).

The experiences of lesbian, gay, bisexual, transgender, and queer (LGBTQ) students of color is another intersection of identities where students have found it difficult to find community on a university campus. LGBTQ students of color have reported that they have experienced ethnic or racial student group spaces to be heteronormative and the LGBTQ spaces to be White-normative spaces where they experienced rejection of their cultural and religious practices (Poynter & Washington, 2005).

For first generation Chican@/Latin@ students, there are many experiences and relationships that impact their educational success and how they navigate the higher education context. Higher education institutions are positioned in ways that can help provide many spaces where students are able to build upon their social networks and learn about and engage in new opportunities. Improving Chican@/Latin@ students' attainment of college degrees and enriched college experiences will provide more opportunities for students to explore their interests for careers and graduate school aspirations. Thus, increased opportunities for Chican@/Latin@ students during their undergraduate experience brings an increase in opportunities for a greater pool of qualified Chica@s/Latin@s who aspire and are competitive applicants for graduate programs.

## **Community Cultural Wealth Approach to Aspirational, Navigational, Cultural, and Social Capital**

Community cultural wealth (CCW) provides a framework in which to explore how students' interactions with people within various contexts also intersects with institutional efforts to shape their undergraduate experiences. Community cultural wealth challenges traditional views of cultural capital and emphasizes the importance of validating various forms of capital including navigational, aspirational, social, linguistic, familial and resistant capital (T. J. Yosso, 2005). Yosso (2005) introduced community cultural wealth as a way to expand on the notions of cultural capital as originally introduced by Bourdieu (1973). Bourdieu introduced theories of cultural reproduction and social reproduction to help understand how different outcomes among students in the education system are a result of differences in cultural capital. Bourdieu defined cultural capital as the knowledge, skills, resources and assets which is valued by society and held by some individuals in society that affords them certain advantages to continue to perpetuate structures of class relations (Bourdieu, 1973). This definition promotes the idea that students who are not part of the dominant culture come to school with a deficit in the cultural capital that is valued within the educational system. An understanding of CCW helps demonstrate how aspects of students' cultural wealth may be interacting with institutional efforts.

Yosso (2005) challenges traditional framing of cultural capital as it conveys a deficit lens thinking around students of color, first-generation and other students who may not come from the dominant culture. Instead, Yosso uses a Critical Race Theory (CRT) lens to critique the deficit thinking that manifests through the notions that students enter school without the normative cultural knowledge and skills, and that families do not value or support education for

their children. Further critique on the use of “capital” by Melvin Oliver and Thomas Shapiro (1995) informs Yosso’s work. Oliver and Shapiro make a distinction between “capital” and “wealth”. Where capital is defined as being that which results from direct income or earnings, wealth is the accumulation of assets and resources. Using CRT as a lens and the work of Melvin Oliver and Thomas Shapiro (1995) to redefine capital as “wealth”, Yosso introduces community cultural wealth (CCW). In community cultural wealth, the focus is shifted from deficit thinking to one that acknowledges the “array of knowledge, skills, abilities and contacts possessed and utilized by Communities of Color to survive and resist macro and micro-forms of oppression” (T. J. Yosso, 2005, p. 77).

Using Yosso’s framework, I focus on understanding how aspirational, social, and navigational capitals may help shape students’ experiences when becoming aware of and engaging in experiential learning, specifically undergraduate research in this study. Within Yosso’s framework, social capital contributes to the cultural wealth acquired by students. Based on research and the work of scholars such as Gándara, Delgado-Gaitan, Solórzano, Auerbach, Cummins, Freire, Giroux, McLaren, Deloria, Anzaldúa, Delgado Bernal, Reese, Lopez, Moll, Vélez-Ibáñez and others (as cited in Yosso, 2005), Yosso defines each of these forms of capital. Aspirational capital addresses the resiliency that students exhibit in maintaining their goals and hopes for the future despite barriers as an instrumental component of nurturing “a culture of possibility” that creates the possibility for students’ academic attainment to depart from their parents’ occupational status (Yosso, 2005, p. 78). Familial capital is the forms of cultural knowledge that is nurtured through the family. Linguistic capital refers to “the ability to communicate via visual art, music or poetry” and includes the multiple language and communication skills that students bring with them to school (Yosso, 2005, p. 78). Resistant

capital is composed of various forms of oppositional behavior that either challenge inequality or “self-defeating or conformist strategies that feed back into the system of subordination” (Yosso, 2005, p. 81). Social capital is a “network of people and community resources” (Yosso, 2005, p. 80). Navigational capital is a person’s ability to move through an institution. In the case where racism is historically intertwined with the institution’s legacy, people of color may employ these navigational skills to help avoid and work around less welcoming or racist situations within an institution.

While I acknowledge that all these forms of capital are often intertwined within students’ experiences, for this paper I focus on placing a lens on how people and place play a role in shaping students’ navigational and social capital, and explore how students’ aspirational capital may have informed their information-seeking behavior and/or itself shaped by their research experience.

### **Students’ Identification as a Researcher**

These theories concerning information grounds, community cultural wealth, and campus racial climate, and professional socialization processes are likely to draw attention to institutional factors that interact with whatever students initially bring to higher education and how these experiences intersect with students’ own identity development. Students bring, for example, aspirations, knowledge and various cultural backgrounds and other personal resources that set up in motion their undergraduate experience as well as the complex perspective derived as a result of their varied experiences.

A satisfactory account of access to research experiences will likely need to consider the interaction between what they bring and what they encounter on campus and how they make

sense of their identity and experiences in relation to their own backgrounds, knowledge, and how these may manifest within the students' community cultural wealth. In essence, self-identification with particular domains of academia reflects their evolving academic and professional identities and may guide how students decide to pursue and engage in activities such as undergraduate research. The identification as a researcher as it intersects with their other identities is the focus of this study.

### **Threats to Identification as a Researcher**

As students navigate predominantly White institutions (PWI), they must also negotiate threats that may manifest in the various interactions they have with people on and off campus. Claude M. Steele (Claude M. Steele, 2011) discusses how “conditions of life tied to identity” are the result of historical situations that resulted from how societies used identities such as race as a way to organize many aspects of society including housing, schooling, and employment (p. 3). These become “identity contingencies”—things an individual has to deal with as a result of their social identity (e.g., Latin@, lesbian, young, old, etc.), while other individuals who do not have that same social identity do not have to deal with the condition (Claude M. Steele, 2011, p. 3). “Encounters” are interactions or experiences where certain facts are made clear to individuals about where they stand in society as a result of one or more of their identities (Claude M. Steele, 2011, p. 1). For example, if a student in college is talking to an advisor and the advisor states to them that there are no scholarships for undocumented students, then the student will most likely refrain from seeking any scholarships in the future and believe that undocumented immigrant individuals are lower in the social order of citizenship in terms of access to educational resources. While it is not true that there are no scholarships for undocumented students, the

student now perceive the socially constructed order of who has access as a result of their immigration status.

Steele (1997) presents a perspective to his research of taking on the actor's perspective to understand the situational causes to stereotype threat. In taking this approach, the researcher was able to illuminate how the situations that students experience may be threatening their identification with particular domains. In a study that looked at threats that may be present in how women identify with math, Steele delineates two threats to academic identification: 1) structural and cultural threats, and 2) stereotype threat.

The first, structural and cultural threats are those that stem from sociocultural influences such as disproportionate representation of particular racial groups within low socioeconomic status, and cultural patterns within and between groups that may influence their identification with school. In higher education, the low representation of Chican@/Latin@ students in higher education is structural threat to students identifying with higher education. Further, if there is little representation of Chican@/Latin@ students in research, then that can also frustrate how students may identify as researchers themselves.

Stereotype threat is one of the identity contingencies that individuals may encounter throughout their lives and in particular while in college. Stereotype threat is an “event of a negative stereotype about a group to which one belongs becoming self-relevant”—meaning it can be used as an interpretation for something that the individual is involved in (C. M. Steele, 1997, p. 616). It becomes a contingency—different to cues and their relationship to microaggressions in that it does not need to be triggered by a cue. Instead, Steele posits that

stereotype threat is cued when the individual is in the situation that the stereotype is connected with.

As individuals enter higher education institutions having experienced encounters or continuing to experience new encounters while in college that convey cues regarding the societal hierarchies in who may or may not have access, they may then begin to navigate the institution differently as a result. In addition, if there is the cues students receive incorporate unwelcoming and hostile attitudes, then they may be more inclined to avoid those spheres altogether to preserve their own well being. While these studies illuminate threats to students' identification for particular domains, we must now address in what ways can institutions mitigate the effects of stereotype threat?

### **Social Cognitive Theory and Motivation**

In order to mitigate stereotype threat that may be manifesting in students' experiences, one must consider the role that the people and places that shape the contexts have on students' own sense of self- efficacy and academic and career aspirations. Social Cognitive Career Theory (SCCT) stems from the work on Social Cognitive Theory and provides a framework that is useful to understand the personal agency component of students' research engagement process. SCCT identifies three major components for how people "form their academic and occupational interests, make educational and occupational choices and achieve varying levels of success" in their endeavors (Lent, Hackett, & Brown, 1996, p. 3). These are self-efficacy, outcome expectations, and personal goals (Lent et al., 1996). Self-efficacy was first introduced within Bandura's (1986) description of Social Cognitive Theory. Bandura posits that if people are persuaded that they can be successful in a certain domain, they are more likely to change their behaviors (Bandura, 1986). Further, they will then be more persistent in these new behaviors and

not focus on any doubts when problems do arise. Lent et al. (1996) use self-efficacy as people's belief that they are capable and able to perform particular actions within the domain of reference (Lent et al., 1996). Outcome expectations refer to people's expectations of what certain behaviors may lead to (Lent et al., 1996). This is often a product of self-perceptions of behavior and the observed outcomes of those behaviors. The third component of SCCT, personal goals, correlates with Bandura's (1986) description of the role of motivation. It acknowledges that a person's goals may drive their behavior and are impacted by the person's self-efficacy, but also produces a motivation to continue certain behaviors and improving them in order to reach those goals. SCCT helps us understand how students may decide to engage in research because they believe that they can be successful within that domain. It also intersects with cultural and social capital as there may be people within students' contexts that play a role in encouraging students to believe that they can be successful in certain domains such as undergraduate research. Further, if a student believes that engagement in undergraduate research may lead towards certain outcomes, such as increased knowledge in a field of interest, or enhancing their opportunities for future goals, they may be more likely to continue to persist in a certain behavior, such as trying to acquire a research opportunity. For students who may identify with seeing themselves as researchers, it means that they would also be willing to continue to seek the research opportunity even if their first attempt may not have been successful.

### **Threats to Domain Identification**

The studies on social cognitive theory and motivation help us understand how students shape their academic and professional interests, make educational choices, and achieve success. At predominantly White institutions (PWI), students of color may experience additional threats

that impact how these components of their identification are shaped.

These theories converge to help shape how students' engagement process to undergraduate research may be shaped by the intersection of the people, places and students' own perceptions of research and themselves as researchers. In the next section I describe the conceptual framework employed for this dissertation work.

### **Conceptual Framework**

This conceptual framework (see Figure 1) describes how people and place shape the access and engagement experiences of students in higher education. It also incorporates factors that may contribute to students' capacity for engaging into undergraduate research. With an understanding that students' families and home communities may also play a role, I developed a conceptual framework that is bounded by looking at the role of institutional actors and spaces that help shape students' access experience in research opportunities while acknowledging that these intersect with students' own sense of self-efficacy, identification with research, and aspirational goals.

#### **Students' Sources of Capacity and Demographics**

The framework begins with the acknowledgement that sources of students' capacity may include various capitals and networks that shape their community cultural wealth outside of the higher education institution (e.g. familial, linguistic, and cultural capitals, and community social networks), as well as students' demographics that shape their lived experiences and how they negotiate their multiple identities (e.g. race/ethnicity, age, marital status, sexuality, and gender).

## **Institutional Context**

The institutional context is situated at the foreground of every student's experience. In this study, I conceptualize the institutional context as comprised of three components – the campus racial climate, institutional culture of research, and a culture of inclusivity for Chican@/Latin@ students. The latter is especially applicable to the experiences of Chican@/Latin@ students as they negotiate the intersection of various identities such as linguistic, multi-racial, and gender identification during their interactions with institutional actors within higher education.

**Campus racial climate.** The institutional context is rich with many layers including the political and socio-historical legacy of the institution, campus racial climate, and then the various institutional actors and spaces that nurture interactions. The institutional context is a background that has emerging undertones of what the campus racial climate is and how it plays a role with how programs and services may be implemented by institutional actors and how students may be experiencing them. The interplay between policies, campus racial climate, and the sociohistorical legacy with implementation of programs and services may produce certain information grounds or impact how students decide to navigate to or away from certain types of people or places on campus. Part of the institutional context is comprised of the actors and places that have a role in shaping the students' access and engagement experience.

**Institutional culture of research.** While the campus racial climate may impact students' sense of belonging and experiences of marginalization and tokenization—the culture of research within an institution may also shape how students experience the institution. In particular, the extent to which undergraduate research is valued as a high impact learning practice impacts opportunities for undergraduate students to engage in research and the quality of that

engagement. There is a difference in how students will experience undergraduate research if the faculty value the inclusion of undergraduate students as part of a research team or guide them on their own research endeavors with the intention of seeing students grow as scholars rather than seeing undergraduate research assistants simply as opportunities to help complete more tedious parts of the research process. Further, the institutional culture of research also constitutes the larger culture of how staff, faculty, and other members of the institution may perceive research and therefore promote, or not, research as a viable endeavor for students.

**The context of inclusivity for Chican@/Latin@ Students.** At each university, there exists the climate of inclusivity that may or may not validate Chican@/Latin@ students' backgrounds and nurture their community cultural wealth. Traditionally, scholarship frames the campus racial climate in terms of race, but does not address the intersectionality of the multiple identities that Chican@/Latin@ students possess and negotiate on a daily basis (e.g. gender, language, first-generation, immigration status, sexuality). Further, Chican@/Latin@ students must also negotiate situating themselves within the conversation of a Black-White binary, in which conversations of race are discussed and dealt with in simplistic and restrictive categories and often norming Whites and using a deficit lens through which to view other racialized groups when comparing against a norm framed around Whites (Oropeza, 2011). In this study, I incorporate an awareness that that the context for inclusivity of Chican@/Latin@ students within higher education is a critical component to the institutional context.

### **Information Grounds**

Information grounds play a key role as conduits for information sharing and opportunities for students to learn about research. As defined earlier, information grounds are spaces where the sharing of information occurs, whether intended or unintended. Students might be engaging in

spaces where institutional actors share information about opportunities. Information grounds may be formal institutional settings (i.e. faculty and program offices, classrooms) or informal spaces (i.e. student organizations, cafes, study spaces).

Information grounds may expand beyond the university settings. While the assumption may be that students learn about opportunities within a campus setting, there is also the possibility that they are engaging in activities outside the university campus that provide opportunities for the sharing of information to occur. This might be with family members, community mentors, and/or institutional actors who may not be related to them, but share those spaces.

### **Institutional Social Networks**

The social networks constitute relationships among peers, faculty and staff of the higher education institution. These social networks may be occurring in formal spaces of the university or they may be found in information spaces. Formal spaces are those structured by institutional actors such as staff and faculty as a result of their role within the institutions (e.g. classroom, faculty office hours, workshops, and program events). Informal spaces are spaces where there is no structured even occurring other than perhaps student-directed activities or gatherings. The institutional actors who are part of these social networks may play a role in students' awareness of and helping to shape their identification with research. Peers may serve as part of the social networks in which information is shared about opportunities with students. Faculty and staff are also actors who may have knowledge about opportunities that become instrumental in bringing awareness to students about research opportunities.

In the case of students who are already aware of and identify with the idea of research,

they may actively seek to find research programs and advising to help them engage in research. Research program staff may become catalysts for engagement at various stages of students' research access experience. Through outreach efforts, they may be engaging with students who have not yet heard of research opportunities and students who have thought about it, but were unsure of how to begin. In addition, students who have already decided to seek research opportunities may be approaching programs directly and thus begins the role of program staff to serve as conduits towards engagement for students.

At the same time, these social networks may help inform where students decide to spend their time outside of class and the spaces they inhabit also shapes who becomes part of their social networks and become conduits for information grounds.

**Research interactions and space.** How institutional actors (e.g. faculty, graduate students, etc.) are situated within research projects may likely intersect when they become part of students' institutional networks and perhaps interact within spaces that serve as information grounds. Prior to students engaging in research, the institutional actors from research may be operating as agents for introducing students to opportunities for research as well as inviting them to participate. Further, once students are engaged in research and become regular co-habitants of the research space, they may be engaging in additional interactions that help shape students' growth as a researcher and their capacity for future access and engagement in additional research opportunities.

### **Students' Capacity for Access and Engagement**

All the sources of student capacity, institutional factors, and the students' capacity for access and engagement interplay with each other to create the conditions in which students

navigate towards research opportunities. The students' capacity for access and engagement encompasses students' self-efficacy, academic and professional identity, their perceptions of and identification with "research" (as pursuit, culture, and possible career goal), and their aspirational, navigational, and social capitals. Where social capital includes both their institutional and community social networks.

### **Students' Access and Engagement Process**

As the various components of the conceptual framework continually shape and inform each other, they begin to manifest within the students' access and engagement process. Within this process, I identify five key stages followed by the integration of the student becoming part of a future undergraduate researcher's social networks (see Figure 1). The first stage is *awareness*. Students must first become aware of a research opportunity. This *awareness* itself is broadly defined as students having heard that research opportunities exist for undergraduates and could extend to students understanding what that engagement in research may actually look like and thus lead towards identifying with the research domain as something that they may belong to. *Identification* is the second stage where students undergo a process of identifying with the domain of research and developing an interest in and desire to pursue research. Once students believe or see themselves capable of conducting research, a decision has to be made to actively seek and acquire information and access in the new behavior of research. I name this stage *acquisition*, where students are in the process of seeking and obtaining a research opportunity. The acquisition stage also has a range as to what may be producing it. It could be that the student is strongly motivated by outcome expectations or long term goals, or it could be that the student was invited by someone such as a faculty member to engage in research and it became a serendipitous decision to engage.

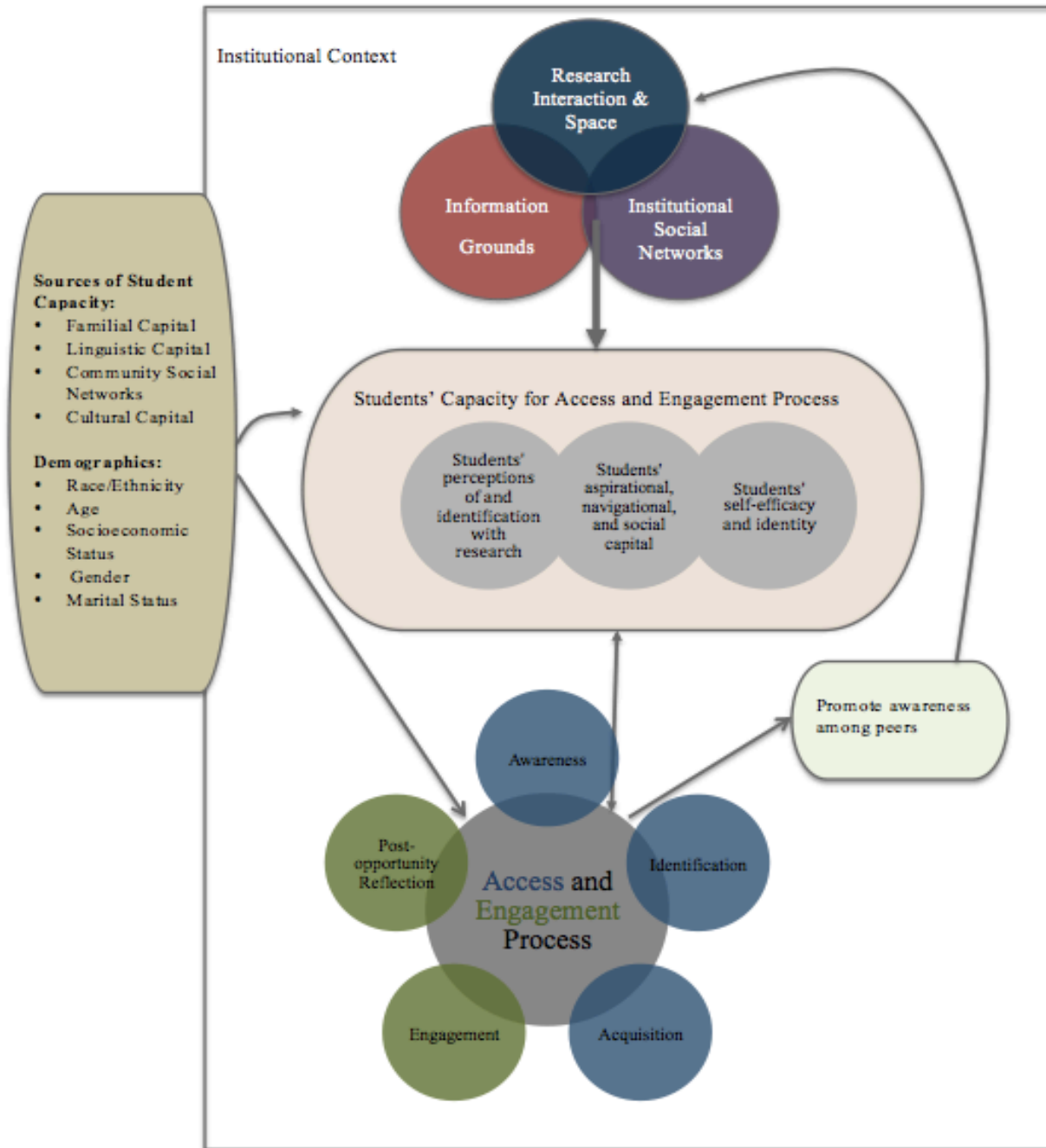


Figure 1. Conceptual Framework of Model of Students' Access and Engagement in Undergraduate Research

In the *engagement* stage, the student has been successful in securing an undergraduate research opportunity. In the fifth stage, *post-opportunity reflection*, the student has participated in the experience and/or may be between research projects. In this stage, students are reflecting about their experience in ways that may be re-shaping their identification with research, their aspirations, and even their academic and professional identity. The access and engagement process is dynamic. Students will re-engage in the various stages of the research process every time they learn about a new research opportunity. For example, identification with research may be a continuous process that does not end at the point of acquisition. In many cases, the various stages of the access and engagement process may be fluid.

All the components of this conceptual framework interact, are dynamic, and may at times operate in more cyclical fashion.

## **CHAPTER 3:**

### **QUALITATIVE STUDY RESEARCH DESIGN**

This study uses a qualitative cross-sectional multiple case study research methods design (Merriam, 2009) that provides descriptions of students' experiences in navigating a predominantly White institution (PWI) as they access undergraduate research. Further, the study seeks to understand how students' pathways may be informed by those experiences. This chapter outlines the methodology, research design, researcher positionality, and the strengths and limitations of the study. In the methodology section, I describe the cross-sectional multiple case study qualitative research design that I employ in this study. I then delineate the components of the qualitative case study research design including the research approach, setting, participants of the study, procedures for data collection, and approaches to data analysis. The section on researcher positionality discusses the role that the researcher had within the institution and how I incorporated reflexivity during the research process. In the strengths and limitations section, I consider the strengths of learning about institutional contexts through the lens of undergraduate students and their paths as they navigate higher education institutions and also the limitations of a case study, where each students' experiences may be unique from each other and a product of the intersectionality of their varied experiences and identities.

#### **Methodology**

This study employs a qualitative cross-sectional multiple case study design (Merriam, 2009). A multiple case study allows the opportunity to study many cases and develop “compelling interpretations about why certain cases occur as they do (Merriam, 2009; Miles & Huberman, 1994). In particular, a qualitative multiple case study can be helpful to understand the

conduits of the higher education institution that impact how undergraduate students decide to engage in and access research. Identifying the contexts in which students become aware of, interested in and decide to pursue research opportunities will provide a foundation to investigate the interactions and settings that influence these experiences.

The cross-sectional component of the qualitative case study research design allows for an understanding of students' experiences at the different stages of the access and engagement process (e.g. awareness, identification, acquisition, engagement, and post-opportunity reflection). While students who are further along in the engagement process will be able to reflect about their experiences in all stages prior to their current stage, capturing students in the earlier stages may help provide insight to any constraints in the factors that are impacting their move towards research opportunities or within it.

Another critical component of the qualitative methods is the inductive process. I use an inductive process to shape theory on how first generation Chican@/Latin@ students experience access and engagement in undergraduate research. The use of the students' experience and observations of the institution's practices and settings provide a tool through which to analyze how institutional effort and the students' cultural wealth intersect to shape students' experiences in navigating the higher education institution.

### **Research Design**

In this section, I describe the research design approach, research setting, participants, data collection procedures, and approaches to data analysis. In the setting, I introduce the Research University context where the participants attended school during this study. The participant subsection explains why I chose these participants and how they are situated within the

university. In the subsection on procedures for data collection, I describe the process used to collect data. Finally, I outline the approaches to data analysis used as I analyzed the single cases and then conducted a cross-case analysis in the final subsection.

### **Approach**

The qualitative multiple case study approach was useful to understand the complexity of students' pathways within a higher education institution by exploring students' experiences more deeply and the contexts in which students navigate a higher education institution. Qualitative methods are useful to learn "what people do, know, think, and feel," and to focus on the process rather than the outcomes (Patton, 2001, p. 94). Qualitative methodology provides the opportunity to focus on meaning and understanding (Merriam, 2009). Merriam explicates this learning as that of how "people interpret their experiences, how they construct their worlds, what meaning they attribute to their experiences" (p. 14). As participants make sense of their experiences through in-depth interviews, the qualitative researcher serves as an instrument that is able to adapt their continuing data collection immediately as they process information. This level of engagement with the participant offers opportunity for the researcher to better explore topics that may arise during the data collection phase.

Further, this study uses a case study approach to focus on the process of awareness about undergraduate research opportunities and how undergraduate students decide to engage in research. The use of the case study method helps to uncover "contextual conditions" that are relevant to the phenomenon of study (Yin, 1994, p. 13). Yin (1994) posits that where surveys may fail in fully exploring the contexts and experiments limit an analysis of an outcome to a few variables, the qualitative case study is able to more fully investigate both the phenomenon and the real-life context in which it occurs. Merriam (2009) also describes the case study as an

opportunity where the “detailed description of particulars is needed so that the reader can vicariously experience the setting of the study” and “assess the evidence upon which the researcher’s analysis is based”(pp. 258). By knowing where and with whom students are sharing experiences, I can further explore in the interviews how these experiences and relationships may shape students’ awareness and understanding of undergraduate research. Further, qualitative questions allow students the opportunity to more fully describe what type of information sharing occurs in these contexts and how their goals may have changed in response to interactions with various people and engagement in research. For this study, the unit of analysis is the process of awareness and engagement that students are part of as they learn about, decide to engage in, and actually engage in undergraduate research.

### **Setting**

An important and integral component to the multiple case study research design is the context in which students are navigating and learning about opportunities outside the classroom as well as each person’s interest and roles. I selected Kaspi University (KU), a public research university that is a predominantly White research institution in the Pacific Northwest located in an urban city with a population of approximately 600,000 residents. Approximately 29,000 (66%) undergraduate students and a total of approximately 44,000 students are enrolled at this university. The institution offers over 180 majors to an undergraduate student population that consists of 52% Women and 48% Men, 6.9% Latina/o, 1.3% Native American, 3.4% African American, 24.9% Asian, 2.6% Filipino, and 45.8% White (University Office of Research Assessment Unit, 2013). Six-year completion rate is 81 percent.

I chose this institution because it has demonstrated a commitment to undergraduate research and to serving underrepresented minority student populations in higher education

through its various programs and services. The university hosts an annual undergraduate research symposium, where in 2014 there were over one thousand undergraduate students presented on the research they conducted under the guidance of a faculty member. The 6-year graduation rate at this institution for the freshman cohort is 76.1 percent for Latino students, 72.4% for African American, 64.5% for Native American, 82.5% for Caucasian (Institutional Report, 2013).

## **Participants**

Seven students participated in a total of fifteen interviews during a course of a year from fall 2013 through fall 2014. Students self-identified as Chicana/Mexican (1), Chicana (1), Mexican American (1), Latin American (1), Mexican/Mexican American (1), and Mexican immigrant (1). All these students also self-identified as being first generation in their family to be in college and participated in undergraduate research either before the study and/or during the study. Participants consisted of four female-born and three male-born Chican@/Latin@ students, where three identified as man and four identified as woman. Participant recruitment and selection was criterion-based to ensure that students met certain criteria to address the research questions (Merriam, 2009). At the beginning of this study, all participants were enrolled in an undergraduate program at the same predominantly White research institution and had engaged in undergraduate research or expressed intention to participate in undergraduate research (See Table 1 for student backgrounds). The criteria for study participants is described below in detail:

- *Chican@/Latin@*. Students self identified as either Chican@, Latin@ or a subgroup of Latin@ (e.g. Mexican, Mexican American, etc.). One of the participants also identified as “part White”. This focus was useful in understanding the experiences of individuals from a particular minority student population at a predominantly White institution.

- *First generation in college.* All student participants in this study self identified as first generation in college in the United States.<sup>1</sup> The experiences of first generation students in higher education is understandably different than their peers in that it is less likely for the familial capital and social capital to be congruent to that of higher education institutions. What their family may contribute to the students' capacity to adapt and engage within a university setting may be very different than what their peers with parents who earned a higher education degree may contribute in terms of social and cultural capital within a higher education system.
- *Awareness of and/or engagement in undergraduate research.* To help examine how students may have experienced the different stages of awareness and engagement in undergraduate research, students who intended to participate in UR (therefore already aware of UR), and students who had been or were currently involved in undergraduate research were invited to participate.

I examined each participant as an individual case, where each of their experiences informed the various stages of engagement in undergraduate research. I then examined the cases collectively for common themes that emerged. In particular, I focused on understanding their pathways and experiences within the different stages of UR engagement (e.g. awareness, pursuit

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<sup>1</sup> One student self-identified as first generation although her mother did attend a college and eventually obtained a master's degree. The student expressed that her father did not complete high school and that while her mother did go to college at a later age, she had not completed a financial aid application or participated in college activities outside the classroom and was thus unable to help the student when she was trying to learn the processes around college. Further, the student was already in high school when her mother was in college.

of UR, engagement, and post initial engagement) and how those experiences may have shaped their perception of research.

### **Sample Selection**

A purposeful sampling procedure was useful in identifying and finding participants for this study (Merriam, 1998). Since under seven percent of the undergraduate students enrolled at the institution were Chican@/Latin@, I sought my participants more intentionally and shared information about the study with faculty, student serving programs, and organizations. Faculty, program and departmental administrators, and student organizations distributed e-mail announcements about the study to students through electronic mail. The study announcements included a description about the purpose of the study and participant expectations. Interested students contacted me via phone and email. I conducted interviews and questionnaires with seven students who were at various stages of UR engagement.

### **Procedures for Data Collection**

This study used the following sources of data: (1) initial semi-structured interviews with all seven participants; (2) questionnaires completed by all participants; (3) second semi-structured interviews with all participants; (4) third follow up interviews with three of the participants to further explore responses from prior interviews; (5) observations of campus community spaces that participants indicated as spaces they spend their time in while not in class to provide contextual understanding of places referenced in the interviews. The interviews were recorded with a digital audio recorder and transcribed for analysis. See Appendices A, B, and C for interview questions and questionnaire.

**Initial semi-structured interviews.** The use of in-depth interviews allowed students to share their stories more deeply about their experiences in higher education and how they made sense of those experiences. In particular, interviews helped explore how students learned to find mentored research opportunities, what shifts occurred in their perceptions of research, their decision-making process towards accessing research opportunities, and the various contexts, people, and places in which their experiences are situated. As described by Merriam (2009), semi-structured interviews are based on issues or questions to be explored, but allow for the researcher to probe as the interview proceeds to expand upon responses and topics that may emerge through the interviews that help exemplify the research topic.

During the data collection process of interviewing, I drew on reflexive methodology (D. Rodriguez, 2010). While some researchers may argue that sharing stories and practicing reflexivity may distort data (Seidman, 1998), Rodriguez (2010) posits that sharing one's experience with participants may reduce hierarchy between researcher and researchee, helping to create a collective space. Reflexive methodology is seen as a holistic process that helps promote a dismantling of the hierarchy that often manifests during the research data collection process. Thus, in my interviews, as I asked questions I strived to keep to a more dialectical approach that conveyed listening and provided agreement when a participant discussed something that was similar or familiar within my lived experiences. Rodriguez (2010) notes the work of Douglas (1984), who denotes this process as promoting a "common ground" between interviewer and interviewee (p. 493) and emphasizes that this common ground is especially important to nurturing a narrative space. As I conducted interviews, I tried to gauge the comfort with which participants were sharing this information. I noticed that the participants would open up more, following the dialogical process by continuing the conversation. This seemed to create a space

where participants felt more comfortable providing additional contextual information regarding their experiences.

The first interview comprised questions about students' backgrounds, pre-college academic experiences, culture/language, academic and career goals, mentorship experiences, engagement in college, and pathway to research. Beginning with their backgrounds helped to contextualize their experiences and provide insight on their academic interests and experiences, such as decision to enroll in a research university, and also provided an opportunity to explore networks or programs that may play a role in how they navigate the institution.

**Second semi-structured interviews.** In the second interviews, I asked participants follow up questions and also questions about their progress (e.g. How is your degree program going?), and asked students to describe their experiences in research more thoroughly, as well as other opportunities that they have engaged in while in college. During this interview, participants described in more detail their research experience, the project(s) that they have been involved in, why they changed projects if they did, and what plans, if any, they have to continue or pursue different research experiences.

**Questionnaire.** Students were asked to complete a questionnaire as part of the interview process. The questionnaire consisted of 27 questions that addressed students' familial, aspirational, and cultural capital: students' family characteristics, academic background, demographics of participants' community and schools, and academic engagement prior to and during college (see Appendix C). Engagement questions included questions about involvement in college prep courses and extra-curricular activities during secondary school, and current awareness of and level of involvement in college programs. Family characteristics helped inform

the researcher about familial and cultural capitals that are part of students' lives. Students were asked questions such as family and peers' roles in decision-making around higher education and parents' educational attainment. Questions also asked students about their own aspirations (e.g. highest degree student aspires to obtain). The questionnaire was provided to students at the end of the first interview and students completed it before the start of the second interview. The responses provided important background information and helped inform the questions for the second interview.

**Observational Data and Document Analysis.** I reviewed program materials, websites, and other relevant documents from programs that the participants are involved in. Such documents provided information on the structure, content, and goals of the programs and their efforts in recruiting under-represented populations and increasing their engagement in faculty mentored research. I also searched for documents that directly or indirectly provide information on institutional assessments of undergraduate student experiences in research and other retention and degree attainment of Chican@/Latin@ students on campus. These documents afforded a closer examination of institutional efforts to support and enhance the inclusion of Chican@/Latin@ students in undergraduate research. I also asked students for permission to view an unofficial copy of their transcript. This helped supplement what students reported regarding their academic experiences and how they may or may not have obtained academic credit for undergraduate research. Additionally, I observed places that students reported in their interviews as being places in which they spend their time outside the classroom. I observed for types of interactions that occurred during my visits in these spaces at various times.

**Contextual Observations.** I conducted observations of public places that students mention in their interviews to inform the description of the spaces in which students indicated that they gather informally with little to no purpose or intentionality. In particular, there were public informal spaces that were observed to understand how students enter, leave, and potentially engage with each other or others while they are there. (see Observation Guide in Appendix D).

### **Approaches to Data Analysis**

I approached the analysis in two stages. First, I examined each participant as an individual case, where each of their experiences informed the various stages of engagement in undergraduate research. I then examined the cases collectively for common themes that emerged. In particular, I focused on understanding their pathways and experiences within the different stages of UR engagement (e.g. awareness, pursuit of UR, engagement, and post initial engagement) and how those experiences may have shaped their perception of research. All interviews were transcribed and coded using MAXQDA qualitative software using a codebook developed through an open coding process of data and the use of the conceptual framework as overarching categories.

Within each case, I used several strategies to establish accuracy of the data. First, I incorporated a questionnaire that participants completed between the first and second interviews. Using the questionnaire and the first interview, I came to the second interview with questions to help clarify what was said in the first interview. I also used diagrams to help students review how their participation in various spaces within the institution might have informed their experiences and learning in higher education. Participants began to diagram and “talk aloud” through the

process. After the interview, I listened to the audio recordings and used that to fill in my notes and the diagrams that students wrote in and talked through.

I used several tactics for drawing meaning from the data. I analyzed long stretches of talk to help understand students' experiences at a deeper level (D. Rodriguez, 2010). As defined by Miles and Huberman (1994), clustering into themes is useful to see patterns of similarities and differences within and between cases. I used clustering at various levels. First, I clustered by various categories such as family background, stage of engagement, aspirations, research (e.g. "awareness", "perceptions of access", and "future research aspirations"). Then, I clustered into contexts such as places, or people that students engage in. I also used plausibility to help point towards initial conclusions that might seem reasonable and sensible.

I began by analyzing each case on its own with a lens on identifying attributes, interactions, and events that may be shaping part of students' forms of capital (e.g. social, linguistic, cultural, aspirational, navigational, familial). I used codes such as family involvement/expectations on education, community influence, initial aspirations, academic preparation, high school activities, role in family (e.g. responsibilities, position within siblings structure, etc.), connection to school K-12. I also coded for their experiences in higher education (e.g. college experience, culture of campus, campus racial climate, and challenges), identity (academic, biracial, body image, citizenship/immigration, class, culture/heritage, first generation, gender, gender preference, language, research, spirituality), research experience (awareness, getting engaged experience, motivation/identification, research knowledge/engagement, perceptions of research, perceptions of getting into research, research impact on aspirations, next

research goal). I also observed moments when students reflected on their sense of self-efficacy, and career and academic goals.

I used information grounds as a lens when looking at how students obtained or provided information to others, whether intentional or not. In particular, I coded for place (e.g. student-centered space, faculty office, advising programs, research space, community/work place, wellness services, etc.), people (community members, faculty, graduate/professional students, peers, staff, self), type of interaction (advising, social/informal, service/social justice, research/professional, academic, wellness, work, etc.), and information behavior, which were the types of behaviors that students engage in that lead towards information sharing (e.g. mentored by staff/faculty/community, mentored by peers, mentoring others, seek academic support, seek information from website, information through email, etc.).

Miles and Huberman (1994) offer various strategies for analysis in which overlapping clusters are useful to show that clusters “are not always mutually exclusive and may overlap” (p. 249). To inform the cross-case findings, I began analyzing themes and patterns in how the particular stages of research were connected to other aspects of the framework. For example, when looking at "awareness of research," I began to see the types of people, places, and information behaviors that may have been present when information sharing took place that led towards awareness of research.

The findings of this study are not meant to be generalized to all first generation Chican@/Latin@ populations, but may help illuminate the various pathways that students experience in predominantly White research institutions.

## Researcher Positionality

This study stems from my interest in and engagement in advising students within experiential learning. Being a Latina has presented a few advantages when conducting research about students' of color experiences. While inquiring about research, a Latina student once asked, "Are there opportunities for Hispanics?" There were two messages I received from this question. The first that there may be reasons beyond funding, time commitments, and interest that influence students' choices to engage in research. In this case, it was clear that the student did not see herself or other Latin@s as researchers. Further, there was an implication in the question that the student believes that research is not a domain that welcomes Latin@s. The second message I understood from this interaction was that being myself from an under-represented group provided me some privileges in access to what students are thinking and willing to share. This study seeks to explore the former by looking at the reasons that may intersect with students' racial/ethnic identity, perceptions of research culture, and their relationships to the people and places of the institution.

It is common for many to assume that the reasons for students not engaging in experiential opportunities such as undergraduate research may include a lack of interest in the opportunity, inability to volunteer due to a need to work, or those interested had already secured a position, or that they were receiving assistance to engage in such opportunities via other programs that specifically target under-represented students in higher education. The question posed above by a student brings to the forefront another reason why students may decide not to engage with a domain, in this case a research opportunity. If a student asks whether opportunities are available for her because of one's racial/ethnic identity, we must question our original

assumptions; consider alternate reasons and attempt to understand the experiences of Chican@/Latin@ and other underrepresented students at predominantly White institutions in learning about and accessing services and experiential learning opportunities.

Harding (1993, 1998) suggests that those in the marginalized groups are better able to develop new sets of research questions from a different epistemic standpoint that allows them to see problems differently or to see problems that members of the dominant group do not see. The student who asked me the above question may agree with Harding as she believed my position was crucial to understanding her experience, where she may have never felt comfortable enough to even ask a non-Latin@ person the question that inspired my thinking around access and engagement for Latin@ students who may not already be familiar or know others that they identify with who are conducting research. Further, my position as a Latina insider to research perhaps encouraged the student to ask me whether this was something that was an option for others like us.

As first generation Latina myself, I came to this research question wondering how do students who are first generation come to learn about and decide to engage in experiential learning such as undergraduate research. The question the student posed added another layer to the research questions of how do students become aware of, motivated **and** encouraged to identify as a researcher. Having not learned about undergraduate research as an option myself until my graduating year when I was an undergraduate student, and seeing how my peers in graduate school who had been part of undergraduate research themselves came better prepared for the process of graduate school research, I saw the importance of understanding how to make this pathway more transparent for first generation students. Harding (1993, 1998) argues that

those who have an outsider position with respect to the dominant social and political groups are able to see things about social structures that members of the dominant group cannot see.

I also value and find it more important to get to know and let others know me before interviewing. As a result, this also helped create a level of trust and comfort with participants. Given the nature and time constraints of this study, time to build relationships did not occur with all participants, but did happen in most cases. Like Bettie (2003), whose research included high school Latina students, I found that Latin@ students were appreciative that I was interested in an aspect of their lives that they never get asked about – their experiences in what they might deem as a positive college experience. However, unlike Bettie, who was not Latin@, I found that my position as a Latina was also appreciated by students. Students felt comfortable switching between English and Spanish in their interview and allowing the conversation to flow organically with the language that was closer to their heart and emotions as they spoke. This also indicates that perhaps because I am Latina, students were more open to sharing their true experiences with me - experiences that are often kept in the shadows and not shared with outsiders.

### **Strengths and Limitations**

While my position as a Latina was instrumental in the development of this study, my position as an advisor within a research program plays an interesting and sometimes limiting role when it intersects with my position as a researcher. Recruitment strategy is a critical consideration when thinking about my position as a member of an institution. In designing this study, I took into account how my position within a research program may impact how students discuss their access experience. It helped frame my study focus, but I left the position three years

prior to recruiting participants for the study. Thus, I had met all the participants in my study within different contexts or as a result of the research recruitment process.

I am careful to emphasize that the focus of the study does not encompass an evaluative approach of specific services, but rather an understanding of the various contexts in which students become aware of research opportunities, the various factors that impact their engagement decisions and to learn about their own perceptions of “research”.

The cross-sectional component of the study where I interview students from different stages in the research process, is helpful in seeing the actual engagement steps as they occur. The retrospective strategy may be a strength as it provides students an opportunity to be reflexive along with the researcher about what has happened and how the choices they have made thus far have been informed by their experiences. The retrospective strategy may also be seen as a limitation. Specifically in the case of students who may be in their last year in college, they may be less likely to recall everything that they experienced as there is more time that has elapsed since they first entered college.

**CHAPTER 4:**  
**UNDERGRADUATE STUDENTS' RESEARCH ACCESS**  
**AND ENGAGEMENT EXPERIENCE**

This chapter introduces the student participants who informed this study. In this section, I begin with an overview of all participants' stages of engagement in research, field of study, and current status at the university. I then include four profiles to provide greater depth into the experiences of students from a range of majors (social science, natural science, humanities), varying stages of engagement in undergraduate research (awareness, identification, acquisition, engagement, post-opportunity reflection), and different types of degree programs (traditional full-time degree, evening degree). I provide information about their backgrounds, circumstances under which they became aware of research, decisions that led to their engagement in undergraduate research, their experience during the access process, and how they make sense of their research experience. In Chapter 5, I present cross-case themes that emerged from all participants' experiences in learning about research opportunities and engaging in undergraduate research.

**Overview of Student Profiles**

The seven students were at varying stages of research engagement at the beginning of this study. The stages as delineated in Chapter 2 are: (1) *awareness*, or becoming/being aware of a research opportunity; (2) *identification*, identifying with the domain of research and having interest in and desire to pursue research; (3) *acquisition*, seeking and obtaining a research opportunity; (4) *engagement*, participating in a research experience; and (5) *post-opportunity*

*reflection*, having already participated in the experience or between research projects, usually a period of reflection in which students may refine their academic and career aspirations, decision to re-engage in another research opportunity. The students also ranged in major field of study. Table 2 provides an overview of the fields of study represented by the students and their stage of engagement at the start of the multiple case studies. The students ranged primarily between the ages of 19 to 22 with the exception of one student who was 31. Six of the seven students were U.S. citizens. Gender identity among the participants was divided where three identified with their biologically ascribed gender of female, three identified with their biologically ascribed gender as male and one did not identify as their biologically ascribed gender and instead identified as male.

Table 1.

*Overview of Student Participants by Stage of Engagement and Field of Study*

<b>Participant</b>	<b>Field of Study</b>	<b>Stage of engagement</b>
Alicia	Social Science	Identification
Luis	Social Science	Acquisition
Daniel & Karla	Natural Science	Engagement
Leslie	Humanities	Engagement
Nicholas	Social science	Engagement

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Viviana

Social science

Post-opportunity reflection

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The participants ranged in status from having recently completed freshman year in college to being in their senior year and about to graduate with their bachelor's degree. Three of the participants (Klara, Nicholas, and Viviana) were in their last year at the university at the time of the first interview and had graduated with their bachelor's degree by the time of their last interview. Alicia had just completed her first year at the university and expressed that she was interested in participating in undergraduate research but had not sought any particular research opportunities and was not quite sure where to find out about them at the time of our first interview. Daniel was a sophomore at the time of the interview and Leslie was a senior who was planning to continue in school for another year and be a fifth year senior. Further, Viviana was unique in that she was a non-traditional student in a couple of ways. She was 31 years old and was part of the evening degree program while she worked as a full-time employee at an educational organization providing social work services to linguistically diverse families.

#### **Four Cases: Sample Individual Profiles**

In this section, I provide a description of four case profiles. The students selected for the case profiles represent a range of engagement stages in research (identification, acquisition, engagement, post-opportunity reflection), and three were in traditional degree programs while one was in an evening degree program. I include the students' cultural and family backgrounds, their perceptions on family and community influence on their pathways into and through college

and research, and their stories on their experiences in becoming aware of and engaging in undergraduate research.

### **Case 1 – Luis (Acquisition), Rising Sophomore in Social Sciences**

Luis was completing his third year at the university about to enter his first research experience during the summer between his junior and senior year in college. During the first interview, he had secured the research, thus placing him in the acquisition stage – having sought and secured a research positions.

Luis grew up in a Mexican-American family. He is the middle child in his family. His older brother had just graduated the year prior to this interview from the same university that Luis is now attending. His younger brother was a sophomore in high school.

When he was young, Luis’ family moved from one town to one that was primarily agricultural so that they could own farm animals and raise cows for auctions. His mother came to the United States from Mexico when she was just about 10-11 years old and his father arrived in the U.S. when he was almost twenty. Luis is the middle child in his family. His older brother had just graduated the year prior to this interview from the same university that Luis is now attending. His younger brother was a sophomore in high school.

He learned to speak Spanish at home, but shares that he speaks both English and Spanish as his mom had learned English at an early age. He speaks to his mom mostly in English and his dad in Spanish. Since he grew up with both languages, he feels that his Spanish is “not really good” which makes it hard communicating with the rest of his family.

When asked to describe himself culturally, Luis shares how his identity, while concrete in some ways, has led him to think through the different ways that others construct his identity:

I'm Mexican, Mexican-American. I don't know. People said I was Chicano. I don't really categorize it. I don't say I'm Chicano. I say I'm Mexican. I'm just Mexican-American. I feel I like my culture. I feel I express it through activism, but express it in different ways. I like soccer a lot...I like watching Mexico, the national team. Even when they play against the U.S., I actually go for Mexico. It's my culture. It's my race.

Luis describes the town he grew up in as a “good little neighborhood,” but shares that the city in general is “not a good city. There’s big problems. There’s a lot of alcoholism going on and there’s various gangs. It happens in the city. I come from the outer city, but all the bad stuff happens in the city.” However, where he grew up was removed from the inner city and “nothing really happened around my street, in my area.”

During high school, Luis attended a school of approximately 800 students. He participated in mentoring programs where he mentored freshman and sophomore high school students when he was a junior and senior in high school. He also participated in sports including baseball, football, and cross-country.

**Family influence on education and research engagement.** Growing up, Luis recalls seeing his parents work from sunrise to sunset. He shares that one of the “biggest” memories he has is when in the summer of his sixth grade year, he went with his parents to pick in the fields. He did this for three years and states that he did not know “how my parents do this for 20 years.” Luis shares that the greatest advice his parents have shared with him regarding education is to “make sure that you’re making a difference in life.” He states, “[this] really influenced me, how I want to pursue higher education for sure.”

While he admits that his parents do not know about research, Luis observes that he “explained to them about it and they supported me. They knew it was a good thing doing

research. When at the different universities where I was at and getting to know different faculty there and helping out different communities, they just knew it was good.”

**Community influence on education and research engagement.** Luis defines his community as his high school, the Gear Up program he was part of while in high school. He feels that the school “could have done a better job at advocating but they still did an okay job. My community was probably a big part of why, why I wanted to come, influencing me in coming to school.” He describes his current community in college as members of his fraternity, and the Migrant program as influencing his aspirations to continue his higher education to acquire a Master’s and a PhD. As described in the next section, it was the program staff at the Migrant program that played a role in his engagement in research as well as encouraging him to consider graduate school.

**Luis’ research awareness and engagement experience.** Luis began his first research experience in research during a summer research program after his junior year. At the time of his first interview for this study, Luis had just been accepted to a summer research program on the east coast that he had yet to begin. He had learned about this research program from one of his advisors at the Migrant Program. He had received an e-mail through the advisor about a research program that recruits for minority students from different universities. He applied although he shares, “I didn’t think I was going to get it and I just applied and I don’t know, I got it.”

When asked why he decided to get involved in research, Luis shares that he knows that “research experience is good for grad school because in grad school you’re going to obviously be doing research.” Thus, he wants to have it to get the experience.

Upon his return, he reflected on his experience. The research was in public health and addressed drug abuse and addiction, and alcohol addiction. He worked within a university department that worked to help connect community members to resources at local health centers but also to research studies that might support their life situations, such as if they are quitting smoking or alcohol use. His role was to conduct intake interviews for new patients, enter data, write literature reviews, and promote the program within the community. In the process of developing the literature reviews, he attended various conferences about drug abuse, mental health fields. At the end of his research, he did a presentation regarding methods to help engage low-income people in accessing opportunities to be part of research studies.

He describes that the experience really got him out of his “shell.” He was able to talk to people he never met before. He liked going into the community and being involved through outreach and working with other people. He shares that his mentors were “really nice” and that he gained knowledge working with different types of communities. For example, he had never met someone before who has HIV and he shares his experience with one person who was “just living his life. He said he’s not going to let that stop him from living, just keep moving on. It was really nice to hear that he’s still living.”

Luis shares that while he enjoyed the research experience overall, the greatest challenge was the hot humid weather and the distance from his family. He stated that he was “homesick for a while.” While at Kaspi University (KU), he is only three hours away from the family, so being across the country during the summer was difficult for him. In terms of research, he emphasized that he liked doing research but that reading “long dense research articles” was the only part that he did not enjoy as much.

**Perceptions of research.** When thinking about undergraduates doing research, Luis shares that it is “an experience” and that to “do research as an undergraduate is good because it prepares you especially if you want to go to grad school.” His one regret is not having been part of research programs since he was a freshman. He feels it “would probably help me out better.”

Luis states that he decided to get involved in research because “I know just having that research experience is good for grad school because in grad school you're going to obviously be doing research. I want to just have it to get that experience.” He had applied to two research opportunities and was accepted to the summer program out of state. He shares that he does not believe he would have even applied had his Migrant Program advisor not informed him about both opportunities.

Luis continues to reflect that he believes there are opportunities for undergraduate students to get involved in research. However, he states that, “the problem is that people, they don't hear about these opportunities. There's plenty of opportunities. I guess it's just knowing what you're going to do, knowing that you want to do research.”

Luis shared some thoughts on how he believes universities can improve access for first generation Latino students to undergraduate research:

I think they do a good job of trying to recruit Latino students [into the university], but I think they don't do a good enough job of providing what different types of stuff is out there. Because when you're a freshman, obviously, you're not going to think, you're not going to do research right away. I think they should just do a better job of that, explaining what programs or different types of programs are out there. I know I didn't even know of the [research] program until, I want to say, last year. If I had known of that before, I probably would've done it.

Luis describes his thoughts about the role of research in the undergraduate experience and learning and how he would advise other undergraduates about research:

...Even if research is not for you, just give it a shot. Just research in what you're passionate about. I feel like you'll like research. I feel like the main problem is people research on something they're not interested about and they have the aspect of research being boring, tedious. They don't want to do it, but I just feel once you find something [you're] passionate [about], you should just try focusing on that for research.

Luis advocates research as an activity that every undergraduate student should try and his only regret is not having known about it sooner.

**Future research interests.** He plans to continue to do research with a focus on mental health in the summer once he graduates and also in graduate school once he gets accepted. Prior to his research experience, Luis shared that if it could do research on anything, what came to mind was to do research on the impact of concussions on people who have played football. After his summer research, he shared that he is now thinking about research around mental health within the veteran population. He shares that during his research experience, he interviewed veterans who had posttraumatic stress disorders and he learned how it affected their lives and ability to sleep.

**Research impact on aspirations.** Growing up Luis recalls wanting to be a football player. As he grew he changed to wanting to be a “physical therapist for a professional sports team.” Once he got to college, Luis explained that he felt that he “wasn't going to be successful at taking so many tests as that's required for physical therapy.” He continues to share his transition in career goals and how he came about to decide on communications:

Then I started, what am I going to do? I chose communications because I wanted to do public relations maybe for a sports team or something. It wasn't until this year, the

beginning of this year, that I wanted to just help people. I always wanted to help people. I started looking back, at counselors that I had in high school and the other ones here just how much they help you out getting into college, sending you a bunch of information. I wanted to be like them and just help other kids... A lot of kids they don't have anyone, especially to help them go to college.

Luis shares that he's had the goal of attending KU since he was in the 7<sup>th</sup> grade. As part of a Gear Up program at his high school, Luis had the opportunity to visit several universities including KU. Since then, he knew this university was his first choice. During his first interview, prior to research, Luis shared that he was interested in high school counseling or academic advising in college. Since his research experience, he is now thinking about mental health. He is still considering social work as he was before his research experience. At the time of the second interview, Luis was already in the process of applying for graduate school in social work. He states that his focus of interest now is mental health and "helping people with mental issues."

While he recalls his original thoughts were to do more counseling as in high school or higher education, he now feels "more inclined towards mental health but I would be willing in any setting...which is like mental health issues."

## **Case 2 - Karla (Engagement), Senior in Natural Sciences**

Karla was a senior in her fourth year in college and was planning on completing her degree in five years. Karla had been involved in various research projects; the majority of them had been during summer research experiences for undergraduates at various institutions. In addition, Karla worked with a Science Minority Program as an ambassador, where she hosted prospective students by providing tours of the campus and workshops on the college experience.

Karla was born and raised in an urban city in the Pacific Northwest. She decided to go out of state for college, where she was attending at the time of this study. She speaks both Spanish and

English. Karla was born in the United States two years after her parents emigrated from Honduras. Her mother and herself experienced domestic violence from her father, who Karla remembers to have been an alcoholic. When she was four years old, her father left and her mother began working many jobs. While her mother worked, she was watched after by many different baby sitters and went through “a lot of abuse, molestation” while growing up. Her mother then remarried and Karla grew up with her mother, stepfather, and younger brother until she was a sophomore in high school, when the mother divorced and removed them from what had been another domestic violence situation. Karla considers her family to have always been her mother and little brother for the “most part”.

Karla describes the neighborhood that she lived as having a large immigrant community and “a lot of gangs.” In this neighborhood, they had just built a jail, where Karla observes that it sits next to a park and fast food restaurants. She comments that it is just as easy to go to the park as it is to go to jail.

Similar to Luis, defining her cultural identity is complex. She shares, “Latin American, for sure. I think that I'm Latina and I'm also American. Growing up it was really hard because my mom was like, ‘You're not American. You're not White.’” Yet, Karla also shares that as Latin-American, there is a complexity to how she now fits in within KU. When talking about her experience on campus, Karla differentiates between being Latina and not being Mexican. She doesn't feel that she fits in because she does not identify as Chicana and is not White to where she would feel comfortable to be part of a “mainstream” sorority. She observes that most Latino things on campus are referred to as “Chicano” and she does not see herself fitting into those contexts because she does not identify in that way.

Everything on campus that is Latino is primarily called Chicano and well, I'm not Chicana so I don't really fit in. It's like, "Where do I fit in?" kind of thing. I'm not White enough to be in a mainstream sorority or hang out with the White people. I'm not dark enough to be a Latina. For me, personally, it's a little tough on campus.

She describes that her relationship with one of her mentors is where she is able to discuss these nuances because her mentor is mixed race and also has experienced “random” comments when people are unable to fit her into a particular racial/ethnic category based on stereotypes of phenotypes.

**Karla’s research awareness and engagement experience.** Karla was first exposed to research while in high school. When she first began high school, Karla was exposed to biology, microbiology, and medicine and considered those as career options. In her junior year, she changed schools from a large public high school to an alternative high school, Advanced High School (AHL), that specialized in engineering, medicine, and technical fields. Karla learned through a presentation at her school about a Research Academy that placed high school students into research labs on weekends. She applied, was accepted, and placed into a behavioral neuroscience research lab at a university. She remembers this as being “the beginning of [her] research experiences.” She describes this experience as a formative one in which it seemed that her identity as a scientist strengthened:

It was just amazing being ... wearing the badge that says, "Research Assistant," ..Getting to work at [University] and get paid for that was a really awesome experience. That's how I got turned onto science.

Karla has been part of many research projects since her first research experience during high school (See Figure 2). After high school, Karla participated in a Freshman Summer Research Program (FSRP) at Kaspi University (KU). She first heard of this opportunity when she received a pamphlet and information in the mail on the application process, which included

two letters of recommendation, and a personal statement. FSRP is designed for incoming freshmen at KU and targets underrepresented students in a variety of disciplines to attain research experience during the summer prior to their freshman year. Karla decided to apply. She was accepted and conducted this research during the summer prior to her first year in college. After her summer experience, Karla continued to visit with the program staff from FSRP.

During her first year in college, Karla was “kicked out” of her home and did not have a place to stay for the summer. She learned about a research opportunity through the program staff from the previous summer research program, FSRP, who informed her about the summer research program at Chiri University (CU), a private institution in New England, where they provided housing, food, and a stipend. Karla shares, “It was great going to Chiri and doing research but the best thing was I got a place to live and food.” Participating in research during the summers became a way that Karla was able to not just do research, but also to have “a place to live and food.” Her engagement in summer opportunities continued during the next couple of years.

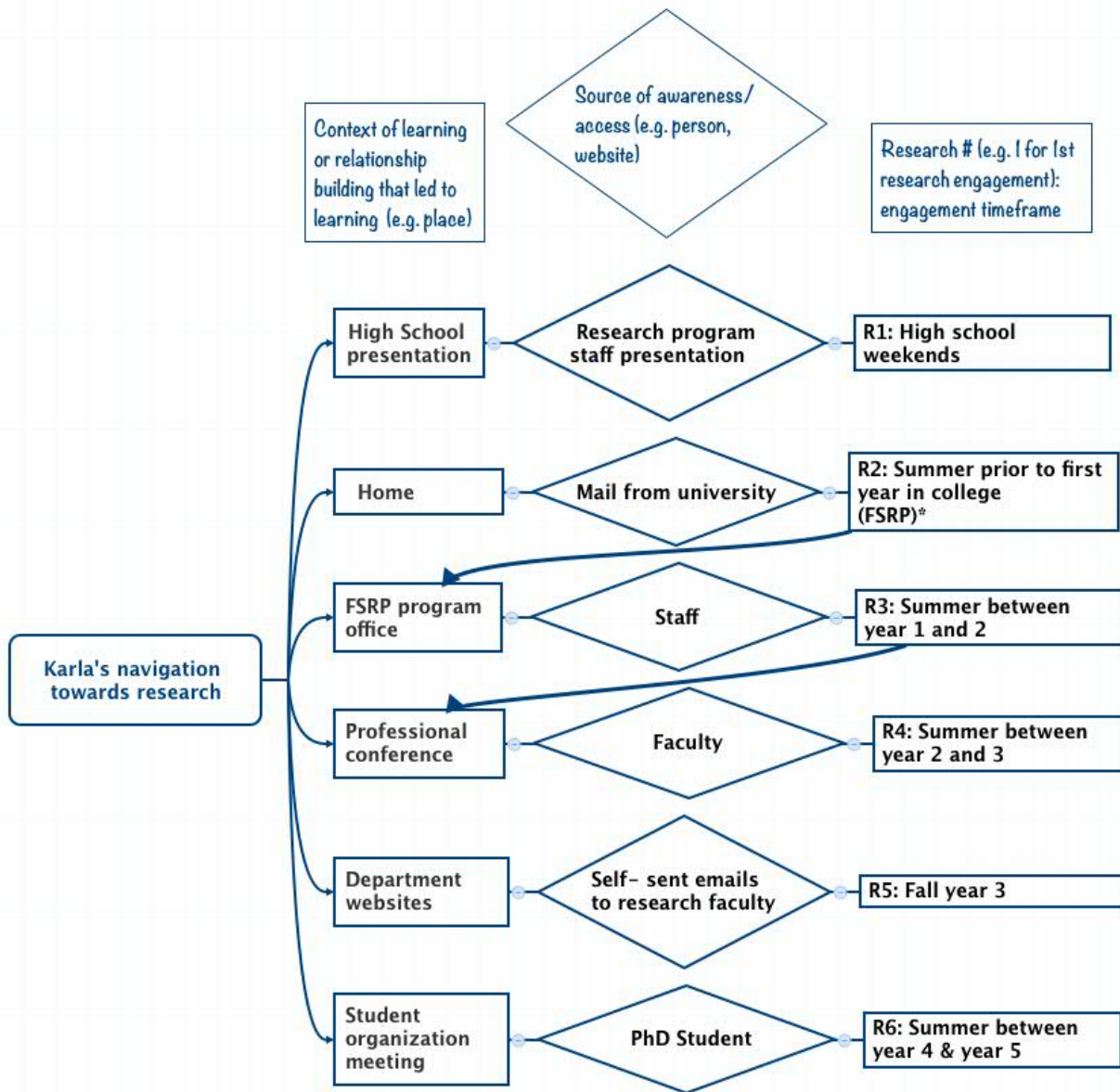


Figure 2. The contexts and people (sources of information) present in Karla's awareness and acquisition of research experience.

When she began at CU, Karla was working on a project that researched amphibian infections affecting frogs where she had to catch frogs and swab their skins. This was different than what she had been told that she would be doing, which was research on malaria. She shared with the research program director that she wanted to do research related to humans and so the coordinator changed her to a different lab that looked at microbial pathogenesis. In this lab, she

researched the effects of a pathogen on people's intestines that cause conditions such as meningitis and miscarriages. While there were no other undergraduates in this project, she worked with other postdocs and feels that this was a good fit for her interests. She felt she really learned how to present and other laboratory skills that she now uses. She shares that her research supervisor required her to write an abstract, a PowerPoint presentation of her research, and write an introduction of the paper. She learned what to emphasize and what not to emphasize in academic writing. Karla later presented this research as a poster at a national conference for undergraduate students in sciences. It was at this conference that she won an award for her poster.

After winning the award for her poster for the prior research project at a national conference, Karla e-mailed all three judges to thank them for the award. One of the judges then connected her to the director of another program that he worked at. This was to become her next summer research experience. She applied and was then accepted to that program where she conducted research in auto-immune diabetes.

Unlike her prior experiences, this program was not as structured with programming for undergraduate students. She observes that this independence made her learn how to structure her time to conduct research. She felt she grew in this aspect of determining when to go to lab and what her role would be as a researcher. She put in more than 10 hours per day and focused on doing well on her research, spending little time exploring the city she was in. This was the last summer program that she was involved in.

In the fall after her last summer research experience, Karla decided to seek a research position at her own university. Karla reached out to six faculty by e-mailing them directly and

letting them know that she was interested in working with them. Two of them responded, and she ended up in the lab that seemed most interesting to her and studied macrophages and B-cells. She spent most of her time in the research lab and did not dedicate as much time to her courses.

Unfortunately, she dropped the quarter because she was not doing well in school and decided not to continue with the lab. She shares that she wished she had continued the research at that lab because she liked it. This was a new experience for her to have to talk to her principal investigator (PI) and communicate that she was no longer able to continue because she was not doing well in school. She recalls this being “really hard” for her and “embarrassing.” She feels that if she had studied well during these classes, she would have now been in a biology major instead of public health because this situation delayed her course taking patterns.

After a two-year hiatus from research, Karla decided to seek a research opportunity. She continued to share her goals with her peers in a student organization and this led to someone connecting her to their partner who was a graduate student in a lab that aligned well with her interests. This connection led to Karla returning to research.

When discussing what she has learned throughout her research engagement specifically, Karla describes her growth in research presentations. The first time she made a poster, it was a trifold poster. Her posters got better and she eventually won an award. She later wrote a paper for which she also earned an award. Karla also expressed that mentors have been instrumental in helping her grow as a researcher. She valued having people that she can go to for questions or concerns.

**Challenges in research.** Karla shares that one limitation to her continuing to present her research work currently has been the level of security of the research she is working on. She is

unable to present on research that is in the process of development for medical treatments, as the principal investigator prefers to present once the work has been published.

**Perceptions of research.** When reflecting on college experiences that she's learned from, Karla says research was "big" on changing her perspective, how she carries herself within various institutional settings, and how she sees and engages with different scientists and has had the opportunity to travel as a result of her research participation. She attributes research with "getting opportunities to go to big institutions," which have "been a really big growth" for her.

She believes that no matter how young students are, there is an opportunity to do research. Her greatest advice for incoming students is to do summer programs where they are often taught the basics of a research lab, even if it is unpaid and what they do is "basic". She observes that she has grown in her research skills and feels that once you are connected to the "right" research program, it is a lot easier.

Karla shares that she believes that "programs are easy to access", yet, you must know about them in order to get there. Karla shares that she values networking as an integral component to navigating the higher education system. As mentioned above, she learned about the latest research project from a graduate student who was part of her social networks through the student organization that she is involved in. Karla observes that there is great value in networking and values the connections she has made through these various settings. She describes, "One of the graduate students from [Minority Science Organization] told me about different research opportunities within public health and that's how I got connected to this lab."

Karla further elaborates her thoughts on awareness to opportunities in general and how she has adapted, or enacted, her navigational capital and encourages others to do so:

That's something that I always tell students, "Even if it's just for 10 minutes, check in with your advisers." For me, I'm really open about certain things, especially if I trust the person because I know that the more open I am, the more they can help me. I always meet with my advisers twice a quarter to make sure that I'm on the right path and if they know of any organizations or campus groups that would help me, they would tell me about.

Karla expresses the importance that sharing her personal story has had to becoming aware of opportunities. She believes that advisers are better able to help her if they know what she is going through and be able to offer her opportunities that she might not have otherwise thought about.

Overall, Karla is positive and enthusiastic when talking about her research. This is a place where she has expressed feeling successful and able to demonstrate her knowledge. Karla shares that she does research because she likes the challenge, and thinks she is good at it.

I like the challenge. I like the high of doing all this work, and seeing it at work, that kind of thing. I think I'm good at it, in the sense that I'm good at the manual work. I'm able to do it and learn fast. Also, I find myself that even though I feel stupid when I take science classes because I don't do well on exams, I know that I've learned a lot and that I'm able to apply it in here. I'm trying to figure out why I need to use calcium and ATP, and this, and this, and this, when I haven't taken any classes related to that, or [that] have taught me about that. I'm thinking in my head, why would these channels open up with this and that. So yeah, that's why.

When talking about the university and students she feels that research for undergraduates is "awesome", and that there are programs that help students do research. A lot of her friends and students that she knows have done research. Working at MSRP, she says they always stressed research, especially if they want to go to graduate school.

**Future research interests.** Karla has not had research experience on cancer or HIV and expressed interest in conducting research in those areas. She does mention that her mother has

encouraged her to continue her research in diabetes because her mother was recently diagnosed with Diabetes Type 2 and expressed that Karla's research could help her mother.

**Research impact on aspirations.** While Karla's initial aspirations to major in biology did not come to fruition, Karla is now seeing research as the opportunity to stay connected to her earlier aspiration of being a scientist. When asked what she likes about research, Karla states that it is the mental challenge. Research is the one place she feels smart in higher education. She connects this with the fact that in research there are no exams. Instead, she reads, comprehends, ask questions, and then demonstrates that she is capable of doing the research and be a scientist. For Karla, it is not in the courses where she identifies as a scientist. It is when she is doing research that she sees herself as a scientist.

I think [research is] just a different type of mental challenge and it's just a place where I can show my skills. It's the only time where I actually feel smart. Just because I don't have exams, I can just read, comprehend, ask questions, and show that I can do research and show that I can be a scientist. As opposed to when, in Biology or Chemistry class, when I'm at the bottom.

Karla shared that she wants to pursue a MDPHD or PhD in Public Health or in Molecular Cellular Biology after she completes a Peace Corps experience. Her ideal platforms would be public health research that is grounded in science. For example, she discussed diabetes research and translating that to the community. She shares that her ideal for research would be to find something that was research and community-based.

After a study abroad experience to India, she said that she added nurse practitioner, doctor, and nursing PhD on to her list of potential academic goals. At the time of her second interview, Karla was considering several options. She was looking at post-baccalaureate programs where she can take classes in sciences that she did not get to take while an undergraduate. There is also

a university that she is considering to do her PhD in molecular cellular biology and later pursue an M.D.Ph.D. And there is also a Master's program that interests her at a different university. In addition, she was applying to the Peace Corps. At the completion of her degree program, Karla had applied and been accepted to the Peace Corps. Due to health concerns in the host country for her service, it was cancelled. Instead Karla secured a position in another research lab in the same town as KU.

### **Case 3 – Leslie (Engagement), Senior in Humanities**

Leslie had just begun zir fourth year at Kaspi University (KU) at the beginning of this study<sup>2</sup>. Leslie first participated in a summer research program after sophomore year. The program involved research within humanities and social sciences in relation to intersections of race, place, community and political formations, and cultural practices from the arts, humanities, or social science majors. Leslie's work has evolved to expand upon zir inherit interest of art, which as elaborated upon later had been something Leslie enjoyed during youth but had not considered it to be an option prior to college over traditional careers such as law.

Leslie is the oldest of three sisters and the first to go to college. Leslie's father emigrated from Mexico when he was sixteen and was also the oldest of his siblings. Zir mother immigrated to the United States when she was about twenty. Leslie grew up in an agricultural region of the state in which KU is located. Ze state that the family lived in the middle of the town, where there were gangs and a couple of drug houses, but it "wasn't horrible." The demographics of the neighborhood had shifted over time from predominantly White to more Mexican families moving into the neighborhood.

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<sup>2</sup> I use the pronoun "ze" and "zir" for Leslie because Leslie identified as male during the questionnaire and pronoun preference was not specified.

Spanish has been an important language in Leslie's life. Leslie describes it as "an emotional language," and ze tend to mix both Spanish and English together, speaking in "Spanglish" because "there's so much I can express through Spanish that I can't express through English."

Growing up, Leslie recalls that people considered zir a "coconut" - a reference to not reflecting "what a Mexican" is according to other's stereotypes. When speaking about zir identity, Leslie shares how what others thought of zir impacted sense of belonging:

People thought I was whitewashed growing up because I was in these classes and they thought I thought too much of myself, but I never did. I never felt accepted anywhere, so coming over here and meeting people and learning about Chicanismo and decolonization and all these different themes. I'm not the idea of what a Mexican is, but I have my own culture and I'm just trying to seek and to learn.

Since beginning college, Leslie states that ze have explored zir identity "spiritual wise, culturally, and [through] knowledge...going back to roots." This has also meant learning more about indigenous peoples from zir family's region in Mexico.

**Family influence on education and research engagement.** Leslie credits family and community for being the reason ze is now in college. Leslie expresses that ze felt "a lot of pressure to do well." Zir parents "worked, worked, worked, so they said our only job was to go to school." Zir father worked for a cannery for many years until it shut down. At that point, Leslie's father worked "random jobs" for about a year until he obtained a job as a janitor. When Leslie was in high school, zir father began repairing wooden pallets and selling them to companies to make extra money.

Leslie's parents had met when they worked at the cannery. The mother's family set many examples of higher education by continuing to pursue their education in some form or another.

While zir father had a sixth grade education, zir mother eventually took English night classes and earned an Associate of Arts. Leslie feels that there were many people that came into their lives and helped the mother and sisters. Leslie describes zir father as someone who worked a lot, but who was also an alcoholic. Leslie credits those around zir for trying to take zir out of the home environment, such as inviting zir to camping trips. Leslie mentions zir aunt and mother served as role models. Zir aunt continued to pursue nursing, and the mother was then encouraged and invited to apply for a position as a para-educator by the para-educator who was leaving the position once she had complete her Associate of Arts degree.

Leslie also remembers that zir mother worked a lot and when zir mother went back to school, Leslie says ze felt that ze would have to take the mom role at home. Leslie describes the home environment as being difficult in a few ways. Leslie has two sisters, the younger of whom is now a high school senior while the middle sister is addicted to crystal methamphetamine, involved with gangs, and had sold drugs. Leslie describes how this brings on a different type of pressure for succeeding in college:

It's really hard because she's addicted to Meth and that's really taken a toll on family... She's been struggling, but I think that's where also the other pressure comes. Leslie has to do really well and she has to finish school because that was the original intention of me coming over here and leaving my family was, to sacrifice and I have my parents' story to really push me as well.

Leslie shares that zir mother's presence has been key while growing up and zir family has "definitely" influenced zir educational attainment. Zir mother in particular has set an example for zir because she eventually went back to school and became a para-educator at the district, which allowed her to spend time with her children in the summers. There have been times that Leslie says ze did not want to return to school. Leslie shares how zir mother has motivated zir to persist in college despite Leslie's challenges with depression:

My mom keeps me in check. Growing up I was a big bookworm. I loved reading. Before I came back this quarter, she knew I didn't want to come back, I wanted to help out at home. My depression kind of plays out with me sleeping a lot and not really being motivated...she's like, "*Tu siempre venias a la casa* [You always came home] and you would read to me and you would talk to me about all that you learned at school and you were always at the library." I would do that. I would go to the public library and just check out books. And she was like, "I want you to tap into younger you. To motivate you to really prioritize. What is it that you want to learn? What is it that you want to get out of this experience?" She was reminding me of the person that I am because sometimes experiences take you away from that, your true self. But they also help you out and shape who you are. That's the kind of person that I've been this quarter, reading, challenging me, talking to my mom weekly.

Leslie shares how even now zir mother will ask, "Tell me what you've learned. What are you reading?" Leslie emphasized that ze put the energy received from family into work, school, and writing.

**Community influence on education and research engagement.** During high school, Leslie was part of the Latino Club, where a student attending Sacha College, a local liberal arts institution, reached out to zir to collaborate in political activism. Ze was also part of Educational Talent Search since middle school. Leslie describes how these programs presented zir with information about PSATs, SATs, ACTs, etc.

I think this year is like a realizing year. I realized how much [Chican@/Latin@ Club advisors] influenced me. I was really lucky to have people that believe in me and people that pushed me, and people that saw something in me. Through [Chican@/Latin@] club and the organizers there and through Sacha College...there was something that they saw in me and I think that's also what kind of kept me going.

Leslie further adds that ze believes "it's all about coming here [university] and learning and going back to your community and being able to learn from each other." Leslie also credits the places that one comes from for influencing zir work.

I always keep in mind who my audience is and who I want, I guess the world in general to get from my messages or whatever from my own life. I guess it's like an exchange. They influence me and hopefully we can influence each other.

Leslie's statement conveys zir belief in reciprocity when learning from zir community.

**Research awareness and engagement experience.** Leslie first got involved in undergraduate research during the summer after sophomore year. Overall, Leslie has been part of three experiences tied to research, with varied levels of faculty mentorship (See Figure 3).

The first research experience for Leslie was the Humanities & Social Science Summer Research Program (HSSRP). Leslie had heard about this program from a graduate student in the past and when the application cycle was open, a professor named Gina Lopez whom Leslie considers a mentor sent an e-mail with information about the program and the application deadline. The Migrant Program and the Multicultural Support Program (MSP) also sent Leslie e-mails about the summer research program. It was when they sent a follow up e-mail, that Leslie applied "last minute." Leslie shares that the process of the application and the interview made zir nervous, yet ze did well in the interview and was accepted in the program. A friend also participated in the summer program and Leslie mentions how the friend was someone ze consider "really big into research."

Leslie got involved in research because ze wanted to go to graduate school and thought that the experience would "look good." In addition, Leslie says that ze really wanted to work with the faculty who were part of the program and the topic of the program itself "felt very personal, the Borderlands, what does that mean? That could mean a lot for anybody. I could very much connect to the ideas of the Borderlands." It was the connection to the theme of the research program, a desire to work with the faculty who led the project, and an understanding

that research would “look good” for graduate school that motivated Leslie to seek the first research experience which shaped her future interests.

While the sessions with faculty met up twice a week, the students worked consistently throughout the summer on reading to immerse themselves in the topic and on research. During this experience, Leslie worked closely with two professors, two graduate students, program staff, and peers. This program really challenged Leslie because ze stated that ze had “been coasting through school.” Leslie acknowledges that while ze has gotten by not reading in most classes, this program really challenged Leslie to read. Leslie credits the program for zir academic confidence:

It made me feel really confident in myself when it comes to academics. Academic confidence. Where I can finally feel like people can learn from me as I can learn from them. Sometimes I feel like I was only learning from one side.

In addition to this new way of learning from each other, Leslie recalls the challenge of writing a 25 page paper for the program, which ze accomplished: “Then I remember it was a 25-page essay that was due and how many days did I work on it? 2 days. [laughter] But I did it! 25-page essay. That kind of challenged me with time management and being able to write about my own experiences.” Leslie added that the summer program created opportunities to learn about “different terminologies” such as “cultural reproduction” and “Nueva Alianza”, as well as the research framework, the writing process (rough draft, abstract, thesis, supporting evidence, citing), presenting research, and how “you start with one idea but that idea becomes many ideas [and] your thesis.” As part of the culmination of the project, students were required to present their research in ten minutes. Leslie states this was the “first professional, having to dress up, listening to our peers” occasion for zir.

Leslie describes how zir research topic evolved through the Humanities & Social Sciences Research Program:

I was planning to talk about literature and the importance of telling our stories, but then it started evolving more into *artivismo*, so that was where I started. And really exploring the themes of our own voice, language, resistance and all these different things. I focused on Julio Salgado and Yosimar. They're poets, artists and they all really allowed me to become more comfortable with who I was because they explored those things that I was talking about.

It was also through this summer experience that Leslie met additional faculty and graduate students who were focused on social justice and the arts. Leslie now sees many of the people ze met through this venue as mentors.

It was during this research experience that Leslie came to embrace zir own passion for art. Leslie talked about the importance of writing and its relation to the arts during the final presentation for the summer program. Leslie spoke on the parallels between the research and zir own relationship with the arts, “Why it's so important and I was kind of using Yosimar and Julio Salgado, who were not my research subjects, but my inspiration.” Leslie continues that by engaging with readings by these authors and Gloria Anzaldúa and Cherie Moraga, Leslie found a connection to zir own passion:

Their own politics and how everything is influenced into their work and how it's influenced me to push myself to do my passion. When you do your passion, you're really good at it. Realizing that I can have a career within arts. It was really good.

This research experience became a catalyst for Leslie to embrace and continue to pursue zir own passion of the arts.

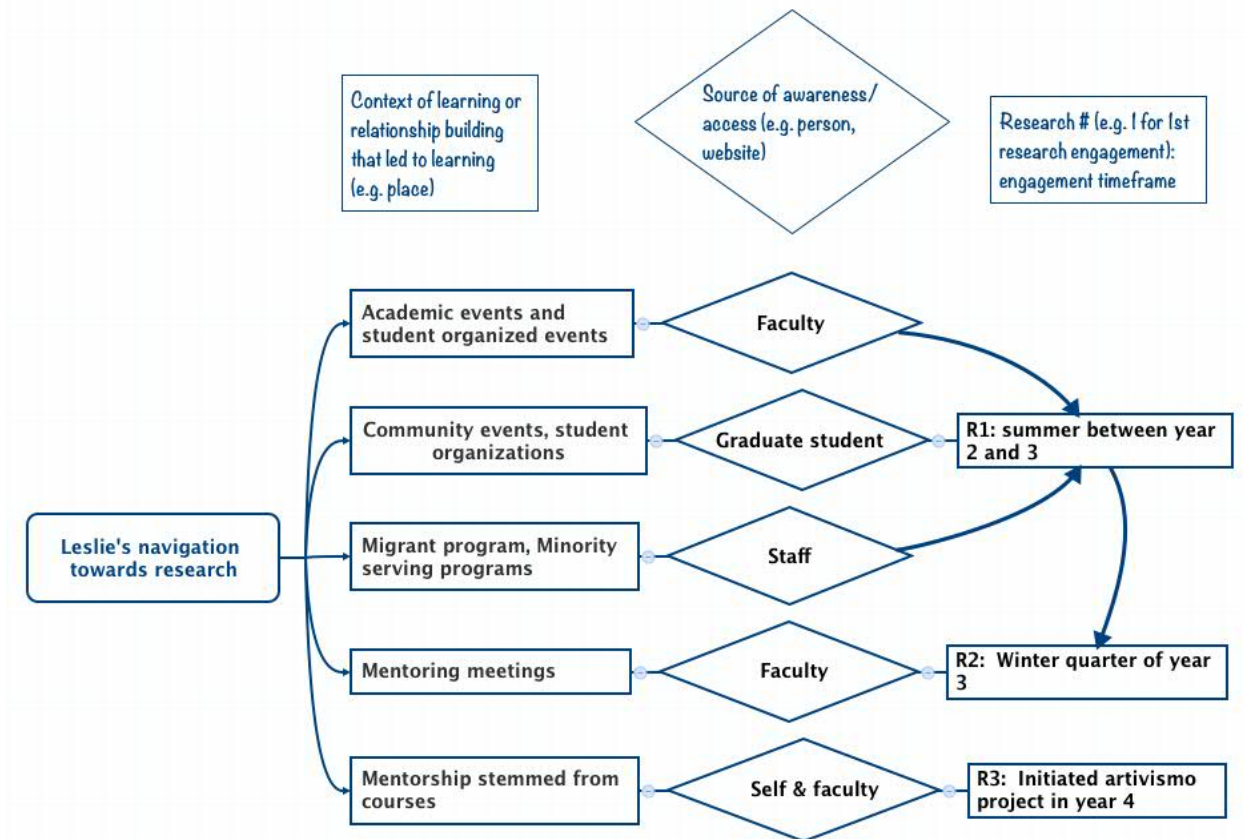


Figure 3. The contexts and people (sources of information) present in Leslie's awareness and acquisition of research experiences.

A second experience that Leslie was involved in was through a class that was part of the preparation for a Women's Music Conference. Leslie describes the pathway to this experience again stemmed from Professor Lopez. It was Professor Lopez who had told Leslie, "you got to meet Sonia." Sonia Acevedo was another faculty member at KU. Leslie shares that two undergraduate peers had taken courses with Prof. Acevedo, and Leslie had already seen Prof. Acevedo at many events on campus such as film screenings and Prof. Acevedo had been a guest speaker during the HSSRP. Leslie eventually took a class with Prof. Acevedo. It was Prof. Acevedo who told Leslie, "this is for you!" in reference to the Women's Conference. Leslie reflects, "It was through her that I was like, 'I need to go into this.'"

It was during this course that Leslie participated in research that addressed the history of exclusion of people of color within music. The culminating goal of students' participation in the research course was to document and archive the work that women of color and queer people of color have done in music. Sonia Acevedo, the professor for the course, invited visiting professors and artists to speak with the students about the importance of documenting for archival purposes and for the students to add their own perspectives and experiences into the conference in general. Students read and learned about various music genres, the artists, and social movements that impacted the music scene. In preparation for archiving at the conference, students also participated in photography lessons.

Leslie says that at the Women's Music Conference ze met various graduate students who were part of the Women, Gender, and Sexualities department at KU. It was then that Leslie declared a new major in Women, Gender and Sexualities studies, "I just felt a lot of support and love from the department that I wasn't feeling from the other department that I decided to step away from. It's beautiful because they are trying to be an inclusive space. Trying to make it as inclusive as possible." This was also a space where Leslie found a larger community of like-minded people:

That was also a space where I felt really comfortable being myself. There were just artists. It was lots of artists there. It was just like, "Ah, I have a community." Because it's hard to find those spaces. It felt really nice I could be myself.

Leslie's research pathway continued to evolve within the art field and in the next experience, Leslie had a greater role in shaping what that research entailed.

The third research experience for Leslie was what ze call the focus group. As a result of the experience with the HSSRP, Leslie was motivated to start a focus group of students that

continue to explore “*Artivismo*.” Leslie just started this focus group the year of the first interview for this study and has phased out of the student organization work that ze had been doing before. Leslie’s focus is now mostly on this focus group and on “getting back on track” with everything else. Leslie uses this space to connect art with the personal:

It's so personal, I've been able to tell [focus group participants] my own story and what fuels my arts. Art is like something that really connects you with your humanity. It scares people because we live in a world that wants to suppress all of that emotion and expression. People calling each other, "Oh, you're crazy." All these different ideas that are really shameful towards people. I think I realized through this whole experience with my sister and family that we all have our own demons that we're working on. Some demons are a little more visible than others but not to dehumanize others. I was kind of like that with my own sister. I realized forgiveness is key.

This understanding of the connection between art and humanity fuels Leslie’s current work.

**Challenges in research.** There were two key challenges that Leslie felt could be addressed to help make research more appealing. Leslie shares that a challenge in wanting to participate in research is “an emphasis on grades, because I feel that's what hasn't gotten me more opportunities.” Leslie has applied to research scholarships to help fund zir research engagement, but has not received any of them and believes that it is the grades that have limited these opportunities.

Another challenge is the availability of research opportunities for the arts and humanities during the academic year. Leslie notes that “a lot of us[people of color] have obligations also at home, where we kind of put the summers off. More opportunity during the school year would be nice as well.”

**Perceptions of research.** When thinking about access to undergraduate research, Leslie views awareness and access as the intersection of social networks, student effort, and efforts of

the institutional actors. Leslie notes “with all these different networks and connections, it's really who you know.” Leslie continues to discuss student effort:

I think if you're just someone that's waiting for something to happen, it's not going to happen. You really need to put in the work. I got those emails, I took the time and I filled them [applications] out. I really think it's people really being involved, being agents of your own education.

Further, Leslie observes that opportunities to engage in research are “also the efforts of the people that are doing this and who they're actually outreaching to.” Leslie elaborates on how MSP “does a good thing through emails,” but that having additional quarterly events or luncheons where students would learn about opportunities may help spread information to students.

Research means many things for Leslie. When thinking about students conducting research, Leslie thinks of it as “taking your education into your own hands.” It is where students are able to delve into topics in ways where they are “adding your experiences to it.” In addition, Leslie sees research as opening doors to an opportunity for graduate school.

While Leslie didn't originally think that ze would get into the summer research program due to grades, Leslie's thinking has changed and now says that to get involved in research is about “who you are that they want to see. Grades are just grades. They don't define who you are.” Leslie believes that the faculty valued what ze could bring into the research space. To Leslie, research is a space where “it's really [about] what change you can bring because I think that's what originally educational spaces are made for- to create something new instead of being so repetitive. I think that's what research has made me realize. Is what can I bring to the table.”

**Future research interests.** Leslie reflects on zir identity as a researcher when thinking about what is next in research:

I've always been really awkward about research. I'm academic, but academic, *casi no* [not really]. I'm just like, "Let's just paint something." Let's just talk about deep stuff, but when it comes to writing about it, it's very difficult because it's like writing about my experience. It makes me uneasy at times. I'll do spoken word and poetry about whatever I'm feeling, but when it comes to 25, 30 pages talking about one thing, it's repetitive. I know that's what research is, because that's what we did in the summer research. It's pushing you, like you're reading about Foucault and all these French philosophers. You have to learn the language of the oppressor *tambien* [also], you know. I don't know how to feel about it, yet.

To Leslie, making sense of the relationship between learning about the language of the oppressor while still situating one's own self in relation to the research is a concept that ze is still processing.

**Research impact on aspirations.** Leslie wanted to be an artist from a young age. Leslie shares how ze really liked drawing and was "very creative, but suppressed it to do well in school." Leslie's career goal when entering college was to be a lawyer because zir father's cousins are lawyers in Mexico and sees it to be a "job with income." Ze started getting involved with politics when a junior in college with the Dream Act and local grass-roots organizations that mobilize for immigrant rights. Leslie says ze wanted to go into politics because "if I go to law school and I get involved with people, one day I'll be part of the state politics."

Leslie's goal to be a lawyer all changed soon after taking ethnic studies courses. A moment during freshman year stood out when someone commented on the art Leslie had up in the dorm room and asked why ze did not do art for a major. Leslie's response was that ze needed to do a field that "brings me income." Eventually, Leslie states that the pre-law major was not making zir happy, so Leslie decided to take more classes in ethnic studies and drawing, where zir

“true passion is art.” However, it was through a range of experiences, including those within research as mentioned before that impacted Leslie’s trajectory in changing majors. Most recently, Leslie switched to the gender, women, and sexuality studies major as a result of various experiences with current graduate students and faculty from that department and feeling supported through spaces that Leslie shared with them.

#### **Case 4 – Viviana (Post-Opportunity Reflection), Senior in Social Sciences, Evening Degree Program**

Viviana was a senior majoring in social science through the Kaspi University (KU) evening program degree. She worked full-time in a public school district and attended the majority of her courses in the evening. She was in the process of concluding her research at the time of the first interview and about to graduate. Viviana was born and raised in Mexico in a low-income family and was the youngest of five children. She describes the city she grew up in as a place with “a lot of crime and drugs, and prostitution. A lot of crazy things going on everywhere all the time. I saw people getting killed and things like [that].”

Viviana was part of the first generation in her family to complete elementary school. Her dad did not know how to read or write. Viviana recalls how her mother also didn’t finish elementary school, yet she knew how to read and write and was “always reading, reading the newspaper and reading books. She always tried to be informed.” Education was important for her mother.

Viviana’s dad worked in the fields and her mom worked as a maid when they were young. They both moved to Mexico City where they met and later did “all sorts of things” to support the family financially, as Viviana notes, “we were really poor.” Her father worked as a driver for a *combi* (minibus). Viviana recalls that she helped her parents sell juice on the street.

Viviana recalls how she helped selling and making the juices, washing the bottles, things she says she “hated” but had to do. Her mother also sold *tortas* (sandwiches). They also had a public bathroom business where people pay to use public bathrooms, which the family still owns. The joke in the family was that they have the perfect cycle, sell juices and charge for the bathroom usage.

Growing up, Viviana recalls that she took English courses since middle school. Yet, she says that the English instruction was not strong, “I took English but I didn’t know anything. So, I learned here.” While in Mexico, Viviana says English was a subject that she “hated” and always received low grades in that course.

When Viviana arrived in the United States, she had already attended some college in Mexico. Her original intention when coming to the U.S. was to learn English. She mentions that there were also some problems that she was having in her family was motivated to come to the U.S. by the encouragement of one of her sisters who was already living in the U.S. She shares the advice that her sister gave her to come to the U.S. and “take a break there and learn English, and then go back and finish college in Mexico.”

Once she arrived to the U.S. however, Viviana recalls how her aspirations shifted, “when I came here, I was thinking wow, I hope one day I could study at KU.” She began her U.S. education by taking ESL courses in a community college. Once she had completed these courses, the next level was to take college preparatory classes. However, due to her undocumented U.S. citizenship status, she was unable to apply for a scholarship.

As a result of her U.S. citizenship status, Viviana experienced many obstacles and interactions of discrimination that impacted her pathway to and within higher education. She

recalls the first time she went to a community college to enroll for college preparatory courses: “I wanted to enroll. He[college employee] said, ‘You can't study because you're undocumented.’ I didn't know anything so I thought, ‘Oh man, I can't study.’” Under the impression that what the college staff told her was true, Viviana decided to “keep learning on my own as much as I can and then I'll figure out whatever I do with my documents.” She continued working and trying to study concurrently.

Viviana recalls how she was becoming depressed because she was working as a nanny and not doing what she really wanted to do – go to college. Instead, she notes, “the treatment that people were giving me is different. Even as different when they see that you're a woman of color but if they see you in certain positions, people treat you even with more different. They can be nice but there is always this condescending thing going on.” It was then that Viviana says she was very sad and “got desperate.” During this time, she was depressed thinking about how she was studying in Mexico before she came here and had always wanted to study here and felt that she couldn't because she did not have citizenship within the U.S. She had an American boyfriend at the time and they got married “for the papers.”

The change in citizenship was a turning point for Viviana. She was then able to enroll in the college preparatory classes, apply for financial aid, and eventually transfer to KU. She recognizes this change: “ I saw how my life changed with the papers. Then, I was able to enroll again in school. Five years later, I graduated from KU.”

**Family influence on education.** When discussing her educational pathway, Viviana can not help but reflect on the impact that her family has had at every stage of her education. Viviana attended public school in Mexico up until high school. Her mother wanted her to be enrolled in

private Catholic high school. Viviana recalls that she attended several high schools because she didn't like them. Her mother was persistent and kept taking her to different high schools. Viviana describes an instance when her mother took her to an all women high school and the result despite her resistance to being enrolled there:

One of the high schools that I went was only women high school. I hated it. I was like "Please." Because we were very low income, *Las Monjas* [the nuns] gave us discounts. I was like, "No, please. I don't want to go." My mom made up a lie and she said, "It's just because we don't have money to pay" which is true. We didn't have but we could pay a little. The *Monjas* said, "No, it's okay. You don't have to pay anything." I was like, "*No. por favor* [No, please]."

Despite her best efforts, her mother enrolled Viviana in private schools during high school.

When asked why she didn't want to go to private schools, Viviana shares how the culture of the schools were different than her own as a result of the student backgrounds:

I was different. I was different. Everyone was rich. I wasn't rich. I'm not one of them. That was very hard for me in high school. I wasn't rich. Being around rich kids, it was very uncomfortable for me. They were talking about things that I didn't understand, that I wasn't interested on. They had access to things that I didn't have, but also it pissed me off. The way they would talk about poor people and the way they would talk about indigenous people because in Mexico, there's a lot of racism. I just didn't feel comfortable.

Viviana also shares that people wouldn't talk to her, she "wasn't popular." She didn't have money to spend on a car and the conversation of what her parents did for a living never came up with other students and she didn't feel it was something that she could talk about with her peers. Further, Viviana shares that she enjoyed sports but none of the private schools she attended had

sports teams. This made for a high school experience with little congruence between the school culture and Viviana's home culture and interests.

Viviana and the youngest of her brothers were the only two out of the five siblings in the family to go to college. She feels "lucky" to have been "supported a lot" and attributes the fact that she was the youngest as being instrumental in her ability to attend college:

I think of my older sisters and brothers and I think, wow, when they were in their time to go to college, we were so little and we didn't have money so they had to work. In some way, they have opened those paths for us.

Viviana's brother studied business at a university in Mexico and now runs a funeral home in Mexico.

When I asked Viviana about how she would describe her family's influence on her education, Viviana states it was "big," especially her dad. Her dad passed away four years prior to this study and he had "always, always, always" encouraged her to study. She recalls, "more than any other member in my family. More than my sisters, more than mom, more than brothers. My dad was always like, got to study, go to school, don't get married." Viviana shares that her dad felt so strongly about her attaining an education before getting married that she recalls him saying, "If you ever find a man who wants to step on you, I want you to have an education so you can have tools to say, you know what, ---- *tu madre*' [expletive] [laughter]." Her father also told her that she was worth a lot, "*valia mucho*", and deserved the best.

Viviana's mother also encouraged her to study. Viviana describes that her mother had specific thoughts on what she should be studying. Her mother wanted her to study towards acquiring a technical degree and be a secretary so she "put" Viviana in typing classes. Viviana recalls she stopped going to these classes because she "hated" them and later decided she wanted

to go to a university instead. Viviana enrolled in a four-year university and signed up for a major in social sciences.

Viviana describes her mother as having opposing ideas about higher education. She recalls her mother would say that she had always wanted to go to college and study philosophy or history, fields that were appealing to Viviana. Yet, she advised Viviana to study a career that would allow her to take care of her family. Her mother would say that she will get married and have children, so she should study something like education to be a teacher so that she could have the same vacations as her children or be a secretary because both those professions would have convenient schedules. Viviana believes that these conflicting messages from her mother helped her feel that she could be somewhat resistant to the advice and therefore signed up for social anthropology in Mexico. And even though she believes her mother didn't like this decision, her mother did not say anything to her. She does recall though that her father would tell her to study what she wanted.

**Family influence on research.** When I asked about the influence that her family has had on her research, Viviana describes that her research is connected to her family in a few ways. Her research is on practices of music and dance as a form of healing. The music at the center of her research has its roots from the places of origins for her family. Viviana believes she inherited the love for music and dance from her father, who loved to dance and was always the life of the party, always dancing, and there was always music in her home. Her brothers also play an instrument and sing.

Being the first generation in her family to complete her elementary school education, Viviana recalls how her mother always emphasized that regardless of what she studies, she had

to make sure that it will serve her community, “give back to your community because your community has given to you.” The value of giving back to community is something that Viviana says she learned from her mother, someone she considers to be a conscientious person. She reflects that she would not know how to do anything any other way. Viviana states that her research has incorporated both growing up with this belief in community joined with a love for music and the arts as a form of expression and survival. Her participation in the Latino Community Music Group has been the space where her research is situated.

**Community influence on education and research.** Viviana states that her community has influenced her education “tremendamente” [tremendously]. Within her university community, Viviana says she has met people who have been there for her and have made things happen for her within the university. She reflects that while she is first generation to go to school, it was the university community who “know how to move, they know what to do. They know that there is a process. They know that you have to go to this particular person.” They would guide her “paso a paso” [step by step]. Something that Viviana reflects her family could not do. Her family supports her in other ways, but they could not help guide her on how to navigate the university processes.

When I asked about the influence that her community has had on her research, Viviana jokingly says, “*no pues. Son mi objeto*” [oh my, they are my object of study]. She says that they have helped her “*un monton*” [a lot] and that many of the people that are part of the Latino Community Music Group (LCMG) are also part of the university community. She recalls how graduate students who are part of LCMG and the university have helped her by sharing tips on

how to avoid some mistakes that may be common in research. Viviana shares that it has been helpful to be in this space with graduate students who share similar backgrounds and histories.

It was also through the people that she met in the LCMG that she inadvertently came upon the intersection of her personal experiences, the work of LCMG, and exploration of these experiences through a research lens.

**Research awareness & engagement experience.** When I asked Viviana how did she come to decide on her research topic and how her research began, Viviana shares how a faculty member, Sonia Acevedo, was instrumental in this process:

It almost came like unexpected. I didn't think about it that much. It was because Sonia told me about a scholarship, a grant or like a scholarship for domestic violence. She said, "You should apply." Then I saw and I said, "Sonia, but I don't know domestic violence. What can I say?" She said, "You should propose [traditional music from Mexico] as a form of healing." I'm a survivor of violence. Then it made me think that really [traditional music] has been a healing space for me. Then I was like, "Yeah, you're right." I submitted the application and I got it.

This scholarship was not directly tied to research, but was targeted towards work that addressed violence and women.

It was that same quarter that Prof. Acevedo also encouraged Viviana to take a course on women and violence that was taught by Professor Gina Lopez. The course was full, but Prof. Acevedo reached out to Prof. Lopez and asked that she allow Viviana to enroll in the course. Viviana reflects on the importance of Sonia's advocacy and social networks, "I realize that those connections are very important because people get to know you and you know what I mean?" More specifically, Viviana referenced the mentorship that stemmed from her relationship with Prof. Acevedo and the help that her networks gave her in overcoming barriers that she

encountered during her higher education experience. She notes that had it not been for Prof. Acevedo, she probably would have stopped trying to enroll once she saw the course was full. She did not know about the ability to acquire a spot with an add code from the professors.

A few months later, Sonia brought up another opportunity for Viviana. It was the Diversity Researchers Program. Viviana says this is when she decided to be more specific about looking at traditional forms of music from Mexico as a form of healing for women. The Diversity Researchers Program (DRP) provided funding for her to conduct her research under the supervision of a faculty mentor. Her faculty mentor became Prof. Gina Lopez, with whom she had taken the class on violence and women. As part of this program, Viviana participated in a research class, workshops, met with graduate student advisors regarding school work, and also met peers with whom she could spend time outside of classes.

Viviana shares that doing research was difficult as an evening degree student – both because research is difficult and because she didn't have the time to do it. She felt she “was always running,” always under a lot of pressure. At times, she recalls she wanted to pull her hair out, “*halarme los pelos.*” Viviana describes that another challenge was the schedule for the Diversity Researchers program, which was during regular business hours, the same as her work. In addition, part of her research entailed oral histories and she recalls that there were particular hours when she had to pick up the camera equipment she checked out from the university. These hours were again during business hours, which were her work hours. The only place she found flexibility was when meeting with her faculty advisor, who would meet with her at 4:30 or 5pm after she got out of work.

Viviana describes how her work was much “like a doctor’s office” – sometimes it was slow so she could read and sometimes she would be on her way out towards the end of the day when a family would come in and needed her assistance. As a result, she would end up using her lunch hours to take trips to the university for picking up equipment or attend meetings. She says she would rush to campus to pick up what she needed and rush back to work. Unfortunately, even though she let her work know she would be off campus for lunch, she recalls how one of her co-workers was “*horrible*” and if a family arrived while she was out for lunch, the co-worker would tell the director that Viviana was out and that they did not know where she was. Viviana states how this would increase her stress level because they would then call her and ask why she was not in the office. There were many instances like these in her work environment where Viviana says that she did not feel supported and only increased her stress levels when doing research.

Viviana found that the limited time and flexibility further created circumstances that made it more challenging for her to conduct research. As a result of the limited flexibility at work, Viviana conducted all her interviews after work or on weekends. She would go to her participants’ homes, work place, or they would come to her work place for the interviews. Viviana also shares how these interviews were even more difficult because she had to learn how to use the recording equipment on her own during the times she checked them out. She recalls how in one interview she did not have the sound recording on for the video equipment and therefore did not capture any audio. Viviana learned many lessons that may have been more easily learned had her time been more flexible or had supports outside the traditional business hours.

During the interviews, Viviana wonders if she was ready for conducting research. She recalls she would meet with her faculty advisor, Prof. Lopez, to discuss how to organize her work. While she is glad that she did it, she says she does not think that she had the theory behind it. She says, “*Siento que uno necesita teoria no, para poder relacionar* [I believe one needs theory, right? to be able to relate].” She does not feel she was ready to analyze the histories. At the time of her second interview, Viviana expressed that she felt she was probably better equipped and could have probably written more.

Despite this sense of unpreparedness for the research, Viviana states that she believes it was good that she did it “*por que te enseña a ver cuanto tienes que aprender*” [because it teaches you to see how much more you have to learn].” She does value the stories that were shared with her and wants to be able to bring more strength to the stories through theories that have already been written.

Viviana describes that there were many things she liked about her research experience. She identified with the participants in her study because like them, she is also a “*bailadora*” [dancer]. She shares that “listening to their stories as a *bailadora* made me realize how important that space is. So I think it was definitely a learning experience.” Viviana says that the process of this research helped her understand and see how important it is to make LCMP accessible to others, “because it’s really healing.” When reflecting on the impact that the music had on her, Viviana states that it was healing for her as well. It was this thought that if it was healing for her that it might be healing for others that motivated her to embark on this research project.

Viviana’s understanding of research continued to expand beyond looking at the relationship between music and healing. She also describes the importance of the contexts in

which the music is happening and further elaborates on the role that theory plays in helping to illustrate the experiences women have within these contexts. She reflected on how the spaces of music represented places where the women found healing. It was now broader than the music and intertwined with the concept of place. Further, by the time I interviewed Viviana the second time, she was attending graduate school and had read more on theories that she now says, “yes! this is what the women were talking about.” Viviana reflects on the role that theory has played in her research:

So I think the theory helps you in the context of the university, theory helps you present what people are living. What is already happening. I don't think theory makes things happen. It is what is already happening. I really like that, having the theory to sit down and talk to the [musicians/dancers].

Thinking about theory is clearer to Viviana now that she has had additional time to read new theories and reflect.

Viviana also describes how the process of research has helped her open up her imagination of what is possible. She shares that by knowing those stories, her “imagination went crazy,” and she started to see the potential that this new understanding could bring to “mainstream forms of knowledge” that have not traditionally recognized the knowledge that the community spaces hold. She describes a further connection of the learning that happens in the research, “*Entonces como que [el conocimiento] te conecta de una forma espiritual muy profunda, yo creo que ese tipo de conocimiento que generalmente no lo vemos reflejado en estos espacios. Por eso yo si creo que se puede hacer un activismo en la academia.*” [Then the knowledge moves you to connect in a spiritual way, in a way that is usually not reflected in these [university] types of spaces. That is why I do believe that one can be part of activism in the academy]. Viviana sees

the learning from the women in her community as a method to resist against traditional approaches to healing and a medium that opens up spiritual healing.

Viviana expanded upon her discussion on how research can take an activist form within academia and in the process began to introduce ideas that she struggled with while writing her findings:

*Y en la forma en que se hace es a traves de historias, de este tipo de historias, que generalmente no se escuchan y escribirlas. Y uno debe de aprender, no? Como la podemos escribir. Como la podemos presentar para que tambien tenga sentido en la cabeza de alguien que ha vivido de una forma tan diferente a la nuestra. Que los valores se basan en algo completamente diferente en lo que nosotros estamos hablando. Entonces como poder hacer esa conneccion. [The way that you do it [activism] is through stories, those type of stories that generally are not heard or written. And one must learn, right? How to write them. How can we present them so that they can make sense to others who have lived in a very different way than us- whose value system are based on completely different things than what we are talking about. How then, can we make that connection?]*

Viviana describes how she feels saturated sometimes from the toll that the research takes spiritually.

Viviana credits a faculty mentor who is also part of the LCMG with many lessons learned in research. She shares how her view on research stems from what her faculty mentor, Sonia, shared with her – that research has to be a labor of love and what that entails:

If it's a labor of love, there are many things that are going to take you to places that I think are nearly impossible places. Cuz it's a labor of love. So I would say, whatever we do, I would say to do it. I would say we have to do research. Not we have to, but if people are interested in doing research, I think it's good to do research. But a research that, like my mom said that is going to benefit our community. The communities and beyond.

Similar to Leslie's case, Viviana's research is intertwined strongly with her identity and connection to community.

Viviana speaks about how the connection to community as an insider is a motivation for her research. She explains that she likes to see people of color doing more research within their communities because of how generalizations that have been made as a result of research have impacted communities:

I think the university is a space with power....you have some power when you're doing research. I think you need to use that power or focus that power for the benefit of our communities. So I would say yes, yeah, let's do it. I think research is a dialogue. Like you said, it's a work in progress. And I think it's a dialogue. I think we have to see it that way. There's not absolute truth...*Y esos puntos de vista necesitan ser uncovered para cambiar las estructuras. Por eso digo que hay que hacerlo.* [And those perspectives need to be uncovered to change the systemic structures. That is why it has to be done.]

When I asked Viviana if there was anything she did not like about research, she immediately responded, "imposter syndrome." She recalls that she felt unprepared. When it came time to write the results of her research, she says she did not feel she was doing a "good job." Viviana further expands that the challenge in writing was in not being able to understand how to present the stories in a way that they are deemed legitimate knowledge within academia. Making that connection was difficult for her and she says that she is still seeking the best way to do that. As a result of this sense of not doing enough in the writing process, Viviana shares that she has not read her paper since she finished it for fear of "seeing if I messed up."

**Perceptions of research.** When I asked Viviana about her thoughts on undergraduate students engaging in research, Viviana states, "curiosity, responsibility, and excitement." She believes that students must be excited to do something that they are not essentially required to do but want to do. Even for students who are part of programs like DRP, where they require you to do particular research assignments, students still want to do the research because they have the interest in it.

Viviana also believes that there is a form of “privilege” when conducting research. The privilege is manifested in how one is able to dedicate time to the research. Viviana recalls how even before she got involved in research, advisors from a research program visited one of her evening courses to inform students about research as an option while in college. She notes that at the time, her classmates brought up logistical questions to the staff that made her realize that it was not so easy for students in the evening degree program to get involved in research. The students had asked the advisors presenting how could they get mentorship if they were only open while the students were at work. The advisors’ office hours are during regular work schedules (8am-5pm) and their only suggestion was that students can also speak with faculty advisor directly. Yet, Viviana notes, what if the student needs help finding a faculty advisor? There is no staff to help them outside of their work hours. She did not pursue research as a result of this informational session as is noted before. Her research came about through the interactions with faculty outside of the university walls and in the community space that she shared with them during the Latino Community Music Group.

Viviana shares another instance that exemplified different outcomes in undergraduate research as a result of the “privilege” of time for research and also what is valued within academia. She addresses her experience participating in DRP, a program that has historically served traditional under-represented students (non-evening degree) and how she sensed a difference in value systems that then leads to inequity in how students are recognized for their accomplishments. She shares that she noticed “there is a lot of meritocracy.” It made her “feel bad” because there were things that she could not do as an evening degree student that the students who were getting recognized could. Viviana states that “then I could feel it in myself, here in my chest.” She shares that she thought to herself:

Oh my God. I'm not doing this. What can I say about me? I can say that I have a full-time job and I can say that I am involved with this community but the truth is that sometimes the university doesn't see that as valuable."

Instead, Viviana notes that she believes the university wants to see how many scholarships one receives and if they get recognized. What Viviana notes is a difference in privilege that may also come as a result of the privilege of time. Applying for scholarships takes time to research as well as to then apply to them. For someone with full time employment, taking courses, and conducting a research project, they may not have that time to pursue.

Viviana redefines success for herself as a result of this experience as part of a research program intended to support students of color, yet that appears to her to sustain the same meritocratic values perpetuated institutionally. She states how she does not see anyone "talking about what you do to support your people. What do you do to support yourself? What are the things that you've had to do to be able to be there? That is also success." So, for the students who are not getting all the medals and all the awards, Viviana notes, there needs to be a moment to recognize that their perseverance deserves merit as well.

Viviana reflected on this experience as a potential for it to be "emotionally damaging" to students who do not have the same opportunities as those who are awarded and recognized. Viviana notes that "not everybody has the same access" to what leads to these types of recognition. She shares how even the use of social media by the program conveys these value systems. When a student that received all these awards was accepted to graduate school, the program announced this accomplishment on their social media page. Yet, when Viviana got accepted to graduate school, nothing was said, no recognition of this accomplishment ever occurred. She adds that this type of differential treatment in recognizing accomplishments creates an "environment of competition."

**Future research interests & research impact on aspirations.** Viviana decided to continue to pursue her research interests in graduate school. She is now thinking to broaden her research topic to include music from another region of Mexico and conduct a comparative analysis with the music that she focused on in her senior thesis. Again, this expansion is strongly connected to her own roots. While LCMP was based on music from the region where her father was from, the second region that she is expanding her research to is from where her mother grew up. Both are musical traditions that Viviana herself did not participate in until adulthood once she was in the United States.

Viviana describes how her ideas of research have shifted. In particular as it relates to researcher positionality. She feels that research is a responsibility that one has especially with the people with whom we are doing research. She wants to explore this concept of researcher positionality more. She describes how she wants to rethink the idea of herself as the researcher to how she can do the research together with the women who participated in the same space and that she interviewed.

This growing awareness of researcher positionality has also brought to the surface the nuances when it comes to practical considerations of the research process. For example, Viviana describes how she is still trying to understand how to navigate the idea of publications. If she were to do research collaboratively with her community, she already sees a tension in how she has experienced the university's guide for intellectual property, "How can one take into account the collective effort when the university sometimes pushed you to say, no it's mine."

All four of these students provided a window into the experiences of first generation in college Chican@/Latin@ students and how they access and experience undergraduate research. In the next chapter I will provide cross case findings that include findings about the role that the people and contexts played in how all seven participants in this study experiences the awareness and engagement process for undergraduate research.

## CHAPTER 5:

### CONTEXTS, RELATIONSHIPS, AND EXPERIENCES THAT PROMOTE AND SHAPE STUDENTS' ACCESS AND ENGAGEMENT IN UNDERGRADUATE RESEARCH

In this chapter I introduce cross-case analyses of the contexts in which students became aware of, interested in, and learned how to access research opportunities. I explore the relationships that were part of the students' experiences as they navigated the higher education system to engage in research. I discuss the places, people, and experiences that shaped students' experience in accessing undergraduate research. The findings in this chapter include cross-case analysis with all seven participants – Luis, Karla, Leslie, Viviana, Daniel, Nicholas, and Alicia.

There were several themes that emerged from the students' interviews that provided insight into first generation Chican@/Latin@ students' experiences when thinking about, deciding upon, and accessing engagement into undergraduate research. The following narrative conveys their unique experiences that, despite their diversity in majors, afforded some emerging themes in how they learn to navigate the higher education system to become aware of opportunities and learn how to engage in these opportunities.

What is important to note is that in all the cases, the students did not connect in what institutions of higher education traditionally incorporate as pathways towards undergraduate research – that is, by students going directly to research programs that focus on research for undergraduates to seek research opportunities. Instead, the information came to them in various forms such as mailings directly to their home, connections made with institutional actors outside

traditional formal spaces (e.g., class, office hours, research-specific programs). In some instances the efforts are what I categorize as institutional effort, those that are part of a systemic routine by an education program. And in other cases, students became aware of these efforts through the relationships that they had formed within their various contexts. In this chapter, I first focus on the first phase of engagement – awareness. I explore the role that people who became part of the students’ social networks had in how students became aware of and engaged in undergraduate research. I then look at the contexts in which how interactions with various institutional actors promoted students’ engagement in undergraduate research.

### **The Role of Institutional Actors in Promoting Access to Undergraduate Research**

When analyzing how students came to learn about opportunities, it became evident, and perhaps expected, that there were various key people who possessed a role within the institution who were conduits for students’ learning about research opportunities. A distinction came in the types of roles people held within the institution and the contexts in which the awareness occurred. In the cases where the engagement in research occurred early in the students’ educational trajectory, they became aware of the opportunities through more structured forms of outreach by research programs. These forms of outreach are akin to how Kuh et al. (2005) define institutional effort – specifically, when institutions allocate resources and services to “induce students to participate in and benefit from such activities (p. 9).” In the case of Karla and Daniel, their initial awareness and entry point to research were the result of systemic processes by programs with the intention to increase students’ engagement in research.

In contrast, for students whose first awareness of research occurred once they were in college, the people who served as conduits of awareness to research opportunities were not limited to research program staff. In these cases, they included advisers who were part of academic advising or programs that support underrepresented students. In addition, some institutional actors were faculty who formed mentoring relationships with students.

### **Out of Reach or Reaching out: Pre-college Awareness and Access to Research**

Both Karla and Daniel first became aware of research while they were still in high school. This entry point to research provides insight into how outreach may be employed differently in a high school context than in college.

As mentioned in Chapter 4, Karla conducted research during high school in a behavioral neuroscience research lab at a university. Karla first heard of the research opportunity in high school when the program staff came to her magnet school and conducted a presentation to the students about the program and application process. She credits this experience as the beginning of her research experiences, and it seemed to be formative in developing her identity as a researcher. She shares that since this experience, she “always thought of medical school or graduate school.”

Karla and Daniel became aware of the opportunity to do research at Kaspi University (KU) during their senior year in high school. The university sent them both information about the program and application process via mail to their home address. They applied and were accepted into the Freshman Summer Research Program (FSRP). This program was one that students participated in during the summer prior to their first year in college. As a result, their

first experience with college was in a research setting. And for both, this was also the beginning of building relationships with staff who later continued to share with them additional research and funding opportunities.

Daniel has been in the same lab that he was part of when he was in the Freshman Summer Research Program (FSRP) before his freshman year in college. Daniel shares that he heard that one of the alumni from his high school had participated in the program. When he received the information on the program in the mail, he talked about it with his high school counselor, and the counselor said that he should definitely apply, and so he did and got accepted.

Daniel shares that his participation in the FSRP was helpful in preparing him to work in a lab by learning “benchwork skills, providing an introduction to math and chemistry courses.” The faculty and staff he met through this experience he considers his primary academic and personal advisors in higher education and are people he “can fall back on”. This is also the space where he made the friends he continues to spend time with studying and socializing. Most of his friends are in pre-med or biology majors. Daniel attributes this experience to helping him not feel like the “confused freshman” when he started college. He also believes that participation in the summer program helped set “the foundation” for him to be at the university. He continues to go to the program staff and research mentors for advice in academics, planning “next steps”, information about graduate school, and funding. Karla also shares that for her, the staff in this program were instrumental in helping her identify research opportunities in future summers. For Karla, this also became a support for her livelihood during the summers when she would otherwise not have a home or income.

Daniel now does research ten hours per week looking at genes that produce floral organs and receives funding through his research. At the time of the first interview for this study, he was beginning his sophomore year, his second year in the same research lab. He mentions that he's been able to learn about additional programs, such as the Research Ambassadors, from FSRP alumni who would share the programs that they knew about or had participated in themselves. The Research Ambassadors program is one in which he serves as a spokesperson for undergraduate research. Daniel participates in activities such as visiting classes or participating at campus-wide events where he would have a booth to share information about research to other undergraduate students.

The experiences of Karla and Daniel provide insight into how early outreach and engagement in research created spaces where they are able to build relationships with institutional program staff who provide advising and mentoring. These relationships later helped in other ways, including overcoming obstacles such as homelessness and lack of family support in the case of Karla and providing additional awareness about additional research opportunities for both Daniel and Karla.

Further, the initial access point to these experiences for both Karla and Daniel illustrates the importance of *reaching out*. Reaching out while they were in high school, and having information come to them in ways that would be difficult to overlook (e.g., mail directly to their home, in person presentations to a high school class). The question then arises, how do institutional actors in higher education *reach out* to students once they are already in college? The next section explores how institutional actors may have played catalyzing roles in how students engage in research.

## **The Institutional Actors that Reached Out**

What stemmed from the students' experiences in this study was a common theme that there were key people who were instrumental in helping them learn about, encourage them to consider, and even guide them towards ways to engage in undergraduate research and funding opportunities. The institutional actors included program staff, faculty, and even graduate students who had become part of their social networks. They held a role at various stages of the research access process for students. I situate the roles possessed by the institutional actors within the three stages of access introduced in the conceptual framework – awareness, identification, and acquisition. This section highlights the roles that key institutional actors played in how students became aware of, came to identify with, and got involved in research. For the five students in this study who first became aware of research opportunities in college, their awareness and engagement into research stemmed from information conveyed to them through someone not directly related to research programs. Instead, it was through the networks that they had build through their experiences in college, which included graduate students, academic advisors, and faculty.

**Reaching out at the awareness and identification stage.** In the cases of Daniel and Karla, the institutional actors with whom they built relationships during the summer prior to their freshman year in college became instrumental in helping them navigate towards additional opportunities for research and funding following their first year. For the other five participants in this study, who first became aware of the opportunities post high school, the awareness came through various methods and people.

Leslie provides a window into the role that cultivating relationships can have on learning. Leslie describes, “I’ve learned how to learn” and elaborates further by describing how experiences with his family helped illuminate this new understanding:

I feel like I'm finally starting to discover that learning can happen in many spaces and with many different people. Sometimes I feel like we only think learning can happen in school. With the things that have been happening with my family I feel I've learned a lot of things from my family and from my parents. It's been like an exchange. Realizing we can learn from each other. Really realizing that relationships around my life, sometimes we kind of put some things above others and I kind of realize that life is all about our relationships... Really re-defining what relationships are. I've learned valuable life lessons. How to work with different people.

Leslie’s perception of relationships highlights the importance that people could play in how students not only learn, but engage in various opportunities in higher education. In the sections that follow, I explore the role that interactions with different institutional actors may have played in students’ different stages of access into research.

***Program staff and academic advisors.*** Non-research related academic advisors played a key role for Luis, Leslie, and Nicholas in becoming aware of research as an option for engagement. For Daniel, academic advisors were critical in how he made decisions at various junctures of his academic path. Both Luis and Leslie were part of the Migrant Program when they first arrived to college. The Migrant program targets first generation college students from migrant family backgrounds by providing programming and courses that assists students’ transition into college. The advisors promoted various forms of engagement opportunities for students. The idea of graduate school as a potential aspiration was introduced to Luis and Leslie in this context. All the advisors for the program were Mexican-American, with similar first generation backgrounds as the students in the program.

Luis had continued to stay connected to his Migrant program advisors after his first year. When asked why he decided to get involved in research, he shares, “Because I know just having that research experience is good for grad school because in grad school you're going to obviously be doing research. I want to just have it to get that experience.” He had learned from his advisors that research was an important component of graduate school, something he began to consider through his conversations with his advisors.

Daniel shared how he has various sources of information and has set up this structure intentionally. When he has questions, Daniel goes to several people on campus and then makes a decision once he hears the different options:

I have different people who can give me different advice, different perspectives. Usually if I have some question about something, I won't ask just one person. I'll ask a couple and then from there, I make a decision based on what they tell me.

He goes on to share how one of the programs is more of a general advisor and the other is more specific to STEM fields and describes how their differences are advantageous when seeking information or advice, “They know they have their place in your job and they know different people and they know different things, so I just ask both of them.” When deciding which major to apply for, Daniel also shopped around for information and his biology advisors became another resource for him:

Last year, I was not sure if I wanted to do Bio because I was like, there's probably a lot of different things here. I shouldn't set my mind coming in. I went and talked to the Biochemistry advisors and then the Biology advisors and then the Microbiology advisors. Now, I talk to the Bio advisors.

In terms of getting to know about different events and opportunities around campus, Daniel describes interviews from Multicultural Support Program (MSP) staff and other programs as being methods of receiving information.

Karla further elaborates her thoughts on awareness of opportunities in general and how she has adapted, or enacted, her navigational capital and encourages others to do so:

That's something that I always tell students, "Even if it's just for 10 minutes, check in with your advisers." For me, I'm really open about certain things, especially if I trust the person because I know that the more open I am, the more they can help me. I always meet with my advisers twice a quarter to make sure that I'm on the right path and if they know of any organizations or campus groups that would help me, they would tell me about.

Karla expresses the importance that sharing her personal story has to becoming aware of opportunities. She stated that she felt that advisers will be better able to help her if they know what she is going through and be able to offer her opportunities that she might not have otherwise known about.

All students in this study shared that they received e-mails via listservs that provided information about various opportunities including research. Five of them noted that there was some familiarity with the staff and advisers who administer the listserv. The advisers and program staff used e-mail communication as a way to disseminate information across all their students.

Nicholas was preparing his college senior year course planning when he identified research as an option for him. During his academic planning, Nicholas realized that he needed six more credits to graduate. It was then that he learned that research could help fulfill the six credits required for graduation. He recalls looking up psychology labs on the departmental website and thinking, "Hey, this sounds cool!" and he proceeded towards the next stage of obtaining entry into the research project.

**Faculty.** Similar to Luis, Leslie and Daniel were also part of the Migrant program, yet they did not stay as close to the advising staff as Luis had in the subsequent years. Leslie was also exposed to the initial idea of research through advisors, but instead built relationships with faculty who through mentorship encouraged Leslie to engage in research. However, Leslie still received e-mails from the staff at the Migrant program. Leslie had heard about the opportunity to apply for the summer research program through e-mails that ze received from faculty mentors in the gender and women's studies department, a graduate student who was part of zir social networks through the student organizations that Leslie was involved in, and then also received an e-mail from the advisors in the Migrant program. Leslie shares that the graduate student had endorsed the program because that graduate student had worked for the program in the past. After receiving the various e-mails from so many different people, Leslie decided ze would apply.

**Graduate students.** Karla, Alicia, and Leslie shared that they learned about research opportunities through graduate students. They eventually sought and became involved in the research opportunities that they learned about through these graduate students. Karla had participated in many research opportunities throughout her college experience. After having a hiatus from research, Karla reached out to peers and graduate students who were part of the same science student organization. She states, "A lot of the grad students have helped me as well. One, she just graduated with a PhD, but I met her in [science student organization] and I got the lab position because of her. Her boyfriend is my mentor." Leslie became involved in a summer research program that a graduate student personally recommended. Alicia's first research experience was one that she applied for after receiving an e-mail announcement from a graduate student that she had met previously.

**Reaching out at the acquisition stage.** As students become aware of research, they may enter a phase in which they must first identify with the domain of research. That is, they must see themselves as a researcher or at least believe that they may like the domain of being a researcher enough to try it. Once that connection to identifying as a researcher is made, then the next sensible step would be to seek and obtain entry into a research endeavor. In this study, the transition time between awareness and acquisition ranged. For Daniel and Karla, as soon as they learned about the opportunity in high school, they sought it. Alicia knew about research and had identified it as an activity she would like to engage in during her first year in college, but it was not until her sophomore year that she sought it. Leslie and Luis had been exposed to the idea of research during their first year as well, but it was in the second half of their third year in college that they sought to obtain a research opportunity and engaged in it during the summer between junior and senior years. Nicholas may have heard about research earlier, but it was not until just before his last year that he identified it as an option for him and sought it as soon as he decided that it was something he wanted to pursue. In Viviana's case, the transition towards research happened in phases guided by faculty mentors.

In this section, I explore how students moved beyond seeing research as an activity they identify with, to actually acquiring entry into a research activity. In particular, I examine how institutional actors played a role in students' pathway into obtaining access to research. I begin by delving into Alicia's case, which provides insight into how she made the transition from awareness and identification towards acquiring research. I then examine Viviana's case to understand how the process of access and engagement was intertwined with the relationships that had formed with institutional actors. I conclude with Nicholas' experience in acquiring research

that highlights what could be deemed a more transparent approach by his department to make research accessible to students.

**From identification to acquisition.** Alicia had just completed her first year in college at the time of her first interview for this study. She was interested in doing research, but had not engaged in research yet. At the time of her first interview, she was in the identification stage – she had identified research as a domain in which she saw herself participate, but had not sought any opportunities yet. She shares that when she was admitted to the university, she was admitted with the requirement that she participate in a summer college preparatory program. She explains that she was intimidated about participating in the program because the information she received about it stated she had to be at the university for a large part of the summer and complete statistics courses. The program also incorporated an introduction to research by assigning students a group research project that was connected to the statistics course. However, due to budget cuts, the program was downsized to a two-day orientation with no course preparation during the summer. Perhaps inadvertently, Alicia did not realize that this could have been her first introduction to research had the program continued in its full programming.

Alicia recalls that her roommates were involved in research during her first year. She notes that both her roommates were doing research in the sciences, but primarily spent their time making copies and taking out trash as part of their responsibilities. She does note that her understanding was that students in the sciences gradually increase in research project responsibilities as they are expected to be at the same lab for years. While she was not sure what she wanted to do research on exactly, she shared that she would like the research to be on Chicanos and Latinos because she does not see “a lot of research being done on that.” When

asked if she saw opportunities for someone like her who is interested in research, she responded, "No, I don't see a lot of opportunities. But it's only because within that area, I haven't heard of a whole lot of research."

Alicia was aware that research was something that undergraduate students can participate in, she identified with the domain as an activity in which she wanted to engage, but she was not quite sure that there were any opportunities to do research in areas that she was interested in and did not possess the knowledge yet on the processes or supports that might exist to access research. She had identified with the domain of research and was interested in getting involved in research. Alicia demonstrated qualities that would place her experience at the time of the first interview to be in the identification stage as defined in the conceptual framework for this study.

When asked what her thoughts were about how to get started in research, Alicia was not sure. Yet, this uncertainty was not something that intimidated her:

Honestly, I don't really know right now. Because I haven't researched, I haven't looked it up, I haven't talked to my advisor about it. I'm not really frightened by it, so it's not really that, that's getting in the way. I know I could figure it out and get that done. It's really just, like I said, a matter of timing for me.

Alicia's second interview for this study was about seven months later, well into her sophomore year in college. At that time, Alicia had already begun a research project with faculty in a social science major where she worked primarily with graduate students under a faculty's research project.

Alicia heard about this research opportunity through an e-mail that she received from a graduate student that she had met. The graduate student sent her information about a research project that was seeking an undergraduate research assistant. The announcement indicated that

they required a resume and a cover letter for the application process. Alicia decided to pursue it. She recalls that she thought, “Why not? It’s about time,” and the research topic was one that was intriguing for her. Alicia explains, “When there is something I want, I do it.” And when this opportunity came up, she “really wanted to” do it.

Alicia’s experience highlights how timing may have coincided with an opportunity coming to light for her. She had indicated early on that she was interested in research, but it was a matter of timing for her to get involved. Her intentions to get involved in research was present during her first interview, but she did not actually seek involvement in research until she learned how to get involved through the direct e-mail from a graduate student whom she had met in person. What remains unclear and difficult to predict is whether Alicia would have ever sought another research opportunity on her own or figured out how to go about it had she not received information directly into her e-mail inbox. What can be understood in Alicia’s case is that receiving direct messaging from someone she had met in person with a description of how to go about applying for research intrigued Alicia enough to seek out the opportunity.

**Scaffolding towards acquiring research.** Viviana got to know faculty, graduate students, and staff via the community work that they all participated in. In this space, Viviana shared that they supported her in many of her academic goals and helped her navigate around barriers that she faced as a result of racism and that threatened her opportunity to transfer from community college to a four-year university and later into graduate school. She describes her support network:

You know that in the Latino Community Music Group, there are a lot of [KU] people. I wasn't a [KU] person when I started. That's the people that I hang out with. I hang out with professors. And I think a lot of my mentorship has come

from there too because they know how to move in the university. They tell me, "You should do this."

Once Viviana transferred to the university, one of the faculty members in the group, Professor Sonia Acevedo, began to encourage Viviana to pursue academic endeavors that intersected with her personal interests. First, as previously shared in Viviana's profile, Sonia encouraged her to apply for funding that supported work done in domestic violence. While this was not specific to research, Viviana began to see her personal interests validated by academia.

Sonia continued to be prominent as Viviana moved through the various stages of access towards engagement for research. Sonia encouraged Viviana to further her study around the topic of interest and even facilitated the enrollment into the women and violence course taught by another faculty member, Professor Gina Lopez. Months later, Sonia introduced a research funding opportunity for Viviana in which Gina became her faculty mentor for the research project. Sonia facilitated the process of becoming aware of research, identifying a faculty mentor, and securing funding to support research engagement. Further, at the time of Viviana's second interview, she had already graduated with her bachelor's degree and had been accepted and enrolled in a graduate program where Sonia was her faculty mentor. Viviana's experience highlights how faculty may play a scaffolding role in helping students connect to research opportunities. And in the case of Viviana and Sonia, it may seem that Sonia nurtured Viviana's personal interests in a way that informed her aspirational capital as well as engagement in research.

**Transparency of research opportunities.** Once they were in college, six of the participants in this study primarily learned about how to acquire research opportunities through the relationships that they had made with various institutional actors. Nicholas, however,

provided a contrasting example when sharing how he acquired a research position. Once Nicholas realized that research was an option to fulfill his graduation credit requirements, he explored the departmental website to help identify a research project that he would be interested in joining. The website had descriptions on what topics the labs were researching and what type of time commitment they expected from students who wanted to work with them, as well as a description of what the research assistants would be doing if they were to join the research lab. Once he identified a project he was interested in, he e-mailed the departmental program coordinator who then facilitated scheduling an interview for a research position.

In Nicholas' case, the pathway to acquiring research within his department indicated more transparency and openness by faculty and department staff about the process of acquiring research than what was found by the other students in this study.

### **The *Places* of Access: Where Students Learn about and Garner Support for Undergraduate Research**

While increased social networks have been demonstrated to be beneficial to professional growth, it is also where these interactions are occurring that merit attention. Traditional points of engagement for many programs in higher education are often set up as offices with drop-in hours or appointments where programs invite students to come to their office if they are interested in a service, or the programs participate in outreach to classes and/or tabling events. Increasingly, partnerships in higher education include opportunities for these programs to connect with other programs who might already be servicing a smaller case load of students and help inform students that opportunities are available.

The findings in this section highlight examples from the case studies that may provide insight to how particular spaces were conducive to information sharing and building relationships that later helped shape how students accessed research opportunities. These include student-centered spaces, structured programs, and community-based spaces. Six of the seven participants indicated that they had been involved in at a combination of two or all three of the different types of spaces described in this section.

### **Student-centered Spaces**

Alicia, Karla, Leslie, and Luis described how they spent their time outside of class in student-centered spaces. I define student-centered spaces as spaces in which students shape governance, or lead the agenda of what occurs in those spaces. Karla was part of various spaces where students took on active leadership roles, including the KU chapter for a national minority science student organization, a Latina-based sorority. Alicia and Leslie were both part of a National Chicana organization, Movimiento Estudiantil Chicana/o de Aztlan (MEChA). Luis was part of a Latino-based fraternity and also participated in the Latino Mentorship Program. The learning and networking that occurred in these spaces informed how students engaged in research.

Karla shares that she believes that “programs are easy to access”, yet, you must know about them in order to get there. Karla explains that she values networking as an integral component to navigating the higher education system. As mentioned above, she learned about the latest research project from a graduate student who was part of her social networks through the student organization that she is involved in. Karla observes that there is great value in networking and values the connections she has made through these various settings. Karla emphasized the role that networking had in her college experience, “It's a lot of networking.

There's a big value about networking. Knowing who you know.” The Science Student Organization that Karla was part of also had faculty and staff attend their events and meetings, affording opportunities for students to forge additional relationships.

Leslie crafted zir second research engagement experience as one in which ze facilitated a form of *Artivismo*, exploring the combination of art and activism through a Chican@ lens. Leslie reflects on the connection between engaging in MEChA and its impact on how research is taking shape:

A lot of the things that I've learned in Mecha, I'm starting to see with my future goals, so through an *arte colectivo* [art collective], we need to have a foundation, we need to have a committee, we need to have people with grants, we need to have co-chairs, we need to have community outreach. I'm starting to see how these tools that we're learning in these spaces how we're going to play them out for our own goals. It's allowed me to really see a vision to what all this chaos is up here to make it something, like leaving your mark in the world. I think that's a space that we needed and I needed because it's a very white institution in a very white part of [city].

The participants of the *arte colectivo* included students whom they had met via various venues including the student organization.

Students shared how being involved in student organizations also led towards supports that helped meet their basic needs to sustain them through college and succeed academically. Leslie describes how ze spends time at the Multicultural Student Center (MSC) on “MEChA stuff” and to work on academic work, and expands on other spaces that Leslie utilizes as a result of the relationships cultivated with the peers that ze met through the student organization:

I use the computer a lot because my computer's been failing me. I try to do a lot more cafes... I try to have dinners with friends because we're all poor, instead of eating out and then we'll just have study time.

Leslie also describes that the peer support networks have been useful in “really enforcing academics because a lot of us kind of get lost in the activism. We want to remember why we're here, we're students. I've been trying to push that a lot more.” Further, Leslie mentions that ze has met faculty through the events and meetings as a result of zir participation in this organization.

When discussing their involvement in sororities and fraternities, Luis and Karla did not express any direct connections to how they became involved in research opportunities, but they did convey other experiences that provided them with career development and funding supports. Karla explains that while sometimes she does not want to be involved with the sorority when she gets stressed about school, she has learned commitment. That while there are times she does not want to be involved, she sticks with it and fulfills any commitments she may have made. In addition, Karla shares that she has exercised a leadership role in the sorority and has been responsible for supporting her peers academically and in their community engagement. She advises students to prioritize their school, provides workshops on how to study better and professionalism.

Luis also shares that the relationships he has built through his participation in the fraternity have helped him network and learn about employment opportunities. He was in need of a job and one of his fraternity colleagues connected him to an alumnus who offered him a job. He now works with this alumnus and the funding helps him during school.

## **Structured Support Programs for Under-represented and First Generation Students**

There were several programs that intersected in their services to reach out to students and introduce research opportunities. The students mentioned college programs that were not programs that actually coordinated or monitored the research. They were programs that had missions to support first generation and/or under-represented students in higher education. Some of these programs monitored a small caseload of students (up to about 50) and required that students apply and be selected to receive program services (e.g., Migrant program, Science Advancement Program). These programs were federally funded with the goals to support recruitment, retention, and graduation rates of students from specific target populations. As a result of their goals, they incorporate practices that have been demonstrated through higher education research to impact student retention. Among the services provided by the KU Migrant Program are: orientation programs and courses, one-on-one counseling and academic advising, career development, cultural and social events, tutoring and instructional support, scholarships, and a stipend for participation. The Science Advancement Program (SAP) was focused on increasing the number of students obtaining bachelor degrees and promoting graduate education via workshops and services.

Leslie, Luis, and Daniel were all part of the KU Migrant Program. They were part of this program because they come from families who worked or continue to work in agricultural fields. The program emphasizes getting involved within the first year of their college experience. Luis shared that it was advisers from this program who encouraged him to apply to summer research opportunities and sent him information about programs that he could apply for.

Karla and Daniel led different paths of engagement in undergraduate research after their first experience as part of the FSRP. Daniel stayed at the same research lab past the summer experience, well into his junior year where he was still working at the time of the last interview for this study. He had taken a summer off of the project by working at a different institution, but returned to the same lab during the academic year. Karla had been involved in different opportunities every summer at different sites. They both, however, maintained relationships with FSRP program staff that continued to shape their future engagement and funding opportunities.

### **Community-based Spaces**

There were particular spaces outside of the university campus that came up throughout the interviews as having played a role in how students built relationships with institutional actors who at that time or at a later time provided them with information or support that led towards research engagement. These spaces were representative of the students' cultures.

Viviana shared how her own interests outside of the institution have played a significant role in navigating the education system. Viviana first learned about research as an option for her through Sonia, who was part of the same Latino Community Music Group (LCMP) that she participated in. In this space away from the institution, Viviana has built relationships with faculty and graduate students from whom she has received mentorship, guidance, and active support when navigating the many avenues that the institution has. She also was encouraged by the faculty in this space to apply for a scholarship as well as the research opportunity. It is through these interactions in a community space that Viviana continued to find support from the faculty, staff, and graduates students in this space as she proceeded into her research project and eventually into a graduate program.

Leslie also had connections to community spaces that helped facilitate zir connection to zir own sense of identity and impact how Leslie made sense of the research for zir senior these. Leslie participated in an all female group that cast a performance of the Vagina Monologues. In this version of the production, each cast member wrote their own monologue to perform. This is where Leslie came out. Leslie describes the impact that this experience had on zir own understanding of safe space:

I learned the whole safe space in MEChA, but I kind of started to interpret that as more of a brave space. People were talking about their experiences and really putting themselves out there. Some people are always going to be really rude about it. Some people are going to relate to it, so I started realizing the importance of space.

The year of this interview, Leslie began an *arte colectivo*, which was intended to explore the connection between art and activism. One of the goals that Leslie shared is to provide a space for these discussions to occur and expose students to examples of activism in the community.

When asked how ze facilitates the *arte colectivo*, Leslie describes that ze has been more open about zir own stories within the *arte colectivo*:

I've been really open with them. It's crazy how open I've become with people... I've been learning valuable lessons every day and every week I feel. just through me being real with people. This is what I've gone through, and then they share their story. Story telling has been a very big theme lately.

Leslie continued to reflect on how having safe space is playing out in the *arte colectivo* focus group for zir senior thesis:

It's like this research, this the focus group, because it's so personal, I've been able to tell them my own story and what kind of fuels my arts. Art is like something that really connects you with your humanity. It scares people because we live in a world that wants to suppress all of that emotion and expression. People calling each other, "Oh, you're crazy." All these different ideas that are really shameful towards people. I think I realized through this whole experience with my sister and family that we all have our own demons that we're working on. Some demons

are a little more visible than others but not to dehumanize others. I was kind of like that with my own sister. I realized forgiveness is key. I kind of walked away with that and it's been influencing my own work.

It is in these safe spaces that Leslie has been able to explore zir own identity and how various facets of zir identity intersect with activism. Leslie says that art has played a therapeutic role in helping zir heal. The intersection of the art, the focus group, and the opportunities for safe spaces in various contexts has nurtured Leslie's intellectual processing and also having a stronger identification with art. Leslie conveyed that ze is interested in going to graduate school and looking into how art helps in healing.

### **Summary**

The conditions that shaped the access experience for students were many. Students formed relationships in various contexts that promoted their awareness of opportunities and their knowledge of how to acquire research opportunities once they identified with research as an interest. Institutional actors that students connected with included faculty, program staff and advisors, and graduate students. These people played a range of roles within the awareness, identification, and acquisition phases of the access process for students. The contexts in which these relationships were cultivated also merit attention as they provided insight on how students navigate higher education institutions to obtain entry into research opportunities.

This study found that students who made connections with program staff and advisors early on continued to stay connected to these institutional actors in some form or another. For some it was the intentional component of seeking information and supports by sharing their needs and questions with advisors. For others, it might have been by continuing to receive information via e-mail about opportunities. In some cases, it was the academic advisors who not

only introduced the idea of research, but encouraged students and supported them through the application process.

The contexts in which students connected with key institutional actors that informed their engagement in research also provide insight on how students learn about, identify with, and decide to engage in research. Student organizations and community-based spaces were useful for students to make connections with faculty who provided mentorship, guidance, and encouragement. Structured programs with missions to service first generation students and/or students of color also provided opportunities for students to obtain additional supports through relationships with program staff and academic advisors.

## CHAPTER 6:

### DISCUSSION AND CONCLUSION

The findings of this study contribute to scholarship about first generation, Chican@/Latin@ students, engagement in undergraduate research, and higher education institutional effort from the students' perspectives. This study focused on understanding how first generation Chican@/Latin@ students become aware of and engage in undergraduate research and the institutional factors that impact these experiences. In this study, I framed the access and engagement process in five stages, where access constituted three of these stages (awareness, identification, acquisition) followed by the actual engagement in the research opportunity and the post-opportunity reflection stages.

In chapter four, the findings illuminated how students became aware of research opportunities, how they made sense of their identities vis-à-vis research, how their aspirations informed their engagement choices and vice a versa, and what other attributes (e.g., familial and cultural capital) shape students' self-efficacy, identity, perceptions of research, and motivation and capacity to engage in undergraduate research. In chapter five, the findings provided insight on the contexts in which students interact with peers, faculty, and staff and form relationships that inform what I am calling their "navigational capital." The analysis in chapter five also explored how the people and places that were part of these contexts played a role in how students experience the different stages of the access and engagement process.

In this chapter, I provide a summary of the findings in response to the original research questions. I then discuss alternative explanations for the findings and limitations of the research design. I also discuss implications for institutional effort/practices that may enhance first

generation Chicana/Latina students' access to undergraduate research. I conclude by proposing potential areas for future research on engagement in undergraduate research for first generation and Chicana/Latina students.

### **Summary of Findings**

This study focused on understanding the institutional factors and experiences that motivate first generation college Chicana/Latina students' awareness of and engagement in research. In this section I provide a summary of the findings from chapters four and five.

#### **What Undergraduate Researchers' Stories Tell Us**

In chapter 4, my findings highlighted four student profiles in which students were situated at various stages of the access and engagement process. The case profiles of Luis, Karla, Leslie, and Viviana provided insights into the following aspects of their engagement in research:

1. Family influence on research engagement.
2. Community influence on research engagement.
3. Research awareness and engagement experience vis a vis developing identification as a researcher.
4. Perceptions of research.
5. Students' initial and developing aspirations.

I provide a summary of each in this section.

**Family influence on research engagement.** Students described that their family did not initially provide a source of awareness and motivation to engage in research because their

families were not aware about research as an opportunity or what it meant to conduct research. Once students were engaged in research, they shared that their families were supportive of their endeavors, even if it was still unclear to the families what it meant *to do* research. What was clear for many of the students in this study is that the message their parents have conveyed to them to “make a difference in life,” as stated by Luis, was relevant and motivating for them to participate in research. Hence, their families and themselves saw research, whatever that meant to them, as a way to make a difference for others.

The participants of this study shared a range of ways that their families conveyed interest or influenced their research topics. For Karla, it was a simple “my mom is proud” of her participation in research, and she shared how her mother engaged in conversations with her about the type of research she should focus on, advocating for diabetes since her mother had diabetes. Leslie uses research as a form of understanding self and healing, often reflecting on *zir* family’s struggles.<sup>3</sup> Viviana further shared insight into how her family’s background is connected to the topic of her research.

**Community influence on research engagement.** Students referred to either their community outside the university or their community within higher education, or both, as influential in shaping their access to and engagement in research. When students referred to their community involving people connected to the Kaspi University (KU) campus, there were examples of support and encouragement in learning about research opportunities and navigating the institution towards those opportunities. When discussing their communities beyond the university campus, Leslie and Viviana discussed how their identities and communities inspired

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<sup>3</sup> I use the pronoun “ze” and “zir” for Leslie because Leslie identified as male during the questionnaire and pronoun preference was not specified.

their research focus. They both discussed the role of reciprocity when discussing their research work in relation to their community.

In the cases of Viviana and Leslie, who conducted research in the social sciences and humanities, the topics of their research were intertwined with their family and communities. Viviana shared how her two communities converged in the research that she conducted. Members of her community in the Latino Community Music Group (LCMG), and also part of the academy, provided her guidance and information about how to navigate higher education. Sonia Acevedo, professor at KU and member of LCMG, was instrumental in bringing awareness and encouragement to Viviana about getting involved in research and identifying something that was close to her personally, the music group, to be the focus of her research. At the same time, Viviana saw the women who were in LCMG and not part of the academy as her community from whom she learned. They were her community and also her research study participants.

In the case of Leslie, the *artivismo* focus group ze convened as part of zer senior thesis was the result of the intersection of Leslie's identities and the influence by the communities that ze was a part of while in college. Leslie describes the impact that MEChA has had on how ze identifies as Chican@ and how important it is to developing spaces that can serve as "safe" and "brave" spaces for students. The focus group as served as that space for the research that Leslie is exploring.

When discussing the relationship between themselves as researchers and their community, both Leslie and Viviana conveyed a sense of conscientiousness and reciprocity in the way they engage in research within their communities. For them, it is about exchanging

knowledge with their communities where they, the researchers, and their communities learn from each other.

**Research awareness and engagement experience.** Luis, Leslie, Karla, and Viviana had unique pathways into and through their research engagement and were situated in different stages of the access and engagement process at the start of this study. Luis was in the acquisition stage. He had just acquired access into a research engagement, but had yet to begin. Leslie was in the midst of her second research opportunity—having first been part of a summer research program in the humanities and now leading a research focus group on activism which informed Leslie's senior thesis. Similar to Leslie, Karla was also in the engagement stage. Karla was in her sixth research opportunity at the time of this interview. Both Leslie and Karla were in the engagement stage, but both had been through the access and engagement cycle more than once. Viviana had only been involved in one research project, which culminated in her senior thesis. At the time of this study, she was in the post-opportunity reflection stage as she was just completing her thesis and final year at the university and about to graduate. These portraits provided us insight into how their familial, cultural, and social capitals influenced and intersected with their research journeys.

Luis got involved in research just after his third year at the university. He was in the beginning stages of the access and engagement process when this study began and he had fully participated in one summer research experience by the end of this study. Luis demonstrated how early on in the experience, his identification with research was still developing. His motivations to participate in research were primarily driven by his understanding that it was important to do research if one wants to go to graduate school. Once he participated, Luis described the work that

he did in the research space and how it helped him grow and open up more as he met and talk with people he normally would not interact with had it not been for the research project.

Throughout their interviews, there were moments in which students discussed how their experiences informed their identity as a researcher and vice a versa. Identification with research came to fruition in various ways for the participants in this study. For Karla, the exposure to research early on in high school seemed to promote and nurture a growth in her identity as a researcher. Her strong identification with research and her sense of feeling successful in that domain seemed to provide Karla with the resiliency to persist in college despite the fact that she did not feel successful academically and was unable to declare the major that was her first choice. Instead, she decided that she would still be able to stay within her focus area of interest through research from another department. In Leslie's case, the engagement in research became a vehicle for nurturing zir academic confidence and exploring zir own identity as an artist and queer person of color.

Viviana's identification with research stemmed as a result of her work with a topic that was close to her cultural identity and related to her experience as a domestic violence survivor. While she critiqued her capacity as a "researcher," Viviana still identified with research enough to decide to pursue graduate school and continue research in a similar vein as the topic of her undergraduate research thesis. As she began graduate school, Viviana demonstrated a growth in her confidence on how to make sense of the data that she had collected while an undergraduate.

Viviana's experience also highlighted how not only her identification was closely aligned with her family background and personal experience, but the importance of reflecting on the experience. Viviana was able to reflect back on her experience as an undergraduate researcher

once she was in graduate school. While she reflected on many challenges including time constraints and the intensity of research, Viviana noted that it was good that she did research because she now knows how much more she has to learn and understands the importance of bringing strength to the stories that are shared by her participants.

**Perceptions of research.** Students addressed three main categories when discussing their perceptions of research: benefits to engaging in research, barriers to access for research, challenges in conducting research, and their personal tips for others embarking on a research endeavor.

**Benefits.** All students in the study expressed that they believed there were many benefits to engaging in research as an undergraduate. These benefits included; growing from the experiences at other institutions when traveling for research (as in the cases of Karla and Luis), learning that would be useful for graduate school (Karla and Luis), and having the ability to hold personal agency in one's own learning (Viviana, Leslie, and Karla). Leslie and Karla, who both shared not having a strong academic record, found research to be a space where grades do not define who they are. Instead, they found research to be a space that was more akin to what their perception of what educational spaces were originally made to do —“create something new instead of being so repetitive (Leslie, interview).” Viviana, echoed this last sentiment when she shared that the words that came to mind when thinking about undergraduates conducting research were “curiosity, responsibility, and excitement.”

**Barriers.** Barriers were also identified by students in terms of lack of awareness for all students about research as an opportunity, and limited opportunities in particular fields during the academic year. Karla, Leslie, and Luis stated that they believe the opportunities are there, yet the

awareness is not always there for undergraduate students. They expressed that awareness about research opportunities is limited and that the problem is that students do not know it exists. As Leslie shared, “it’s really who you know” and Karla expresses that programs are easy to access once you know about them. The only regret expressed in terms of timeliness of engagement was by Luis, who shared that he wished he had learned about the opportunity to do research in his first year in college. All other participants in this study had accessed research during their first or second year of their undergraduate experience.

Leslie, whose research interests lay in the arts and humanities, provided additional insight into the barriers that also become evident within particular fields of study. Given the limited opportunities for research in the arts and humanities during the academic year, Leslie created the research focus group.

**Challenges.** Students conveyed various challenges once they accessed research. As Viviana categorized it, some of these challenges manifest themselves when one sees the privilege that others possess in conducting research. Among these, is the privilege of having time. Not everyone can afford to conduct research for free, as is the case often for undergraduate students. Another privilege is that possessed by students in traditional degree programs as their schedules often allow for ability to access services during regular business hours, which is when university offices are open. When institutional and program practices cater to particular privileges, it exacerbates a form of meritocracy that can then prompt students who do not possess those privileges to begin to feel a form of the impostor syndrome, where students find it difficult to internalize their own accomplishments. As Viviana shared, she began questioning her own accomplishments when she saw others honored for having had the time to apply to various

scholarships and participate in ways that were limited to her as a result of her full-time work schedule and conducting research outside those hours. Time was also a constraining factor in the research experience of Viviana, as all her research had to be done in evenings and weekends, yet to acquire resources (i.e. Advising and research equipment rentals), Viviana had to engineer ways to make it to campus within traditional office hours.

***Tips on enhancing access and engagement experiences.*** The students shared their perceptions of how to enhance students' access and engagement to undergraduate research. In particular, institutional effort was one aspect they addressed as critical to how students become aware of research opportunities. Luis emphasized the role that programs should take in making sure that students know early in their undergraduate experience about research as an opportunity.

Students also shared tips that they felt were important for other students to know about in order to engage in research. All four cases conveyed the importance of finding research that one is passionate about. Karla, who had participated in six research projects in the natural sciences, discussed how, once one finds a research project that is right for one, it makes the process of learning easier. Luis further elaborated that when students are researching something they are not passionate about, they may find it “boring, tedious.” Both Luis and Karla emphasized that it is important to know about research early.

Viviana, Karla, and Leslie were quick to note that networking and who you know is important in how one is able to increase their ability to navigate towards opportunities. Karla made the connections between opportunities and networking explicit. We learn from her how being intentional about sharing one's story and making the most of the various institutional

spaces in which she engages with others is important in producing additional pathways to opportunities.

### **Students' initial and developing aspirations as shaped by their research**

**engagement.** All four students profiled in this chapter continued to see research as an endeavor they would continue to pursue in the future. Further, the research they had participated in had informed and continued to shape their aspirational capital. Prior to research, Luis was considering pursuing graduate school towards the goal of becoming a high school counselor or academic advisor in college. After his research experience, he decided to pursue a career in mental health. Karla's goals to continue a career in the field of medicine seemed to be reinforced and encouraged by her research experiences. Each experience continued to help her refine the type of field she would pursue. For Leslie, research has been a space in which to explore the intersection of art and activism, a field Leslie had only recently started to embrace as a possible career. Viviana decided to continue her research after graduation and embarked on a doctoral program.

### **Institutional Effort, Relationships, and Contexts that Promote**

#### **Students' Engagement in Research**

In Chapter 5, I presented cross-case findings that addressed: (1) relationships that promote access to undergraduate research; and (2) contexts in which students become aware of, interested in, and learned how to access research opportunities. Here I drew on the full sample of student cases.

**Relationships with institutional actors.** In terms of the institutional actors who came to inform how students became aware of research opportunities, I learned that there was a key

difference in how students in this study learned about research, depending on whether they learned about it before or after they began college. Karla and Daniel were examples of cases where pre-college awareness and access to research nurtured their future engagement in research and their academic and career aspirations. In their cases, they learned through direct research program efforts to inform them about opportunities to get involved in research. Luis, Nicholas, Alicia, Leslie, and Viviana first learned about research via either academic advisors, faculty, or graduate students. Further, Alicia, Leslie, Viviana, and Karla learned about different research opportunities through faculty, staff, and graduate students who were also Chicana@/Latin@. Daniel mentioned that it was inspiring for him to work with his faculty mentor because she is Latina. In short, the relationships that made a difference in these students' trajectories into research combined responsiveness with a proactive approach to drawing students in, and perhaps there is more to explore on the potential for cultural relevance or familiarity that students experienced when building relationships with Chicana@/Latin@ faculty, staff, and graduate students.

The possibility to be both responsive and proactive was heightened by the fact that the institutional actors that Viviana, Luis, Alicia, Leslie, Daniel, and Karla had formed relationships with played a *long-term role* in the students' undergraduate experience. It was through continued contact and growing relationships that students would learn about new research opportunities and engage in a research experience. The cases of Luis, Leslie, Viviana, and Karla demonstrated that there was encouragement by these institutional actors that helped motivate them to pursue and acquire particular research opportunities. In some cases, a form of scaffolding was apparent in which the institutional actor may have contributed to a combination of bringing awareness about a research opportunity, promoting interest in a particular field, facilitating funding opportunities,

and/or encouraging students to seek out research opportunities. Nicholas' case provided insight into a department in which there seemed to be more transparency in how students can acquire research.

**The role of place in students' research trajectory.** Place also played an important role in how students learned about research opportunities. In short, certain types of spaces within the higher education institution—and not necessarily those formally designed for this purpose—provide fertile ground for the students to learn about and become drawn into research opportunities, and the related changes in identity and perception of possibility that these opportunities afforded. For example, students learned about research within student-centered spaces (e.g., student organizations), support programs for first generation college and underrepresented student populations in higher education, and community-based spaces outside the university setting (e.g. Latino Music Community Group).

When students were part of programs that targeted them because of one or more of their identities (e.g. first generation, migrant family background), the program seemed to take on a holistic approach to advising. The goals were to ensure that not only were students' needs met, but that they learned about the array of opportunities in college and most importantly, that they take advantage of those opportunities. In the case of relationships built in the community or as a result of student-centered spaces, the role of place was to provide a backdrop in which the institutional actors who happen to share that same space with the students learned about students' interests and were better informed in ways that they could help them access opportunities to nurture their interests.

## **The Larger Meaning of These Study Findings**

The study provided insights into various aspects of students' community cultural wealth, information grounds, and social networks and how these intersect to shape their access and engagement experiences in undergraduate research. This study highlighted how institutional actors and places shaped students' research access and engagement experience. This study also illuminated how research engagement validated and nurtured various aspects of students' identities and nurtured their sense of self-efficacy, aspirations, and personal agency in learning. Further, engagement in research became a long-term endeavor for many students and in many cases the student researchers in this study also became promoters of research for their peers, thus becoming part of their peers' social networks. In this section, I discuss some of the larger meanings of the findings in relation to access and engagement for first generations Chican@/Latin@ students.

### **Institutional Actors as Empowerment Agents**

For six of the students in this study, there was a presence of institutional actors who reached out at various stages of the access process. These included faculty, staff, and graduate students. These people played a role in long-term guidance, scaffolding learning for students from the awareness of opportunities and continuing to support them through the process of acquiring the opportunity. In many cases the guidance continued even after the students had engaged in their first research opportunity. They also provided students with encouragement to value research as something that they can do and that is relevant to one or more of their identities (e.g. as a scientist, queer, female, etc.). In this process, the institutional actors enact the empowerment agent role as defined by Stanton-Salazar (2010) where they are supporting students to value the research domain and identify research as a domain that they are capable of

making their own. Further, these new empowerment agents promote the building of the students' social networks by helping them to cultivate additional relationships with other institutional actors within the institution.

### **The Role of Chican@/Latin@ Faculty, Staff, and Graduate Students**

Similar to studies that have identified the importance of hiring faculty and staff who represent the students they serve, this study found that the institutional actors whom the students connected with the most were those who identified as Chican@/Latin@. They played critical roles in nurturing students navigational, social, and aspirational capital as well as validating students' connections to other parts of their identity. For example, Daniel mentioned how his faculty mentor spoke fluid Spanish and that he was inspired to be a better scientist and also strengthen his linguistic ability. In this way, the faculty member became an agent for empowering Daniel by validating and encouraging his connection to his linguistic identity.

Whether intentional or not, this representation of Chican@/Latin@ faculty and graduate students who inhabited the same formal or informal spaces as undergraduate students provided an opportunity to mitigate what otherwise may be a stereotype threat. This representation of individuals who pertain to the same ethnic identity as the students may have helped to dismantle some of the stereotypes students may have otherwise been exposed to and perhaps impacted by. Having staff within programs who also identified as first generation and Chican@/Latin@ as the students also suggests that there was a sense of cultural threat that was dismantled when students were continually encouraged by not only the staff, but also faculty and graduate students that they should pursue research.

## **Places of Access at the Intersections of Community and Higher Education Institutions**

Students found community within on and off campus settings. In this study, the places in which students learned about research framed three types of spaces: (1) informal and student centered spaces; (2) structured support programs; and (3) community cultural groups. Informal and student-centered spaces included students' home, where research program information was mailed directly home to two of the students prior to their beginning their first year in college. It also included student organizations on campus and serendipitous campus encounters. Structured support programs included a high school program and the higher education programs that target first-generation underrepresented populations. These spaces often included places where students had built community with peers, faculty, and staff members.

While many of the places of access where students learned about research were on the university campus, there were also spaces beyond campus. The community space beyond campus conveyed an interesting intersection between community and institutional actors who belonged to both the higher education and the community beyond contexts. This intersection also proved useful to highlight the importance of students' identity as Chican@/Latin@ in the ways that they make choices on where to engage. For several participants, their engagement choices were driven by cultural, linguistic, musical, and artistic connections to their heritage.

## **Research as a Nurturing and “Safe Space” for Chican@/Latin@ Students**

Student case profiles portrayed a deeper meaning to the role that the research space possessed in Chican@/Latin@ students' experiences within a Predominantly White Institution (PWI). The research space can be much more than answering a research question for students. It

was a space that nurtured students' sense of self-efficacy, aspirations, personal agency in learning, and validation of their multiple identities and experiences. When threats to identification were present in academic spaces (e.g., classes), some students described experiences of tokenization and feeling that they did not belong. The research space was a place where students did not feel the same structural, cultural, and stereotype threats that they perceived within other spaces on campus. Instead, the research space was where they would go to dive in to learning that truly interested them. In the cases of the students in social sciences and humanities, research had strong ties to their own cultural background and connection to their heritage.

### **Distinguishing Patterns Across the Access and Engagement Process**

This study provided a cross-sectional approach to view students' experiences at a range of stages within the access and engagement process and from a range of disciplines. This approach allowed for greater understanding and comparison on how students experience the institution at various stages of this process across campus.

I identified a couple of key patterns. First, the initial awareness and acquisition stages tended to be guided, formally or informally, by institutional actors enacting empowerment agent roles as they introduce students to research, its opportunities, and the value of research. Further supporting students into the acquisition stage. Of the seven participants in this study, one of them had gone through the access and engagement process six times. It was in this case that I was able to observe how the student's strategies for acquiring research began to diversify. Perhaps this is indicative of how, as her social networks strengthened, so did her navigational capital and the confidence to embark on traditional *cold call* approaches to reaching out to faculty via e-mail to inquire about research opportunities and researching their research interests on the internet. This

case provided an promising portrait on how the strengthening of social capital enhanced students' navigational capital.

Second, when looking across the various disciplines, the level of transparency and availability of research opportunities varied by contexts and field of study. Programs from natural sciences tended to have more structured outreach mechanisms that convey a perhaps more equitable process to bringing awareness to students within their target population. This was missing to a large extent within the social sciences and humanities. In the case of evening degree, it brought about a more complex challenge. The evening degree program had invited research program staff to present and bring awareness about research, yet the structural barriers remain when the students are told that they can only be serviced during regular business hours. This impedes services to a population that was part of the evening degree for the very reason that they work days and go to school in the evenings.

### **Alternative Explanations**

This study provided insight into the stories of students navigating a higher education institution and the ways that they learned about research opportunities, identified with the research domain enough to decide to engage, and then pursued those opportunities. I will discuss two master narratives in this section that were dismantled by the stories that the participants in this study conveyed.

A master narrative that often frames access to many higher education opportunities is that if students want it, they will walk into an office that offers a particular service and acquire access

to that opportunity. Additionally, there are many first-year experience programs or outreach efforts in which programs participate in information fairs that will present an array of possible experiences for students to choose from and pursue participation. While these may be fruitful for some students, the students in this study did not learn about research in these ways or access research by walking into an office with that intention. Once in college, all but one of the students in this study learned about research opportunities indirectly through non-research staff, faculty, and graduate students and within a range of different contexts. In the case of Viviana, she had heard about research through a visit from a research program to her evening degree course. However, this event did not trigger motivation to participate or identify with research as a possible pursuit. Instead, Viviana shared that for her and her evening degree peers, it did not seem as if research was an opportunity that was feasible for them since all staff were only available during business hours—the same time evening degree students were working. Eventually, Viviana heard about research through a faculty member she had met as a result of her community involvement outside the institution. Further, the process of engaging in research took several stages. The faculty member first encouraged Viviana to learn more about a topic she was interested in, then the professor encouraged her to pursue research which intersected with Viviana's interests, and further guided Viviana on how to engage in research and acquire funding to support that research. Thus, access is not as simple as flipping a light switch—if you want it, you just turn it on. Instead, there are several stages involved in the process of how students get to the point of seeking an opportunity such as research, and this study helped to illuminate how people and contexts contribute to that process.

Another master narrative that often persists when discussing first generation students in college, and in particular Chican@/Latin@ students, is that students do not participate in

research because they have other priorities, such as family or work. Several cases in this study provided an exception to this notion. Viviana worked a full-time job, was studying in the evening degree program, and still made the time to conduct research and meet with her faculty advisor. Additionally, students who were in the traditional day degree programs also balanced family, work, and research. Leslie shared her family's challenges and how that impacted her own ability to succeed in coursework, yet found a space of inquiry a place to explore academic interests and grow. Karla worked to support herself and also faced many challenges in her personal life, but took refuge in research. Ultimately, regardless of the personal challenges and work obligations, the students in this study conveyed that they found research to be meaningful and it promoted a richer educational experience than what students experienced in the classroom. Perhaps it was this new way of going back to traditional conceptions of libertarian education that brought students interest in conducting research.

### **Limitations**

This study was limited to students at one Research University. Conducting a study that extends the sample size to more than one institution may provide additional data to compare and contrast students' experiences in accessing, and engaging in, undergraduate research, and the contexts in which these experiences occur. Further, the participants in this study represented a range of majors in the natural sciences, social sciences, and humanities. While this afforded for an understanding of a range of experiences, a larger sample size within each major would provide opportunities to understand differences and similarities within and between majors.

This study's sampling strategy did not include interviews with faculty, staff, and graduate students. As the findings suggest, the intentionality of various institutional actors may provide

insight as to how students' access and engagement experiences may or may not have been the result of serendipitous interactions with particular institutional actors. Interviews with faculty may also help make transparent whether the faculty's awareness of the students' status as first generation in college and/or Chican@/Latin@ played influenced how they decided to make an extra effort for these particular students, or if faculty perceive their role in access and equity in higher education as impacting all their students.

When learning about students' contexts, there were limitations to my ability to observe spaces that were occupied by the participants in the study at the time the interactions had occurred. I was limited to understanding the places in their current state if it was a space that I was able to access in the present.

### **Directions for Future Research**

This study explored how institutional actors and place played a role in how students connected to research opportunities. The findings of this study provided rich description of students' pathways and experiences in becoming aware of research and learning to navigate the institutions towards opportunities. Additional research could help expand our understandings of access for undergraduate research. I provide three main avenues for further research in this section.

First, a study that increases the scope of students from the same and different majors and also different institutions, may help provide greater insight into the nuances that exist within and between different majors and also between different institutions. It is not clear if the institutional

mission that drives the student support programs and faculty hiring may play a role in how the students experience access and engagement in undergraduate research.

Second, expanding the participant sample to include first generation college students from other underrepresented populations would help inform how students' experiences may be similar or vary within and between groups. This would help explore whether the findings of this study are reflect more generally the experiences of first generation college students or solely representative of the experiences of first generation college Chican@/Latin@ students.

Third, future research may further explore the perceptions and intentionality of the faculty and staff who played a role in these students' navigational capital. While it is evident from students' stories that faculty and staff played a key role in how students access and engage in research and funding opportunities that support these endeavors, it is unclear how intentional faculty are in guiding students. Some staff had been part of programs in which goals included connecting students to high impact practices such as undergraduate research in an effort to increase retention and graduation rates. Yet, it is unclear if the faculty who played a role in these students' navigational pathways do so intentionally with all their students or if these were instances of serendipitous occurrences in which faculty happened to learn of students' interests via their position as part of the students' social networks. Further studies could help explore to what extent do faculty intentionally attempt to get to know students' interests and help them expand upon these in ways that can help their academic growth and aspirational capital.

### **Implications for Practice and Policy**

The implications of this study may help inform higher education administrators, student affairs practitioners, and faculty on practices that may help promote undergraduate research

engagement for first generation in college Chican@/Latin@ students. In this section I describe implications targeted to institutions of higher education and how administrators, faculty, program staff, and even graduate students can help nurture undergraduate research engagement. These implications include (1) allocating resources for pre-college programs; (2) continuing connections with first-generation students; (3) developing greater transparency for access to research; (4) supporting undergraduate research infrastructures within departments; (5) nurturing spaces within and beyond university campus; and (6) diversifying and acknowledging “outreach” efforts.

### **Allocation of Resources for Pre-College Research Programs**

It was clear that for Karla and Daniel research became a strong part of their identity early on and it helped them stay connected to their learning. In particular, for Karla it was the one academic domain where she felt successful and “smart.” The research programs had reached out to both of them during their senior year in high school to invite them to apply to participate in research the summer prior to their first year in college. Alicia, who came in a couple of years after Karla and Daniel, had participated in a similar program, except that the program that Alicia participated in had downsized considerably in its programming as the result of budget cuts. Instead of providing a full month of coursework with a research component, the program now only provided an orientation that lasted a few days. As a result, Alicia did not experience the same opportunity to identify with research early on that Karla and Daniel experienced. These cases bring to light how the opportunities to engage early on, perhaps even before college, help create a space where students’ intellectual confidence is strengthened, in turn making them more resilient to academic challenges in the future and finding meaningful connections to learning.

## **Continued Connections With First-Generation Programs**

Karla, Daniel, Leslie, Luis, and Alicia had all participated to different extents in programs that provide various advising and support services for first generation in college students. The programs that made it part of their mission to help students get involved in as many experiential learning opportunities as possible, also made research a priority in their communication to students as an opportunity that they should participate in and emphasized its importance in opening up future opportunities such as graduate school. Additionally, consistent messaging via list serves helped to reinforce what students were hearing from their program advisors, faculty, and graduate students. However, it was the program staff's reinforcement of the value of research that students such as Luis commented on throughout their interviews as having been valuable to their awareness and identification with research. The role that these programs play as catalysts for first generation Chican@/Latin@ students' engagement in research was demonstrated by the cases in this study. Thus research programs, departments, and any faculty possessing information regarding potential opportunities or their availability to mentor students in research should develop direct connections to programs that service first generation in college students and also those that target underrepresented student populations such as Chican@/Latin@ students. These programs often have staff with case loads in which they get to know the students, their interests, and interact with them on a more regular basis that follow up and continued encouragement for engagement in research is likely to occur in those spaces.

## **Towards a Transparency of Access**

Nicholas' case highlighted the importance that having transparent mechanisms in place within departments has in facilitating navigation towards opportunities. Once Nicholas knew

about research as an option to fulfill his graduation credits, the departmental website proved useful for him to learn about the research projects in that department and make a decision as to where he wanted to reach out to participate in research. Karla also made use of departmental websites to navigate towards an opportunity, but it was not until her fourth research project in college that she learned that in the natural sciences this was a viable approach towards acquiring a research position. All other research projects, she had learned about through her institutional social networks. However, this transparency of access can only exist if there is an infrastructure in place for undergraduate research within the departments.

For Leslie, Luis, Alicia, and Viviana, this sense of transparency towards accessing research was not as evident via their departments. They came to learn about research opportunities through other venues and people as previously described. This brings to question if there are possibilities for more transparency for engaging in research through the humanities and social sciences. As is the case in many humanities and social science research for undergraduates, students must formulate their own research topics and seek faculty to mentor them. This process itself requires an understanding that without the foundational knowledge of research may be more difficult for students who are unfamiliar with the research domain and its processes.

### **Supporting Undergraduate Research Infrastructures within Departments**

Leslie's engagement in research began through a structured humanities and social science summer program. Having accomplished that summer research program provided Leslie with enough tools to embark on a new project shaped by Leslie's experiences and interests. While some courses in higher education may introduce and involve research techniques, the question remains, are there enough supports and mentoring capacity to promote access for students

interested in research inquiry within departments where the research do not typically constitute of research teams? Developing partnerships, building infrastructures, and incorporating graduate students within those may help promote richer engagement in research for undergraduate students. This would require, however, that all those involved value the experience of mentoring undergraduate students as an important component of their work. This may also require that departments honor faculty's time invested in mentoring undergraduates through research as part of their own professional development and tenure process.

### **Nurturing Spaces Within and Beyond the University Campus**

Place was critical in how information came to find students. It was places that were conducive to relationship building that helped promote conversations in which information about opportunities were conveyed to students. When thinking about institutional effort, this brings a key question. How much effort do institutions place into developing spaces that will be conducive to relationship building so that students get to be who they are and talk about the things that interest them with institutional actors who possess knowledge about opportunities and help promote these with students? It is true that the students in some cases mentioned having received information via e-mail list serves, but it was the personal encouragement by faculty, staff, and/or graduate student that provided a catalyst for them to apply to certain programs or even know about particular research opportunities.

### **Diversifying and Acknowledging “Outreach” Efforts**

Traditional forms of outreach in which research programs participate in activities such as information fairs and visiting classrooms to provide awareness around research opportunities afford just that - awareness. But in order for students to actually seek an opportunity, they need to identify with it in a way that they believe they will enjoy and benefit from engaging in that

opportunity. Thus, an increased acknowledgement of the role that other institutional actors can play in this process is necessary. This may entail finding ways to disseminate information to faculty, staff, and graduate students who may be serving as advisors, mentors, or are part of students' social network spaces. This may also involve further acknowledging the role that faculty can play when they reach out within various university and off-campus communities. Often, when faculty take the time to nurture undergraduate students' research aspirational capital outside of courses it then is part of the forms of guidance and mentorship that are not traditionally acknowledged in academia. I propose that the time that faculty and staff spend outside their office can be just as fruitful and perhaps even more impactful in helping students make connections to undergraduate research.

### **Concluding Comments: Reflexivity**

By developing a framework of access and engagement to research for undergraduate students, my study explored the various contexts and relationships that helped shape students' engagement in research. My findings highlight a need for diversity in thought when thinking about institutional effort in outreach and engagement practices for undergraduate research. No group is the same and it is difficult to encapsulate all that I learned from each unique story that was the participants of this study trusted me with. Having worked as an advisor for students in undergraduate research, it was not until I explored this research topic that I was able to delve into the nuances within the process of access and engagement that students navigate in today's undergraduate experience.

The findings have helped my understanding of access and engagement to research in several ways. As an individual who spends part of my time within academia and still maintains

close connections to communities outside of academia, I hope that these new understandings of access and engagement help me be the mentor that a student needs. I have learned to value every minute that I spend on and off campus as opportunities to build relationships with others—to be more attuned to what students are saying about their interests, so that I am better equipped to help them connect those interests to potential academic endeavors. Inadvertently, I became part of some of the students' social networks when they participated in my study. I have since seen some of them in spaces outside university contexts and have been able to share opportunities with them and also learn from them.

I struggled with the notion at one point that perhaps I would skew my data by my very existence in the same spaces as my participants. Soyini Madison (2005) helped me make sense of my position as a researcher as I learned about the concept of ethical responsibility—“a compelling sense of duty and commitment based on moral principles of human freedom and well-being, and hence a compassion for the suffering of living beings (p. 5).” I found Soyini Madison's description of the critical ethnographer empowering me to continue my study regardless of how the new relationships now being formed with some of the participants in my study may unfold. Madison articulated concisely the sense that I, the researcher, “feel a moral obligation to make a contribution toward changing conditions toward greater freedom and equity” (p.5). As a result, months after my participants' interviews, I was asked to help someone disseminate information about a research project. One of the participants of my study did learn about the research opportunity through e-mail communications I had sent to various contacts and decided to seek it. This instance offers a case in point: that perhaps if I was not there to be the nexus, that opportunity may not have unfolded for that student.

Having worked as an advisor for students in undergraduate research, I learned from this study about the importance of thinking outside the box when conducting outreach efforts. It is about exploring *partnerships*—identifying faculty, staff, and graduate students who continually reach out to students beyond the classroom. Those are the people who will reach out to share not only information, but also encouragement to students because they make the time beyond their daily schedules and demands of academia.

Within academia, I hope that these findings will help inform how institutions of higher education can help shape their own institutional practices and policies in ways that promote pathways towards access and engagement in undergraduate research and other experiential learning opportunities. In particular, my hope is that others working with undergraduates as I do, can experience a similar shift in thinking and approach to our work, as I have.

In conclusion, to be entrusted with the stories of these seven students was an honor that I found to be the greatest challenge in this process. The question that I struggled with often was whether I was doing them justice in the way that I share their stories and learning from their experiences. Throughout this process, two key points remained present as I worked through this both were best articulated by Leslie, one of the participants in this study. The first, “research is personal.” All the participants made it real by being genuine with me and sharing their struggles, aspirations, accomplishments, and not being afraid to be vulnerable. This brings me to the second point. Leslie described the term “safe space” and redefined it as a “brave space,” which refers to “really putting themselves out there.” In this study, I was humbled by the fact that although I had hoped the interview space would be a safe space for participants, they often pushed it into the brave space zone. This paralleled with the notion that nurturing more “brave”

spaces within higher education institutions encourages agency and increased aspirations among students.

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## APPENDIX A: STUDENT INTERVIEW PROTOCOL 1

Prior to study: Please do not give any names when speaking of a person. Instead, provide their relation to you, for example advisor, professor, classmate, friend, parent, sibling, etc.

### Background

1. Tell me a little bit about yourself and your life growing up.
  - Where did you grow up? Who did you grow up with?
  - Did you go to school in the U.S.?
  - What do your parents do for a living?
  - When you were little, what did you think you would do when you grew up?
2. What was your family composition while growing up?
  - How many older/younger siblings, parent(s) you lived with?
  - Did your siblings, attend college? Please describe their highest level of formal education.
3. How would you describe the neighborhood you grew up in?
  - Race/ethnicity, culture
  - Urban, suburban, midsize, small, rural

### Pre-College Experiences

4. May you tell me about your high school?
5. Can you tell me about any programs, organizations, or community groups that you were a part of while in high school?
  - Clubs/organizations, sports, community/church groups, etc.
  - Did you work?

## **Culture/Language**

6. How would you describe yourself culturally?
7. What was your first language?
8. What languages do you speak with your friends/family?
9. What is the primary language you speak at home? While growing up, in your neighborhood?
10. Is knowing Spanish<language> important to you? Why?

## **Academic and Career Goals**

11. Can you tell me a bit about what you are studying?
  - What is your major and year?
12. How would you describe yourself academically?
13. Why did you choose to come to the UW?
  - When/why did you decide to go to college?
  - Did you attend any other higher education institutions before?
  - If you attended another institution, did you complete another degree?
14. What are your plans for after graduation?  
(career goals, going to graduate or professional school?)

## **Mentoring**

15. Can you tell me about any mentoring programs you participate in college?
16. What about high school or middle school?

- Who were your mentors? (teachers, administrators, family, college students, community members, etc.)
- What types of interactions did you have.

17. What did you get from this mentorship experience?

- How did it help, if at all?

### **Engagement in college**

18. Tell me a little about the places and people you spend time with while on campus. (When you are not in class)

19. Do you work? What do you do?

20. Tell me about community activities, if any, you are involved in off campus?

21. Describe (an) experience(s) or involvement opportunities that have helped you grow while in college.

22. How would you describe your college experience so far? What are some of the things you like?  
Some of the things you dislike?

23. Describe some of the challenges, if any, as an undergraduate student that you've encountered while in college?

- What made them challenging?

### **Services/Programs**

24. When you have questions where do you go to get information?

25. Students seek advising for several purposes, for example academic coursework, service learning, career, study abroad, volunteering, research opportunities, and so on. What are some of the reasons you seek advising?

- More examples: academic, departmental advising, career center, financial aid, scholarships, service learning, etc.

26. Describe some of those experiences in seeking services from campus programs.

- Say more/Can you tell me more?

27. Would you say you are satisfied with the services you've received?

- What has worked well & what hasn't?

28. Tell me about qualities of a service or program that make you feel comfortable in approaching it.

29. Are there any programs or offices on campus that you have thought of seeking services from but have not? Why or why not?

- Anything that may have seemed interesting to you but you didn't go. Why?
- Were there any services that you have accessed but no longer do. Why?

**Now I'm going to ask you about a specific type of service for undergraduate students.**

### **Undergraduate research**

30. When you think of undergraduate students conducting research, what comes to mind?

31. Have you or are you currently involved in research?

If yes:

Tell me about your research?

How did you get involved?

- For example: friend's recommendation or word of mouth, faculty, program advisor, information sessions, etc.

If not:

Have you considered seeking undergraduate research opportunities? Why or why not?

32. What opportunities do you see for undergraduates like you to get involved in research?

33. If you could do research on anything, what would it be and why?

34. What makes/would make undergraduate research appealing to you?

### **Conclusion**

35. In general, how have you found it being Latina/o student here on campus?

- Do you feel you are treated differently? Within friendship groups/networks/classes/work?

36. Is there anything else that we did not discuss that you would like to add about your experiences on campus and in accessing services on campus?

37. Is there anything the institution can do to increase Chicano/Latino/a participation in accessing services on campus?

## APPENDIX B: STUDENT INTERVIEW PROTOCOL 2

Please do not give any names when speaking of a person. Instead, provide their relation to you, for example advisor, professor, classmate, friend, parent, sibling, etc.

### Background

(Based on prior interview and questionnaire responses.)

38. How would you describe your family's influence on you pursuing higher education?

- Research? Other programs?

39. How would you describe your community's influence on pursuing higher education?

- Research? Other programs?

### Academic and Career Goals

40. How is your degree program going? Classes?

41. When we last met, you mentioned you are interested in \_\_\_\_\_. Is that still the major you are in?

- If not, what are you now studying?

### Engagement in college

42. You mentioned you spend spend time in particular places such as \_\_\_\_\_. Are those still the same places you spend time in outside of class?

- Have you discovered any new places?

43. Tell me more about your participation in:

- Based on questionnaire responses: Conferences, Service trip (s) (e.g. Alternative Spring Break), Academic Summer program or internship, Academic associations (e.g. Honors program, club in your major), A research project with professor/instructor, A research project with graduate student, A teaching project with a professor/instructor, Study Abroad, etc.
- How do you think it might have benefited you? Or not?

### **Undergraduate research**

Today I would like to learn a little more about your experience doing research.

44. Tell me more about your research experience

- When did you get involved
- Can you remember when you first decided to get involved in research?
- Have you been able to participate in conferences or other areas to share what you learn?
- Why did you decide to do it?
- Do you think that you have a different idea about what you want to do after being involved in research?

### **Conclusion**

45. Is there anything else you would like to add about your experience as a researcher and how others may or may not get involved?

## APPENDIX C: QUESTIONNAIRE

Thank you again for sharing your experiences with me. The following questions will help me learn more about you and your experiences leading up to college and during college, including the services and programs you have been a part of or have heard about. The questionnaire contains questions in the following categories:

- Pre-College Experiences
- College Life
- College Activities
- Student and Family Demographics

As with any question during this study, your participation is voluntary and you may choose to answer any or all of the questions. If you have any questions, please feel free to call or email jessica at 206.504.3288 or [dearjess@uw.edu](mailto:dearjess@uw.edu).

### Background and Family

1. Which of the following describes your life while growing up?

	No	Yes	Don't Know
My mother was a full-time homemaker before I went to kindergarten.			
My siblings and/or I were expected to share my earnings with my family when I started working.			
I was raised in a home with strict discipline.			
Gender equity (i.e. girls treated equal to boys) was important to my family.			
My family's values are more traditional than mine.			
I am familiar with where my parent(s) grew up.			
My family was supportive of my decision to go to college.			
My family was supportive of me going to college far from home (whether or not you did).			
I had family(parents, older siblings, grandparents, aunts, uncles, cousins) who had gone to college.			

Growing up our neighbors or family friends were employed in positions such as teachers, nurses, engineers, social workers, accountants, and other professions that require a bachelor's degree.			
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**Pre-College**

2. Indicate if you have been in the following courses or programs while in elementary, middle, or high school, or never. (check all that apply)

	Elementary	Middle School	High School	Never
Honors				
Advanced Placement (AP)				
International Baccalaureate (IB)				
Remedial English				
Remedial math				
Dual language education				
English as a Second Language (ESL)				
Dropout prevention, alternative or stay-in-school				
Special Education Program				
Special program to help students plan or prepare for college (i.e. AVID, Upward Bound, Gear Up, etc.)				
Research program for high school students (i.e. internships, programs, etc.)				
Received college credit while in high school				

3. To what extent do you agree or disagree with the following statements:

	Strongly Disagree	Disagree	Somewhat	Agree	Strongly Agree
Students who attended my school were “tracked” into college bound, general, or vocational courses.					
Most school personnel encouraged students to attend college.					
School personnel helped with college applications (beyond providing them).					
Most of my friends went to a 2-year college.					
Most of my friends went to a 4-year college.					
People outside of my school helped me with college applications.					
I felt physically and emotionally safe in high school.					
Overall, my high school experience was positive.					

4. How important were each of the following in selecting a college?

	Does not apply	Not Important	Somewhat important	Very important
Parent(s)/Family				
Teacher/H.S. personnel				
Pre-college program staff				
Friends				
College counselor				
Size of college				

Financial aid				
Major/area of study				
Closeness to home				
Reputation of college				
I was recruited				
I was accepted				
Other:				

### College Life

5. What year did you start at this university?
  
6. What is your expected quarter and year of graduation?
  
7. Did you live on campus your first year?
  - Yes
  - No
  
8. What is your current living situation?
  - Live on campus (residence hall)
  - Live near campus on my own
  - Live near campus with roommates
  - Live at home with family members
  
9. How far do you live from campus?
  - 0-2 Miles
  - 2.01-10 miles
  - 10.01-15 miles
  - 15 or greater miles

10. Please indicate to what extent you agree with the following statements.

	Does not describe me	Describes me a little	Describes me well	Describes me very well
My friends tend to get good grades.				
My friends and I study together.				
My friends encourage me when I have a tough time in school.				
My friends in college have become like my second family.				
I have the same major as some of my good friends.				
My good friends are students who live in the residence hall.				
Many of my friends from college are from the same hometown community.				
Students from my same ethnic or racial background are my good friends in college.				
My friends and I are involved in the same clubs or organizations.				

11. To what extent do you feel your college experience is helping you develop:

	Not at all/ None	Very little	Somewh at	Quite a bit	A Great Deal
Leadership skills?					
Critical thinking and problem solving skills?					
An ability to work with people from different backgrounds?					

Religious or moral values?					
Support for other forms of diversity (ability, orientation, gender, immigration)?					
Oral and written communication skills?					
Research skills?					
Individual identity (a sense of who you are)?					
Increased confidence in your academic ability?					
An awareness about the larger issues affecting society?					

### College Activities & Services

12. While in college, I have participated in (Please check all that apply):

- Conferences
- Service trip (s) (e.g. Alternative Spring Break)
- Academic Summer program or internship
- Academic associations (e.g. Honors program, club in your major)
- A research project with professor/instructor
- A research project with graduate student
- A teaching project with a professor/instructor
- Study Abroad
- Have not participated in any of the above activities.
- Other: \_\_\_\_\_

13. I plan to continue and/or start to participate in the following activities before I graduate from college (Please check all that apply):

- Conferences
- Service trip (s) (e.g. Alternative Spring Break)
- Academic Summer program or internship
- Academic associations (e.g. Honors program, club in your major)
- A research project with professor/instructor or graduate student
- A teaching project with a professor/instructor
- Study Abroad
- I do not plan to participate in any of the above activities
- Other: \_\_\_\_\_

14. Please indicate your level of participation in the following types of organizations:

	Participated	Leadership Role	Not participated
Professional?			
Political club or local politics?			
Religious activities (not including service)?			
Ethnic/cultural?			
Sports or athletic?			
Educational?			
Youth organizations (Big Brother/Little Sister, coaching)?			
National charities (e.g. Cancer Foundation, Make-a Wish Foundation)?			

15. Please indicate your level of familiarity with the following campus programs:<sup>4</sup>

Program	Have heard about it	I know someone who is/was part of it	I have participated in it	Have never heard about this program
█ ██████████				
█████ Center				
█████				

<sup>4</sup> Some items are redacted in the appendix version to protect identifiable information about programs.

[REDACTED]				
[REDACTED]				
[REDACTED] Medical Institute				
[REDACTED]				
[REDACTED] Research Scholarship				
[REDACTED]				
[REDACTED]				
Research Experience for Undergraduates (REU)				
[REDACTED]				
Service Learning				
[REDACTED]				
[REDACTED]				
[REDACTED]				
Other:				
Other:				

## Demographic Information

16. What year were you born?

17. Age:

18. Gender:

19. Marital Status (please circle one):

- Single
- Never married
- Divorced
- Spouse deceased
- Married

20. Do you have children?

How many children do you have?

- Yes  
If yes, how many? \_\_\_\_\_
- No

## Family

21. Mother's highest level of formal education:

- |  |   |
|--|---|
| <input type="checkbox"/> Grade School                      | <input type="checkbox"/> Associate or two-year degree         |
| <input type="checkbox"/> Some High School                  | <input type="checkbox"/> Bachelor's or four-year degree       |
| <input type="checkbox"/> High School Diploma or Equivalent | <input type="checkbox"/> Some Graduate or professional school |
| <input type="checkbox"/> Business or Trade School          | <input type="checkbox"/> Master's Degree                      |
| <input type="checkbox"/> Some College                      | <input type="checkbox"/> Graduate or Professional degree      |

22. Father's highest level of formal education:

- |  |   |
|--|---|
| <input type="checkbox"/> Grade School                      | <input type="checkbox"/> Associate or two-year degree         |
| <input type="checkbox"/> Some High School                  | <input type="checkbox"/> Bachelor's or four-year degree       |
| <input type="checkbox"/> High School Diploma or Equivalent | <input type="checkbox"/> Some Graduate or professional school |
| <input type="checkbox"/> Business or Trade School          | <input type="checkbox"/> Master's Degree                      |
| <input type="checkbox"/> Some College                      | <input type="checkbox"/> Graduate or Professional degree      |

25. What level of education do you hope to attain?

- Bachelor's or four-year degree
- Some Graduate or professional school
- Master's Degree
- Graduate or Professional degree

26. How is your education financed? (Check all that apply)

- Parent/Family support
- Spousal support
- Employment
- Grants
- Loans
- Scholarships
- Other: \_\_\_\_\_

27. Are you a U.S. citizen? (Optional)

- yes
- no

## APPENDIX D: CONTEXTUAL OBSERVATION GUIDE

Field notes will be taken during observation of places that students refer to in their interviews that may have been places they interact with peers, staff, or faculty to exchange information. The purpose of the observations will be to describe the contexts in which students spend their time and that play a role in how they navigate the institution.

I will focus on the following during each site observation:

- Physical setting/Context:*            What type of space is it? (e.g. event, common hangout, etc.)  
Where is it located in relation to campus?  
What type of furniture? (e.g. tables, lounge chairs, etc.)  
What kinds of interactions is the setting designed for?  
Type of resources available (people, brochures, flyers, etc.)
- Cultural/Diversity  
References:*                            Are there any references to culture(s), languages, etc.?
- Representations of  
undergraduate research and  
other engagement activities:*    Who are in these spaces? (e.g. students, staff, faculty, etc.)  
How many people are in the space, what is the room capacity?  
Interactions between students, staff, faculty, etc.  
What types of messages, if any, are given about engaging (flyers, bulletin boards, etc.)
- When people are present:*        Who is in those spaces? (e.g. undergraduate/graduate students, staff, faculty)  
Mandatory or voluntary?  
Types of interactions: Are people socializing, exchanging information, studying, etc.?  
Types of Information Behavior: Are people seeking or providing information? Is it organized events only?

## VITA

Jessica E. Salvador was born in Los Angeles, California and raised in the San Gabriel Valley. She grew up with a strong connection to mathematics, music, and the arts through her family. Jessica received a B.S. in civil engineering from the University of California, Berkeley and her M.Ed. from the University of La Verne. She taught mathematics at the secondary level where she also coordinated the college preparatory program Advancement Via Individual Determination (AVID). After teaching for six years, Jessica moved to Seattle to pursue a doctorate to understand how to better support students to succeed in higher education. During the graduate program, she has traveled to China for cross-cultural learning on education systems between China and the United States and was an Education Pioneer fellow where she worked with the Los Angeles Unified School District's policy advisors. Jessica earned her Doctor of Philosophy in Educational Leadership and Policy Studies with a focus in Higher Education in 2015.