

Validation Theory Into Practice: Asset-Based Academic Advising With First-Generation Latina

Engineering College Students

by

Tamara Coronella

A Dissertation Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

Approved April 2018 by the
Graduate Supervisory Committee:

Daniel Dinn-You Liou, Chair
Melanie Bertrand
Tirupalavanam Ganesh

ARIZONA STATE UNIVERSITY

May 2018

ABSTRACT

To meet the increasing demands for more STEM graduates, United States (U.S.) higher education institutions need to support the retention of minoritized populations, such as first-generation Latinas studying engineering. The theories influencing this study included critical race theory, the theory of validation, and community cultural wealth. Current advising practices, when viewed through a critical race theory lens, reinforce deficit viewpoints about students and reinforce color-blind ideologies. As such, current practices will fail to support first-generation Latina student persistence in engineering. A 10-week long study was conducted on validating advising practices. The advisors for the study were purposefully selected while the students were selected via a stratified sampling approach. Validating advising practices were designed to elicit student stories and explored the ways in which advisors validated or invalidated the students. Qualitative data were collected from interviews and reflections. Thematic analysis was conducted to study the influence of the validating advising practices. Results indicate each advisor acted as a different type of validating “agent” executing her practices described along a continuum of validating to invalidating practices. The students described their advisors’ practices along a continuum of prescriptive to developmental to transformational advising. While advisors began the study expressing deficit viewpoints of first-generation Latinas, the students shared multiple forms of navigational, social, aspirational, and informational capital. Those advisors who employed developmental and transformational practices recognized and drew upon those assets during their deployment of validating advising practices, thus leading to validation within the advising interactions.

DEDICATION

I dedicate this dissertation to two inspiring women who shaped my own cultural wealth and the path of my career in education.

The first, my nana, María Sainz Jorquez. She exhibited unwavering strength for her family and limitless passion for education. Thank you, nana, for doing everything necessary to ensure my mother and aunt completed their multiple college degrees.

The second, my mama, Teresa Jorquez Torres. She remains a pillar of strength, compassion, and love for our family. When she pursued additional education to advance her career and achieve her dreams, she showed me how a mom could focus on her family, career, and education. Thank you, mama, for always believing in me and modeling for me what I can achieve.

ACKNOWLEDGMENTS

I am immensely grateful to so many who supported this rewarding, challenging, and transformational journey that I began four years ago. First, to my family, thank you to my parents for instilling in me the work ethic to achieve my goals and the passion to support and advance education. As educators, you shaped the direction of my career and supported me in the pursuit of my dreams. I also want to thank my brother and sister for the support you offered in helping to care for the boys while I needed to study. I hope I showed all our children that we should never stop learning, growing, or helping. Special thanks to my LSC, Nick, Tara, Beth, Richard, and Raquel. We acted as witness to one another's journey: we cheered each other on, leaned on each other, and learned from another. Thank you for all you taught me! Raquel, your intelligence and humor sustained me through this journey. I'm so thankful that through this I earned such an amazing friend (now, tell me one fun thing you are going to do...ha!).

I must also acknowledge the guidance and leadership provided to me by my committee. Dr. Liou, thank you for teaching me how to describe the injustice I see, advocate for change, and remain true to the stories of our students. I resisted, struggled, and ultimately grew as you continued to challenge me to read and think deeply on these issues so I would understand and act on the responsibility I have as a researcher. Dr. Bertrand, thank you for believing in my study. I was humbled by your involvement and thankful for your guidance and mentorship in this process. You put me at ease during many challenging points simply by asking the right question or reassuring me of my direction. Dr. Ganesh, thank you for supporting me with the completion of this research

study and the dissertation. You provided invaluable insight into our practice, context, and students while you helped develop my skills as a researcher and writer.

Thank you to Jeremy Helm for supporting my achievement of this goal and allowing me to grow in my position as a result of what I learned and discovered.

I would also like to thank my great, supportive circle of friends. You always asked how school was going, offered to help, and cheered me on to completion. Looking forward to lots of time with you!

My boys, we sacrificed a lot of Lego-building, board game-playing, and movie-watching time for this degree. I know you saw me reading during your baseball games, but you never said anything to me, instead, you helped me celebrate the milestones along the way. Gavin, the day you told me how proud you were of me for all my hard work will stay in my heart forever. Aiden, thank you for always putting my “world’s greatest mom” statue in front of my computer so that I was reminded I was still doing a good job as a mama. My sincere hope is that you see how important it is to always be learning and growing.

Chris, in a paper full of words, one word fully captures the depth of my emotion for all you have done to support me with this degree: gratitude. Thank you for supporting me on this journey in countless ways...you listened to me, hugged me, defended me, and encouraged me throughout this (you also went to lots and lots of birthday parties, sporting events, and family activities so that I could study!). Most importantly, I am grateful to you for showing our sons that marriage means continuing to support one another in the accomplishment of our goals (something I am confident we will continue to do).

TABLE OF CONTENTS

	Page
LIST OF APPENDICES	xi
LIST OF TABLES.....	xii
LIST OF FIGURES	xiii
CHAPTER	Page
1 LEADERSHIP CONTEXT AND PURPOSE OF THE STUDY	1
Latinas in STEM.....	2
First-Generation Students in STEM.....	3
Student Departure and Persistence.....	4
Student Departure from STEM.....	7
Academic Advising	8
Leadership Context and Researcher Positionality	9
Pressing Problem of Practice and Research Questions	14
2 THEORETICAL PERSPECTIVE OF THE LITERATURE.....	15
Higher Education in the U.S.	15
Racial Climate within Higher Education	18
The Campus Racial Climate	21
Microaggressions	22
Stereotypes	23
Critical Race Theory.....	25
Centrality of Race and Racism	25
The Challenge to Dominant Ideology	27

CHAPTER	Page
Commitment to Social Justice and Practice	27
Value Experiential Knowledge	28
Historical Context and Interdisciplinary Perspective	29
Latino Critical Race Theory (LatCrit)	30
Academic Advising	31
Intrusive Advising Research Studies	34
The Theory of Validation	36
Validating Advising Practices.....	40
Community Cultural Wealth.....	42
Conclusion	44
3 RESEARCH DESIGN	45
Epistemology and Methodology	45
Research Design	48
Qualitative Methods	48
Setting	49
Sampling.....	50
Student Participants.....	52
Angie.....	52
Carson.....	52
Mona.....	52
Camila.....	52
Emma.....	52

CHAPTER	Page
Jenna.	52
Jessica	53
Cindy.....	53
Emily.....	53
Marissa.....	53
Advisor Participants	53
Audrey	53
Jennifer.....	54
Elena.	54
Role of Researcher	54
Action Plan	55
Validating Advising Practices.....	55
Timeline.....	57
Data Collection Resources	58
Interviews	59
Semi-Structured Interviews.	59
Narrative Interviews.	60
Focus Group Interviews.....	61
Open-Ended Questions	62
Researcher Reflection Journal	63
Asset Map Template	64

CHAPTER	Page
Researcher Led Training	65
Data Analysis.....	67
Research Question #1	69
Research Question #2.....	69
Research Question #3.....	70
Additional Analysis.....	70
Preliminary Data Analysis.....	71
Collaborative Data Analysis.....	71
Final Data Analysis.....	72
Summary of Data Analysis.....	72
Validation and Trustworthiness	72
4 ANALYSIS	74
Research Question #1 Findings.....	74
Advisor Perceptions	74
Their Rationale for Participating in the Study.....	76
The Advisors’ Implementation.....	78
Audrey’s Advising Practices.....	80
Build Trust and Understanding.....	80
Embraced Ways of Knowing and Created New Understanding...	83
Acted in Solidarity.....	87

CHAPTER	Page
Summary of Audrey’s Approach to Validating Advising Practices	88
Jennifer’s Approach to Validating Advising Practices.....	89
Built Trust and Understanding.....	89
Embraced Ways of Knowing.....	92
Acted with Solidarity	95
Summary of Jennifer’s Approach to Validating Advising Practices	95
Elena’s Approach to Validating Advising Practices.....	96
Built Trust and Understanding while Embracing Ways of Knowing.....	96
Acted with Solidarity	101
Summary of Elena’s Approach to Validating Advising Practices	104
Summary of Research Question #1.....	105
Research Question #2 Findings.....	106
Student Preparedness	107
Goals	112
Networks.....	119
Summary of Research Question #2	123
Research Question #3 Findings.....	124
Students Working With Audrey	125

CHAPTER	Page
Students Working With Jennifer.....	128
Students Working With Elena	133
Summary of Research Question #3 Findings.....	137
5 CONCLUSION	139
Summary of Findings	139
Forms of Capital	142
The Role of the Validating Agent.....	145
Implications for Research.....	146
Advising Pedagogy	146
Further Refining the “Agent”.....	148
Implications for Practice	149
Enhanced Advisor Training.....	149
Developing Sympathetic Touch Amongst Advisors.	150
Developing an Awareness of the Role of Climate.....	151
Next Steps	151
Limitations to the Study	152
Lessons Learned	154
Concluding Thoughts	155
REFERENCES	157

APPENDIX

Appendix	Page
A IRB APPROVAL	170
B VALIDATING ADVISING INTERVENTION	173
C INTERVIEW PROTOCOLS	180
D ASSET MAPPING EXERCISE	185
E TRAINING WORKSHOP PROTOCOL	187

LIST OF TABLES

Table		Page
1	Percentage of First-Time Freshman Persisting Into Second Year in COE.....	12
2	Enrollment Data Fall 2016.....	49
3	Action Research Timeline.....	58
4	Data Collection Overview.....	66
5	Analytic Framework	80

LIST OF FIGURES

Figure		Page
1	Validating Advising Practices.....	57
2	Excerpt From the Asset Map Template	64
3	Visual Model of Three-Phase Data Analysis Process.....	70

CHAPTER 1

LEADERSHIP CONTEXT AND PURPOSE OF THE STUDY

In the report *Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future*, the National Academy of Sciences, National Academy of Engineering, and Institute of Medicine of the National Academies identified the key roles innovation and competitiveness play in ensuring the prosperity of the United States (U. S.) economy within the world (Committee on Prospering in the Global Economy of the 21st Century, 2007). Innovation results most often from exceptional science and engineering advancements through the development of new, emerging research or knowledge, application of new knowledge, and creation of in-demand products and services. Competitiveness refers to the increased production of jobs, the majority of which will occur in the fields of science, technology, engineering, and math (STEM) fields.

Both innovation and competitiveness depend upon the knowledge capital of highly qualified and diverse college graduates to work in STEM fields. However, the U.S. education system is failing to produce sufficient college graduates to fulfill the emerging, rapidly growing job demands within STEM fields (Committee on Prospering in the Global Economy of the 21st Century, 2007; Musu-Gillette et al., 2016; Ong, Wright, Espinosa, & Orfield, 2011; Chen & Soldner, 2013). To address this gap of sufficient college graduates, STEM industries need to rely on historically untapped, minoritized gender and ethnic populations. [In this study, race is explored as a social construction whereby society has attributed meaning to those identified within the race and *minoritized* those of certain races. Individuals are not born into minority status,

“instead, they are rendered minorities in particular situations and institutional environments that sustain an overrepresentation of whiteness” (Patton, Harper, & Harris, 2015, p. 212).] In this next section, I briefly outline the experiences of minoritized students within STEM in higher education.

Latinas in STEM

While minoritized populations are a rapidly growing population segment within the U.S., minoritized individuals remain underrepresented in STEM fields (Musu-Gillette et al., 2016; Ong et al., 2011). In 2006, minoritized people comprised 28.5% of the population, but only 9.1% of STEM college graduates (Aud, Fox, & Kewal Ramani, 2010). Latinx are individuals of Latin American descent (Mexico, Central and South America, and the Caribbean) residing in the U.S. (Torres, Reiser, LePeau, Davis, & Ruder, 2006). Within this paper, Latinx is a word to describe the combination of males and females, while Latino is being used to describe only males. Latina is the form of the word used to describe only females. With a population of 54 million, Latinx comprise the largest racial and ethnic minoritized group in this country (U.S. Census, 2016).

While all Latinx students are minoritized in STEM, Latinas experience underrepresentation in greater proportions than Latinos. In 2009, more females than males either changed to a non-STEM major (32% versus 26%) or departed college altogether (24% versus 14%; Chen & Soldner, 2013). Women comprise only 24% of those employed in STEM jobs, even though they comprise almost 48% of all jobs in the overall economy (Beede et al., 2011). Additionally, within STEM, women hold a disproportionately low portion of jobs in engineering (Beede et al., 2011). Thus, for more

females to fill jobs in STEM fields, more females need to persist in STEM majors in college.

By 2060, Latinas will comprise one-third of America's female population (Gándara, 2015). Latinas in STEM persist at even lower rates than females overall in STEM. To explore this further, consider overall Latinx student persistence in STEM. In 2007, seven percent of incoming Latinx freshman indicated an interest in a STEM major but by 2013, six years later, only four percent graduated with a STEM degree (National Science Board, 2016). Next, consider how reports indicate that Latina women only comprise about two percent of those employed in STEM (NSF/NCSES, 2015), but they comprise over 16% of the U.S. female population (United States Census Bureau, 2016). Therefore, the path to degree completion in STEM for Latinas appears to be even more challenging than for Latinos.

First-Generation Students in STEM

It is increasingly more likely college students are also first-generation students (Engle & Tinto, 2008). First-generation students are identified as those whose parents either did not complete or did not attend college (Reyes & Curry Rodriguez, 2012). In 2008, 24% of the college population were first-generation college students with a disproportionate number of those students identified as racial or ethnic minorities (Engle & Tinto, 2008). First-generation college students tend to attend college close to home, live at home, work while attending school, have parents whose first language is not English (Engle & Tinto, 2008; Stebleton, Soria, & Huesman, 2014), and are more likely to have lower persistence rates than their continuing generation peers (Engle & Tinto, 2008). Gloria and Castellano (2012) identified specifically how first-generation Latinas

experience a, “lack of finances, limited familial support, few mentors, cultural stereotypes, inhospitable campus climates, low experiences, and a sense of being a misfit” (p. 83). Romasanta (2016) explored the experiences of first-generation Latinas and found they face many of these challenges. Additionally, the researcher identified the ways in which senior level first-generation Latinas leveraged their strengths to succeed in the challenging climate of engineering.

Student Departure and Persistence

Student persistence in higher education reflects a student’s desire and action to remain enrolled through to degree completion (Berger, Blanco Ramirez, & Lyons, 2012). Conversely, institutions often discuss retention rates, which reflect the institution’s ability to retain a student. Persistence results from a student’s behavior; retention results from institutional effort and action (Oseguera, Locks, & Vega, 2009). While often used interchangeably in research studies, throughout this study student persistence remains central to discussion as the term reflects a student’s decisions and desire to remain enrolled.

Tinto’s (1993) theory of individual student departure is the most frequently cited model to describe student success and it acts as a framework for most intervention programs and services within higher education (Braxton, 2002). The theory includes three stages, *separation, transition, and incorporation*. As students move within the phases, they physically and emotionally separate from their family and past, begin to adopt the new practices and culture of college, and fully integrate into the new environment of college (Tinto, 1993). The theory describes the student’s decision to fully integrate into the campus community.

There are two key aspects to integration in Tinto's work: the first, *academic integration* reflects students' perceptions based upon their interactions with faculty, staff, and students in academic settings; the second, *social integration*, reflects students' perceptions of their interactions with faculty, staff, and fellow students in a social, extracurricular setting (Barnett, 2011; Wolf-Wendel, Ward, & Kinzie, 2009). Student perceptions of integration result then from involvement in key academic and social interactions. Student involvement is measured by participation in activities such as living on campus, working on campus, involvement in extracurricular clubs, participation in study groups, or attending faculty office hours (Wolf-Wendel et al., 2009).

Researchers expressed concern over the assumptions upon which Tinto (1993) based this theory. The theory outlines how students must assimilate or acculturate (integrate) into the community of college. As a result the students then forego the application of culturally relevant strengths (Rendón, Jalomo, & Nora, 2000) within college. Additionally, critiques of the theory highlight how it fails to account for the diverse experiences of minoritized students (Hurtado & Carter, 1997; Rendón et al., 2000; Yosso & Solórzano, 2006). Therefore, minoritized students may be viewed as lacking the interest, commitment, or ability to become involved in ways that traditional students may become involved.

Tinto responded to these critiques. He acknowledged the varying communities and diverse backgrounds of students and that students should be encouraged to find community membership to help them feel connected to and engaged with the campus (Wolf-Wendel et al., 2009). Tinto described how feelings of belonging might be a more appropriate word versus integration when he said, "students need to feel connected in

ways that do not marginalize...they need to feel welcomed” (Wolf-Wendel et al., 2009, p. 425). Tinto’s (2017) later work added to the discussion of student persistence by considering the students’ beliefs about their ability to succeed (sense of self-efficacy), affiliations with and connections to the community (sense of belonging), and perceptions of curriculum. Tinto (2017) discussed how student perceptions contribute to understanding of persistence, especially amongst “students of different attributes and backgrounds” (p. 264).

From Tinto’s early work, though, the perception has been a successful student lets go of their past and becomes incorporated into the current reality. As first-generation Latinas are often described as having deficits (Yosso, 2005), the institutional view point may then be that the institution needs to support the student in letting go of the past so as to engage in the fully supportive, comprehensive college experience. However, Carbajal (2015) describes how “current educational policies and practices continue to view Latino/a students and families as intellectually and culturally inferior” (p. 6). This statement further supports the notion that the student negates his or her perceived deficits and inferiorities through complete immersion into the college community (Solórzano & Yosso, 2002).

In practice, though, researchers have found Latinas nurture their own forms of capital which comprise a student’s *community cultural wealth* (CCW; Yosso, 2005). These forms of capital include *aspirational, navigational, social, linguistic, familial, and resistant capital* (Yosso, 2005) which support a student’s efforts to succeed by overcoming oppression and marginalization (Carbajal, 2015). Minoritized students within the predominantly White, male climate of engineering socialize differently, experience

negative stereotypes and feelings of isolation, and fail to find adequate support programs (Peralta, Caspary & Booth, 2013; Samuelson & Litzler, 2016; Yosso, Ceja, & Solórzano, 2009; Samuelson & Litzler, 2016).

Student Departure from STEM

To further explore the departure of first-generation Latinas from STEM, researchers continue to study a variety of factors. Those factors emerging as most influential include: gender stereotypes, bias, self-efficacy, low performance expectations from faculty (Else-Quest, Mineo, & Higgins, 2013; Johnson, 2012), selectivity rates and institution type (Eagan, Hurtado, & Chang, 2010), feelings of isolation, lack of role models (Samuelson & Litzler, 2016), an unsupportive culture and climate (Johnson, 2012; Musu-Gillette et al., 2016), and insufficient preparation in high school (Chang, Sharkness, Hurtado, & Newman, 2014). While Martin, Simmons, and Yu (2013) suggest the decline may be attributable to incompatibility of STEM field with career interest, Ong et al. (2011) suggest Latinas are just as likely as their peers to pursue a career in STEM.

Findings support components of retention programs aimed at supporting first-generation Latina persistence in STEM, including programs and interactions designed to build a supportive culture, reject negative stereotypes, mitigate bias, develop communities of supportive peers, staff, and faculty (Ong et al., 2011), and validate students as capable learners (Rendón, 2016). Validation is “an enabling, confirming and supportive processes initiated by in- and out-of-class agents that foster academic and interpersonal development” (Rendón, 1994, p. 44). These agents can include faculty, classmates, lab instructors, teaching assistants, significant others, family members, friends, and college staff such as an academic advisor. Validation occurs when agents

actively assist students to, “trust their innate capacity to learn and to acquire confidence in being a college student” (p. 40). As such, advisors are encouraged to validate students’ experiences. They can do so by fostering their students’ academic and personal development by acknowledging their self-worth and validating their past experiences to reinforce their capacities to achieve success in their STEM major (Rendón, 1994; Tinto, 2012; Wolf-Wendal et al., 2009).

Students who experienced validation reported a more positive, supportive climate, a higher sense of belonging, and were more likely to persist at the university (Barnett, 2006; Hausmann, Schofield, & Woods, 2007). Hurtado, Ruiz Alvarado, and Guillermo-Wann (2012) sought to identify mediating interventions designed to validate students as capable learners and to enhance a sense of belonging within the negative climate of STEM. Specifically, academic advising is one such mediating intervention (Rendón, 1994; Solórzano, Villalpando, & Oseguera, 2005; Tinto, 2012; Yosso et al., 2009). The correlational relationship between advising and persistence may be direct or indirect, but research studies consistently concluded advising delivered early in a student’s academic career emerged as a critical variable in student persistence (Pascarella & Terenzini, 2005).

Academic Advising

Academic advisors, typically professional staff, serve to guide students through selection of a major, choosing courses, understanding university policies and procedures, and utilizing university resources and support programs while encouraging, motivating, and supporting the student’s development (Crookston, 1994; O’Banion, 1994). These behaviors focus on the relationship building between the student and advisor to support

student achievement of their academic, social, and career goals (Krumrei-Mancuso, Newton, Kim, & Wilcox, 2013). The Council for the Advancement of Standards in Higher Education (CAS) states, “academic advising encourages students to cultivate meaning in their lives, make significant decisions about their futures, and access institutional resources” (CAS, 2013, p. 3). Furthermore, CAS describes how the mission of an advising program should be “to assist students as they define, plan, and achieve their educational goals” (CAS, 2013, p. 5).

Through a practice based on developmental academic advising, academic advisors build a holistic understanding of the student’s past and current experiences. When working with first-generation Latina students, *validating advising practices* emerge as more relevant for their support towards persistence. Validating advising practices focus on proactively developing a holistic understanding of a student (similar to developmental advising), but go further. Indeed, validating advising practices include an advisor’s active role in affirming the students’ experiences and past as forms of knowledge, assets, and strengths (Rendón Linares & Muñoz, 2011) to empower the student to be successful.

Leadership Context and Researcher Positionality

I work as an advising administrator at Southwestern University (SU) in the College of Engineering (COE). SU seeks to provide access to the university for those who qualify for admission and measures its success by improving first-time full-time freshman retention to 90%. At SU retention rates, a key indicator of institutional success, measure undergraduate students who persist in their studies from their first fall term into their second fall term (Glossary, n.d.). Persistence, alternatively, reflects a student’s desire and action to remain enrolled through to degree completion (Berger et al., 2012).

Within COE, my responsibilities include the training, development, and assessment of advising practices. Professional staff provide academic advising support to the students. Their role includes guiding the students through the curriculum, supporting course and major selection, and referring students to resources and programs. These functions are typically delivered through approaches stemming from developmental advising. Within SU, academic advisors are expected to play a critical role in student success. The provost of SU, in a presentation to the advising community, stated “the institution depends critically on you, students depend critically on you, and our collective success is rooted in no small part on the achievement that you lead in your units” (Provost, 2016). Furthermore, he stated, “We are driving to 90 percent. The goal is to help students succeed and you are critical in the mission to drive that success. Advisors are absolutely critical to help students succeed.”

During the presentation, the vice provost identified how advisors successfully supported a great majority of students with broad overall approaches, but encouraged new personalized interventions for students who are off track or struggling academically. A student can be off track for graduation due to a variety of reasons such as dropping a required course, not enrolling in courses required in the current semester, or receiving an early alert warning from a faculty member regarding academic performance. Once identified, the students receive general email messaging either from SU’s provost or general messages from the Dean’s office of COE. Advisors are encouraged to either call or email the students as well. Throughout the various levels of outreach, though, the content remains similar: students are directed to participate in and use university and/or college resources to be more successful. The provost explained how new interventions,

tools, and approaches from advisors are needed to support student success. It is important to note that SU is a public institution in a state which passed a constitutional amendment banning affirmative action programs giving preference to groups on the basis of race, sex, color, ethnicity, or national origin. Consequently, any intervention designed to enhance student persistence must prioritize first-generation students so as to stay in compliance with the state's constitutional amendment.

In 2015, 83% (9,613) of freshman persisted into their sophomore year. Within the COE in 2015, 88% (2,131) persisted into their sophomore year. While students in the COE persist at higher rates than those in the overall population, retention has remained relatively unchanged since 2011. Overall, these retention rates remain quite high. However, when these data are broken down further into first-generation, gender, and racial and ethnic minority rates, the data reflect the departure of these populations.

Overall, first-generation COE students are retained at the university at lower rates than their other peers who are not first-generation. In Table 1, the percentage of students retained by admittance term are listed. The total is further divided by female and then again by underrepresented minority. In this table, underrepresented minority reflects those students who indicated an ethnicity of Hispanic, Black, Asian, Pacific Islander, or Native American.

Table 1

Percentage of First-Time Freshman Persisting Into Second Year in COE

Admit Year (Fall)	N	All Students		Female		Underrepresented Minority	
		First-gen	Continuing-gen	First-gen	Continuing-gen	First-gen	Continuing-gen
2010	1,290	68%	75%	59%	79%	66%	74%
2011	1,495	63%	74%	63%	77%	57%	66%
2012	1,763	72%	79%	72%	81%	68%	74%
2013	2,037	70%	77%	66%	79%	69%	70%

Source: Institutional analysis, 2017

Note: “First-gen” represents the percentage of students who indicated on the FAFSA application he or she is the first in family to attend college.

In fall 2010 of those enrolled into the COE, 75% of continuing generation students were retained at the university into their second year, as compared with 68% of first-generation students who were retained. Continuing generation students are those whose parents completed a college degree. Further, first-generation females were retained at 59% compared with 79% of non-first-generation female students. Finally, 66% of first-generation underrepresented minorities were retained into the second year, while 74% of their non-first-generation peers were retained. Table 1 reflects the lower persistence rates of first-generation students in total, first-generation female students, and underrepresented minority first-generation students when compared with continuing-generation peers.

Additionally, upon further exploration of the retention rates, Latinas struggle to persist in engineering. For those enrolled in the COE in the fall 2015, 85% (421) of Latinas returned to the COE in their sophomore year. However, only 67% (78) of Latinas enrolled in fall 2015 persisted in the COE. Indeed, Latinas who began in COE persisted

at lower rates, but specifically, 33% of Latinas who begin in fall 2015 with COE remained in the COE in their second year.

SU's admissions application includes fields for students to indicate gender, ethnicity, and first-generation status. Based upon the student's self-reported data, first-generation Latinas are disproportionately represented amongst fall 2016 admitted freshman who have changed their major during the 2016-2017 academic year (SU Institutional Analysis, 2017). Latinas comprise 27% (n = 168) of the overall Latinx population (n = 626). Of the first-generation students who have changed majors out of the COE (n = 56), 50% of them (n = 28) are Hispanic. Within that group, 50% (n = 14) are female. Thus, first-generation Hispanic females do depart the COE at disproportionate rates.

As an advising administrator, I occupy the role of an insider-outsider. I am an insider with the academic advisors because I work collaboratively with them to develop the specific intrusive advising practices, goals, and messages. While some of the intrusive advising efforts are implemented by my office, others are implemented by the advisors. Therefore, I play a direct and indirect role in our specific outreach efforts. However, as an administrator, I occupy the role of an outsider because I rarely meet with students. The advisors have first-hand knowledge of how the advising practices influence students. Additionally, from the student perspective, I am an outsider. I occupy a position of authority within the university; I have authority to make decisions regarding academic records and curriculum requirements and develop procedures for implementing university policies. As such, I occupy a role of the educational hierarchy. The complexity of my positionality as both an insider-outsider allow me to directly influence the ways in which

the department interacts with students and to develop new strategies to better support student success.

Pressing Problem of Practice and Research Questions

Academic advisors occupy a unique position in which they may use validating practices to affirm, support, and empower first-generation Latina students. Drawing upon the theory of validation, I developed a study to consider how students and advisors experience validating advising practices. The following research questions guide this study:

1. How do academic advisors influence the construction of validating advising practices with first-generation Latina engineering students?
2. How do first-generation Latina students in engineering describe their strengths and assets within constructed validating advising practices with their academic advisor?
3. How do first-generation Latina students in engineering describe the influence of validating advising practices with their academic advisor?

CHAPTER 2

THEORETICAL PERSPECTIVE OF THE LITERATURE

For us [women and people of color], it is important that from the beginning of our college career, our professors express their sincere belief that we are capable of learning and can be taught to learn. Often we enter higher education consumed with self-doubt. We doubt our intellectual capacity; we question whether we really belong in the academy; we doubt whether our research interests are really valid. This doubt is reinforced by the subtle yet powerful messages that higher institutions communicate. For example, we hear loud and clear that only white men can do science and math, that only the best and the brightest deserve to be educated, that white students are inherently smarter than nonwhites, and that allowing people of color to enter a college diminishes its academic quality. (Rendón, 1992, p. 61)

In this quote, Rendón articulates the experiences of Latinas within the education system and the commonly deployed practices and messages which fail to adequately support first-generation Latina student persistence in engineering. Chapter 2 begins with a discussion of the evolution of higher education in the U.S. Next, the role of race and racism in education in the U.S. is explored. Once viewed through the lens of critical race theory, commonly held practices based upon assumptions of race neutrality begin to enable researchers to question those practices. Finally, this chapter frames how through the use of critical race theory frameworks such as the theory of validation and community cultural wealth, academic advisors can develop and implement validating advising practices.

Higher Education in the U.S.

Higher education institutions and student support approaches have steadily evolved since the 16th century, when the first institutions of higher education emerged in the U.S. Initially, faculty acted in “loco parentis,” responsible for educating typically wealthy, male students, morally and intellectually (Cook, 2009). Instructors taught a

common curriculum in which faculty and students co-existed (Kuhn, 2008). In the late 1800s, elective courses were delivered at Harvard and faculty advisors emerged to guide students through the selection of electives (Cook, 2009). Around the 1920s, institutions began delivering orientation programs designed to acclimate students to college and student support services began emerging within higher education.

Higher education experienced a dramatic shift in the two decades after World War II, as the federal government increased access to attend higher education through the passage of the Morrill Acts, the GI Bill, the Civil Rights Act, and the availability of financial aid. Increasingly more historically underrepresented students began attending college as a result of these federal acts. Indeed, to manage the growing volume and needs of a diverse student population and to increase student persistence, some institutions began hiring academic advisors, professional staff who assisted students with academic planning and course selection.

Early on, advising was a relatively unstudied and unexamined practice (Cook, 2009). The practices of student support in place at the time were insufficient to explain student behavior, needs, and persistence as students departed college at growing rates (Cook, 2009). Accordingly, in the 1970s, advisors began seeking frameworks to understand and explain student development and student persistence in college. They discovered a body of research known as student development theory, which explains how students grow and “develop holistically with increased complexity, while enrolled in a postsecondary college environment” (Patton, Renn, Guido, & Quaye, 2016, p. 7). Foundational college student development theories reflected generalizable frameworks, applicable for larger groups (Hernández, 2017) which focused on the content, process,

and environment of development within college (Jones & Abes, 2010). Overall, the philosophy of student development theory guides programs and services delivered to students to support their growth, including many practices within academic advising (Crookston, 1972).

In the early 1970s, critical frameworks and theories for student retention and departure emerged (Oseguera et al., 2009). Since then, multitudes of research studies have explored student development and persistence from a variety of lenses, including identity, cognitive, and moral development (Pascarella & Terenzini, 2005). Overall, the philosophy of student development theory guides programs and services delivered to students to support their growth.

Unfortunately, researchers focused only minimally on the role of gender, race, or ethnicity within student development theories (Patton et al., 2016). Patton, McEwan, Rendón, and Howard-Hamilton (2007) presented three expectations for consumers of research to employ when considering how race and ethnicity are considered in a research study. These expectations include determining whether the study is empirical, what is known about the subjects of the study, and what is known about the theorist.

In addition to Tinto's work on student departure, the work of two other researchers studying student development can be challenged with these expectations. Chickering and Reisser introduced seven "vectors" or paths of student development (Hagen & Jordan, 2008). A student moves through the vectors as he or she faces more and more complex situations. The model failed to consider a student's race or ethnicity as an influencing factor in identity development (Patton et al., 2016). Additionally, Baxter Magolda introduced a student development framework which considered self-authorship

in which students explore their own identity, how they create knowledge and understanding, and how to interact and develop relationships with others (Patton et al., 2016). Of the 101 students who participated in Baxter Magolda's study, only three participants were members of a racial or ethnic minority, and those students did not complete the full study.

Hernández (2017) warns how failing to account for the development of those minoritized within theoretical frameworks limits a researcher's ability to holistically understand a student's complex experience in college. Instead, by incorporating the experiences and identities of individuals, interventions and support programs become more inclusive. By centering diverse individuals within research studies, Patton et al. (2007) found "discourses, programs, interventions, and theories may create campuses in which everyone feels validated for their differences" (p. 48).

As the demographics of college students changed from the traditional White male to a more diverse population, researchers began identifying how widely held theories of student development, student persistence, and student departure failed to adequately portray the experiences of minoritized populations (Rendón et al., 2002; Yosso et al., 2009). Accordingly, new ways to consider student growth and experiences emerged through an exploration of theories related to race and racism within educational structures (Patton et al., 2007).

Racial Climate within Higher Education

To explore the racial climate of higher education, a discussion on the role of race and racism in the United States is warranted. The U.S. Census Bureau (2013) describes race as "a social definition of race recognized in this country and not an attempt to define

race biologically, anthropologically, or genetically.” Since the beginning of U.S. history, race has been used to categorize or group people. People have been grouped because,

as social beings, we must categorize people so as to be able to “navigate” the world – to discern quickly who is friend or foe, to position and situation ourselves within prevailing social hierarchies, and to provide clues that guide our social interactions with the individuals and groups we encounter. (Omi & Winant, 2015, p. 105)

Delgado and Stefancic (2012) describe race as a social construction: “[R]ace and races are products of social thought and relations. Not objective, inherent, or fixed, they correspond to no biological or genetic reality; rather, races are categories that society invents, manipulates, or retires when convenient” (p. 8). Furthermore, Yosso (2006) concurs with the understanding of race as a socially constructed category and explains how the term *race* results in categories “to differentiate groups based primarily on skin color, phenotype, ethnicity and culture for the purpose of showing the superiority or dominance of one group or another” (p. 5). Yosso defines *racism* “as (1) a false belief in White supremacy that handicaps society, (2) a system that upholds Whites as superior to all other groups, and (3) the structural subordination of multiple racial and ethnic groups” (p. 5). In this third component, Yosso, describes how race and racism emerge as embedded within thought processes and structures, such as educational institutions, a point also emphasized by Delgado and Stefancic (2012).

Further, racial categorization served to justify the development of an economy built upon slavery and the expansion into the west; thus, the economy relied upon the maintenance of racial distinctions (Omi & Winant, 2015). Scientists attributed racial distinctions by explaining how race could be described through biological differences (Omi & Winant, 2015). In the late 1800s and early 1900s, Black, and later White,

sociologists began challenging the biological notions of race and the biological interpretation of race. Yet, while efforts in the 1950s sought to further explore race as a function of social and cultural interpretations, those biological interpretations and subsequent discriminations continue today.

Even after the successful passage of key civil rights legislation in the 1960s, racism and racial inequality persisted in the form of a colorblind racial ideology (Bonilla-Silva, 2017; Omi & Winant, 2015). For one such example, consider the Supreme Court's definition of discrimination in the 1976 case, *Washington v. Davis*. The decision stated "discrimination is the result of actions that are motivated by a discriminatory intent" (Brown & Jackson, 2013, p. 15). Rather than considering the passage of fiscal and/or legislative action as discriminatory, instead racial segregation is described (from a colorblind point of view) as a matter of an individual's choice, morals, or work ethic (Bonilla-Silva, 2017). Colorblindness provides a shield where whites whereby Whites continue to invoke colorblind messaging to sustain racial inequality through practices which Bonilla-Silva (2017) describes as "subtle, institutional, and apparently nonracial" (p. 3).

It is through social policy and legislation based upon colorblind racism, practices which are subtle and supposedly non-raced based, minoritized individuals continued to experience invalidation within our education system (Bonilla-Silva, 2017). As such, colorblindness remains an elusive idea because, "to identify an individual or group racially is to locate them within a socially and historically demarcated set of demographic and cultural boundaries, activities, 'life chances,' and tropes of identity/difference/(in)equality" (Omi & Winant, 2015, p. 125). Three main features of an

individual subscribing to a colorblind ideology include minimizing race through statements such as “everyone the same” or “color does not matter to me,” overlooking social or group identity, and emphasizing commonalities, rather than differences, among individuals (Fergus, 2017). These features attribute differences in outcomes to natural abilities, individual choice, or culture (Bonilla-Silva, 2017; Fergus, 2017)

Critics of a colorblind ideology advocate how race-conscious policies and practices are needed because, “to dismiss the immense sociohistorical weight of race, to argue that it is somehow possible, indeed imperative, to refuse race consciousness and simply not take account of it, is by any rational standard a fool’s errand” (Omi & Winant, 2015, p. 220). Indeed, the implementation of race conscious policies and practices is to, “acknowledge the social structures and practices of race and racism: the vast fabric of inclusion and exclusion, advantage and disadvantage, and power and powerlessness that are built into a social system based on structural racism” (Omi & Winant, 2015, p. 261). Through the use of colorblind practices, policies, and approaches in education, those stereotypes and internalized feelings become embedded within a student’s self-identity, leading students to believe their success is inhibited by their race or ethnicity.

The Campus Racial Climate

The campus racial climate refers to the environment of the university, which is designed to support student persistence (Yosso et al., 2009). A positive climate includes inclusionary practices, curriculum, policies, and procedures, which reflect an institution’s overall mission to diversity (Yosso et al., 2009). Alternatively, a negative climate promotes stereotypes (Steele, 1997), microaggressions (Crisp, Taggart, & Nora, 2015; Yosso et al., 2009), challenges with social and emotional adjustment (Oseguera et al.,

2009), and low levels of tolerance (Cabrera, Amaury, Terenzini, Pascarella, & Hagedorn, 1999). All of these result in a lowered of belonging or a connection to the institution (Hurtado & Carter, 1997; Walton & Cohen, 2007) and an increased likelihood for departure (Hurtado & Carter, 1997).

Microaggressions

Microaggressions permeate a negative campus climate. Referred to as *pervasive*, *innocuous*, and *automatic*, “microaggressions are brief, everyday exchanges that send denigrating messages to people of color because they belong to a racial minority group” (Sue, Bucceri, Lin, Nadal, & Torino, 2009, p. 88). Some microaggressions are subtle statements, such as “You speak English well,” or “You do not look Mexican,” while others might include words such as, “Women often struggle in my class.” Either way, recipients of these statements perceive them as invalidating, alienating, and insulting, situating the recipients as unwanted or unnecessary (Sue et al., 2009). Also, if overheard by another individual who chooses not to respond to the statement, the observer passively expresses agreement with the sender; further reminding the recipient of his or her inferiority.

Sue et al. (2009) studied Asian American graduate students who described three forms of microaggressions: microassaults, microinsults, and microinvalidations. Microassaults, generally deliberate, are verbal, nonverbal, or visual acts intended to cause harm. Microinsults and microinvalidations tend to occur as a result of unconscious actions by the perpetrator. A microinsult is an insensitive action or comment about a person’s ethnicity or heritage. Microinvalidations occur when the perpetrator minimizes the recipient’s feelings or perceptions.

These findings were similar to those of Yosso et al. (2009) in their study of 37 Latino college students attending three separate universities across the country.

Interviews conducted in groups of three to six students included questions focusing on issues related to educational aspirations, discriminatory experiences, responses to discrimination, effects of discrimination, and campus climate (Yosso et al., 2009).

Microaggressions emerged as a constant theme amongst participants. Furthermore,

as a result of chronic racial microaggressions, many Students of Color perceive their campus environment as an extremely stressful, exhausting place that diminishes their sense of control, comfort, and confidence while eliciting feelings of loss, ambiguity, strain, frustration, and injustice. (Yosso et al., 2009, p. 676)

To manage the climate, Latinos built communities of support and navigated between multiple worlds because if they were to sever ties and fully integrate, the students would experience even higher levels of isolation and rejection. Another way to describe the communities of support may be through the use of the term *counterspaces*.

Counterspaces are environments where students engage their cultural wealth, bolstering their feelings of connection within a negative climate (Yosso et al., 2009). These counterspaces emerge as forms of resistance to a negative climate which then enable and support student persistence.

Stereotypes

Further complicating the environment in STEM are the intersection of multiple stereotypes about minoritized students' abilities to succeed in "highly quantitative" fields (Steele, 1997). Steele describes the role of identity and the experience of *disidentification* within college. For example, if a person cares about school, they identify with the *domain* of education. If they experience and internalize stereotype threat, it can lead to disidentification, which leads feelings of apathy towards the domain in relation to self. As

a result, a disidentified student experiences lower levels of academic motivation.

However, if a student identifies with success in school (the domain of education), they realize feelings of self-confidence.

Consequently, students become susceptible to stereotype threat not because they doubt their own abilities, but because they grow concerned about being stereotyped within the domain as a result of the pervasiveness of stereotypes within education. Stereotype threat reflects an individual's "fear of confirming a negative stereotype about the intelligence of their group" (Walton & Cohen, 2007, p. 83). Those students who identify and those who do not identify with the domain of education underperform because they experience the constant, general threat of reinforcing a stereotype resulting in general underperformance and low levels of motivation. To determine one's relationship with the domain, a student may ask him or herself questions such as "Do I have skills and talent?" "Have others like me succeeded?" or "Will I have the same opportunities as others?"

In a study of the experiences of African American students serving as resident advisors at a predominantly White institution, researchers identified how the students resisted the negative stereotypes and microaggressions, and successfully held leadership roles by negotiating key university staff and faculty relationships and acted as positive models for their fellow African American students (Harper et al., 2011). Similarly, first-generation Latinas are more likely to experience consistent fears their academic performance will reinforce existing stereotypes regarding their racial, ethnic, or gender groups' abilities to success (Acevedo-Gil, Santos, Alonso, & Solórzano, 2015; Crisp et al., 2015; Steele, 1997; Walton & Cohen, 2007).

Critical Race Theory

As a challenge to the ideas of colorblindness and race neutrality, researchers advocate for viewing the education system through the lens of critical race theory (CRT; Delgado Bernal, 2002; Solórzano et al., 2005). CRT provides a framework for perspectives, methodology, methods, and pedagogy (Sue et al., 2009) which “seeks to identify, analyze, and transform those structural and cultural aspects of education that maintain subordinate and dominant racial positions in and out of the classroom” (Solórzano & Yosso, 2002, p. 25). This study employs a CRT framework to explain how current, colorblind advising practices fail to validate first-generation Latina students within engineering. CRT, as described by Solórzano et al. includes these five defining tenants as a methodology for researchers: *centrality of race and racism, challenge to dominant ideology, commitment to social practice and praxis, centrality of experiential knowledge, and an historical context and interdisciplinary perspective*. Each of these tenets will be explored in more detail.

Centrality of Race and Racism

Embedded within the educational experiences of minoritized students are the concepts of *race* and *racism* as well as the intersection of race and racism with other forms of subordination related to gender, sexual orientation, socioeconomic status, surname, and/or accent. While race is widely accepted as a social construction, CRT researchers acknowledge “the power of a social reality that allows for significant disparities in the life changes of people based on the categorical understanding of race” (Ladson-Billings, 2013, p. 39). Therefore, to study and understand subordination and inequality in education, researchers must remain cognizant of race and racism in order to

begin to address their role and impact within educational structures (Delgado & Stefancic, 2012).

Through CRT, the complex identities of being both Latino, female, and first-generation may be explored through the concept of *intersectionality*, a concept reflecting the study of race, sex, socioeconomic status, and national origin along with the combination of those various factors and how they impact individuals (Crenshaw, 1991; Delgado & Stefancic, 2012). Researchers describe three forms of intersectionality, *structural*, *political*, and *representational* (Patton, Harper, & Harris, 2015), two of which influence this study: structural and representational. Structural intersectionality refers to the policies, laws, and structures which make it difficult to support minoritized individuals, because they occupy multiple roles being oppressed (Patton et al., 2015). Representational intersectionality describes how minoritized individuals are depicted within narratives.

Specifically, first-generation Latina students in engineering experience intersectionality as a result of their socioeconomic status (Engle & Tinto, 2008), gender (Musu-Gillette et al., 2016), and race (National Center for Education Statistics, 2013). Patton et al. (2015) explain why this is critical because “intersectionality is not simply about categories of identity but is concerned with ‘social hierarchies’ and how power is situated to buttress certain categories, while stripping humanity and agency of others toward further subordination” (Patton et al., 2015, p. 199). Indeed, at the intersection of these roles related to race, gender, and socioeconomic status, first-generation Latinas experience multiple forms of marginalization and subordination within the predominantly White, male field of engineering.

The Challenge to Dominant Ideology

Widely held theoretical perspectives related to student development and student retention fail to account for the experiences of those minoritized because they tend to account for the experiences of White students (Patton et al., 2007; Patton et al., 2016). CRT researchers highlight how as theories and frameworks which reflect White students are applied to minoritized students, researchers continue to reinforce the experiences of White students. Researchers then view Whites as representative of all people; this is a point of view which becomes a universal “truth” to which everyone is contrasted and this view point is maintained (Delgado & Stefancic, 2012). This type of viewpoint reinforces colorblind and race-neutral practices (Solórzano & Yosso, 2002). As such, CRT becomes useful in challenging traditional perspectives and viewpoints by highlighting how educational systems favor a privileged or dominant group and continue to reinforce subordination.

Commitment to Social Justice and Practice

CRT researchers focus on social justice issues. Solórzano et al. (2005) explain “a critical race theory is committed to social justice and offers a liberatory or transformative response to racial, gender, and class oppression” (p. 25). Yosso asserts race and racism lead to the emergence of two groups, one privileged group which defines the dominant culture and its practices, and subordinate groups, subject to practices and expectations of the dominant culture. In the U.S., the dominant culture reflects White privilege, “a system conferring benefits and opportunities on White people simply by nature of their race” (Solórzano & Yosso, 2002, p. 27). White privilege is demonstrated through stories related

to gender, class, race, socioeconomic status, and others, which are used to subordinate individuals.

One such story, is that of meritocracy. Meritocracy suggests all people are capable of succeeding based upon how hard he or she works (Delgado Bernal, 2002). Those who subscribe to the idea of meritocracy struggle to believe men experience favor over women or individuals of other races experience subordination (Delgado Bernal, 2002). A contradiction emerges as a result of meritocratic thinking because it shapes “the belief system and practices of researchers, educators, and the school curriculum while continuing to adversely influence the educational experiences of Chicanas/Chicanos and other students of color” (Delgado Bernal, 2002, p. 111). In essence, by believing in meritocracy, educational systems continuously employ practices which subordinate minoritized students. As discussed previously, the racial climate of campus reinforces stereotypes regarding the ability of minoritized students to succeed in engineering. By engaging in social justice practices, CRT researchers provide opportunities for minoritized students to acknowledge this oppression and begin to empower themselves to succeed in spite of it (Solórzano & Yosso, 2002).

Value Experiential Knowledge

CRT researchers challenge traditional research methodology and methods instead leveraging those methodologies and methods which enable the voices of the subordinate groups to be integrated into research (Solórzano & Yosso, 2002). Through CRT, the experiences of minoritized students become valid and relevant for understanding their experiences with subordination. Brown and Jackson (2013) explain the value of experiential knowledge by stating,

CRT scholars use chronicles, storytelling, and counter-narratives to undermine the claims of racial neutrality of traditional legal discourse and to reveal that racism and racial discrimination are neither aberrant nor occasional parts of the lives of people of color. Rather racism and racial discrimination are deep and enduring parts of the everyday existences of people of color. Thus chronicles, storytelling, and counter-narratives are used to make visible the racial biases that are deeply embedded in the unstated norms of American law and culture. (p. 19)

Through storytelling, minoritized students experience liberation by challenging dominant and traditional frameworks about their experiences with race and racism. These stories, often referred to as counterstories, share alternative frameworks through which CRT researchers study student experiences and make those stories meaningful (Ladson-Billings, 2013).

Historical Context and Interdisciplinary Perspective

CRT researchers incorporate multiple disciplines to deepen their understanding of the experiences of minoritized students by including perspectives related to the historical context of race relations, gender studies, sociology, law, and other fields. Critics of CRT research challenge the tenets of CRT. For example, critics argue scholars who employ CRT lack respect for traditional forms of research by favoring storytelling (Delgado & Stefancic, 2012). Furthermore, they argue by sharing only stories of a limited few participants, CRT researchers suggest those stories represent the whole group and how storytelling lacks analytic rigor because they are biased (Delgado & Stefancic, 2012). CRT theories, however, respond by clarifying they do not seek objective, unbiased research. They propose instead how CRT research reflects a counterstory to the traditionally held notion of social science research as unbiased (Delgado & Stefancic, 2012).

Latino Critical Race Theory (LatCrit)

A complement to and extension of CRT, Latino critical race theory (LatCrit), studies the way the concept of race operates within education, identifying that in addition to race, other aspects of Latino experiences factor into forms of subordination. Those factors include language, culture, sexuality, and ethnicity (Peralta et al., 2013, Pérez Huber, 2009); these factors often are not discussed by CRT theorists (Solórzano & Delgado Bernal, 2001). Furthermore, LatCrit scholars engage methodology and methods which focus on the lived experiences of Latinx, such as those involving narratives, storytelling, cuentos, testimonios, and biographies (Peralta et al., 2013; Pérez Huber, 2009; Solórzano et al, 2005). Both CRT and LatCrit employ transdisciplinary approaches which “acknowledge that educational structures, processes, and discourses operate in contradictory ways with their potential to oppress and marginalize and their potential to emancipate and empower” (Delgado Bernal, 2002, p. 109). Within this study, CRT and specifically, LatCrit provide new lenses by which to glean new levels of understanding of educational practices, like those of academic advising (Hernández, 2016; Patton et al., 2015) for first-generation Latinas.

Through these five elements, CRT and LatCrit researchers may examine oppression and subordination for minoritized students within institutions and structures. As explained, first-generation Latinas experience invalidations as a result of the climate in college, the field of engineering, as well as the use of dominant theories or frameworks which fail to account for their experiences within a historically racialized educational system. The theory of validation suggests how through validating advising practices first-generation Latina students may begin to view themselves as capable, competent learners

in spite of the invalidating climate of engineering. By incorporating CRT and LatCrit frameworks, this study can provide a more holistic explanation of the experiences of first-generation Latina students within engineering. Hence, this next section focuses on how current (colorblind) approaches to academic advising practices fail to support first-generation Latina student success and persistence in engineering.

Academic Advising

Academic advising serves as a central university support resource for students, designed to guide students through the achievement of their academic and professional goals (Campbell & Nutt, 2008; O'Banion, 1994). Advising researchers have long purported how successful academic advising supports student persistence in college (Pascarella & Terenzini, 2005). For instance, Astin (1993) identified how persistence is influenced by interactions with staff, faculty, and peers and the level of physical and psychological involvement a student experiences. Tinto (2012) identified four conditions which support student persistence, building upon his previous model of academic and social integration. The four conditions include: students' own expectations of themselves, support resources provided by the institution, feedback on student performance, and engagement with faculty and staff. Fowler, Boylan, and Fowler (2010) argued how proactive advisor outreach efforts increased student success and retention as a result of consideration of academic, nonacademic, and personal factors. Overall, many researchers concluded a positive relationship exists between advising interactions, student success, and student persistence.

In 1972, Crookston and O'Banion, "established student development as the theory base of academic advising" (McGill, 2016, p. 52). As such, developmental advising

should include practices which “(a) assess students’ academic competence and readiness; (b) discuss the importance of personal campus involvement; and (c) aid in helping them to develop a life purpose and plan” (McGill, 2016, p. 52). Creamer and Creamer (1994) explain that developmental advising includes “the use of interactive, teaching, counseling and administrative strategies to assist students to achieve specific learning, developmental, career, and life goals” (p. 19). Crookston (1994) further describes developmental advising as the development of a relationship between the student and advisor in which the advisor incorporates a holistic view of the student. In the context of this study, advisors employed developmental practices when they focus on the creation of an empathetic and respectful relationship in which the advisor displays a caring attitude toward the student, understands the student holistically, and supports the student in the identification and achievement of developmental, career, and life goals (Creamer & Creamer, 1994).

Alternatively, another approach to advising, *prescriptive advising*, includes discussions which are efficient and factual interchanges between the advisor and student (Jeschke, Johnson, & Williams, 2001). The advisor informs the student of necessary steps to take and expects the student to follow the guidance (Crookston, 1972). The advisor assumes the role of authority figure who is knowledgeable about university policies and procedures. The student relies on the advisor’s guidance. The relationship between the student and advisor is based upon the advisor’s authority and knowledge while the student is expected to follow the advisor’s guidance and recommendations.

Intrusive advising outreach includes aspects of both developmental and prescriptive interactions (Campbell, 2013). In intrusive advising approaches, an advisor

reaches out proactively or reactively to a student. Intrusive advising describes how an advisor initiates an interaction between him/herself and the student (Jeschke et al., 2012) in which an advisor typically addresses “a predetermined set of goals to be accomplished in advising sessions; and the dual objectives of a) increasing the motivation and academic success of students and b) reducing attrition” (Schwebel, Walburn, Jacobsen, Jerrolds, & Klyce, 2008, p. 28). For example, if an advisor places a hold for enrollment in a future term, the advisor may actually list out the courses in which the student will enroll in the next term (an example of prescriptive advising) while asking the student how each course fits into his or her overall goals for graduate schools (an example of developmental advising).

Intrusive advising may also be proactive or reactive. Examples of proactive intrusive advising outreach include inviting the student to attend a new student orientation program or an advisor contacting a student to identify concerns or questions a student may have about an upcoming exam. Examples of reactive, intrusive outreach include placing a hold on a student’s account based upon his or her academic grades or contacting the student to encourage the student to enroll in future terms.

The university provost’s office at SU directs campus-wide reactive intrusive advising efforts. Based upon academic performance, students receive outreach from advisors either via phone or email. The advisor outreach efforts occur when a student receives a performance notice (known as an “academic status report”) or when a student fails to take courses required that term. Through a system called “Advisor Portal,” outreach contact lists (“cases”) are created for advisors to identify students whom they should contact. Once discussion occurs, the advisor logs notes of the discussion. In

addition to advisor outreach, my office sends emails to all students needing outreach. The emails are generic in nature and all students receive the same messaging. Intrusive advising outreach can be effective, yet oftentimes each student receives the same messaging or communication. When viewed through a CRT lens, this approach to advising, using a common message for all students fails to account for their unique circumstances, goals, and challenges and serves to further marginalize first-generation Latina students in the climate of engineering.

Intrusive Advising Research Studies

Creamer and Creamer (1994) summarized existing literature on student development and articulated the following conclusions: effective advising underlies student success and persistence and reflects a collaborative advising relationship. The relationship is built through interactions between the student and advisor. Those interactions could be initiated by the student or advisor (Crookston, 1994). When initiated by the advisor, those interactions are described as *intrusive advising practices*. Intrusive advising practices successfully lead to developmental advising conversations (Schwebel et al., 2008).

Earl (1988) explored the use of reactive intrusive advising with students “at risk” for departure because intrusive advising encourages students to self-refer and stated, “intrusive advising can motivate students ...to self-identify early enough for remedial actions to improve their academic performance” (p. 28). Those probationary students who received the reactive intrusive outreach earned higher grades and persisted at higher rates. Alternatively, Campbell (2013) studied the influence of intrusive advising with STEM students predicted to be at risk. *At risk* was determined based upon early academic

measures of student performance. Campbell described intrusive advising as a highly resource intensive endeavor. As a result of the amount of time and number of advisors needed to proactively reach out to all at risk students, the intervention needed to support those students was implemented inconsistently and realized little to no effect on student persistence.

Rodgers, Blunt, and Tribble (2014) studied a program in their institution titled Pathways Leading to Undergraduate Success in the Sciences (PLUSS). PLUSS is a program for underrepresented students which included intrusive advising, cohort classes based upon foundational math, and a freshman seminar course. In their study, Rodgers et al. utilized proactive, intrusive advising to motivate students towards involvement before the student experienced challenges. One advisor was assigned to work with 15 students in the program. Advisors received training on working with diverse students in order to foster their understanding of underrepresented students in STEM. The advising component for the study included emails from the advisor to the student and multiple face-to-face meetings. The students were also involved in a seminar course for first-year students. The course aims to help the student develop academic and career plans. The study included two groups of students: one group which did not participate in the program and were enrolled from 2001 to 2006 and the research study group which included students enrolled in the program from 2008 to 2011. Retention rates were significantly higher for those students enrolled the PLUSS program. The researchers concluded the emphasis on proactive advising, multiple interactions between advisor and student, and the training of the advisors as key influencing factors support students' success.

Additionally, through the intrusive advising efforts with racial and ethnic minorities, students reported the key roles holistic, intrusive advising played in their academic success (Museus & Ravello, 2010). During intrusive outreach efforts, the advisors identified, recognized, and discussed the unique challenges faced by minoritized students and supported them through advising practices which incorporated the students' past experiences and current pressures. In their study, Museus and Ravello (2010) identified how the minoritized reported benefits from proactive, intrusive advising outreach and articulated the following recommendations: Institutions should invest in ways to enable more time for intrusive advising, especially with minoritized students, and advisors should incorporate a human element, demonstrating commitment to student success; practices should be proactive, holistic, and reflect an understanding of all the challenges, pressures, and past experiences of the student.

The Theory of Validation

The theory of validation emerged in the early 1990s from a study of the Transition to College Project, a project which considered how student learning was affected by student involvement in academic and social experiences (Rendón, 1994). The theory explored the concept of involvement and considered how nontraditional students became involved. In the study, involvement is defined as the time, energy, and effort a student invests in the learning process. In the context of the study, nontraditional students were described as “non-Whites and women” who upon entry into college are “faced with unlearning past behaviors and attitudes while learning new practices, values, and conventions” (Rendón, 1994, p. 2).

As Tinto's theory of individual student departure shaped student retention programs in the institutions participating in the study, Rendón found the theory failed to fully understand the experiences of those nontraditional students because they chose not to separate from past loyalties and experiences upon beginning college. Through interviews with nontraditional students across five campus and a grounded theory approach to analysis, five key findings about nontraditional students emerged (Rendón, 1994): the students expressed concerns and doubts about their ability to succeed, intervention from key individuals within college can help, success in college depends on an "external agent [who] can validate [nontraditional] students in an academic and interpersonal way" (p. 8), validation transforms students into powerful learners, and "validation may be the missing link to involvement, and may be a prerequisite for involvement to occur" (p. 9). Validation emerged as a key concept in the research findings. Rendón (1994) argues validation precedes academic success as students are affirmed, supported, and enabled to view themselves as fully developed individuals and students.

Embedded within the theory of validation is the idea that validation occurs through interactions with an *agent* (Rendón, 2002). While Rendón's initial research on validation did not include a definition for the term *agent*, Hurtado et al. (2012) later incorporated the description of *institutional agents* as defined by Stanton-Salazar (2011), which explains institutional agents as "high-status, non-kin, agents who occupy relatively high positions in the multiple dimensional stratification system, who are well positioned to provide key forms of social and institutional support" (p. 1066). Institutional agents, when acting on a student's behalf, communicate valuable resources and information as

they engage in an authentic relationship based upon shared understanding and trust. By applying this definition, academic advisors, considered a category of out-of-class validating agents, could provide academic and interpersonal validation (Rendón, 1994; Rendón Linares & Muñoz, 2011, p. 21).

The practice of validation has the following elements (Rendón, 1994):

1. Validation is an enabling, confirming and supportive process initiated by in- and out-of-class agents that fosters academic and interpersonal development.
2. When validation is present, students feel capable of learning; they experience a feeling of self-worth and feel that they and everything that they bring to college experience is accepted and recognized as valuable. Lacking validation, students feel crippled, silenced, subordinate, and/or mistrusted.
3. Like involvement, validation is a prerequisite to student development.
4. Validation can occur both in- and out-of-class. In-class validating agents include faculty, classmates, lab instructors, and teaching assistants. Out-of-class validating agents can be a) significant others, such as spouse, boyfriend or girlfriend; b) family members, such as parents, siblings, relatives and children; c) friends, such as classmates and friends attending and not attending college; d) college staff, including faculty who meet with students out-of-class, counselors/advisors, coaches, tutors, teaching assistants, and resident advisors.
5. Validation suggests a developmental process. It is not an end in itself. The more students get validated, the richer the academic and interpersonal experience.
6. Validation is most effective when offered early on in the student's college experience, during the first year of college and during the first weeks of class. However, validation should continue throughout the college years. (pp. 16-17)

Based upon the elements of validation, successful advisors remain cognizant of the diversity within the institution and the climate of engineering, enhance their understanding of the experiences of minoritized students, receive training on the concept of validation and how validation supports student success, co-construct an advising relationship which promotes validation, initiate outreach early on in the student's college experience, and foster a relationship between student and advisor for the duration of the student's college experience. Through validating practices advisors support and affirm

first-generation Latinas as successful and competent learners, thereby empowering them to achieve.

Through collaboration, advisors and students co-create their advising relationship. To effectively collaborate, though, advising practices should reflect the needs of diverse students (Kuhn, 2008). When advisors consider the student's culture, family background, point of view, development, and assets, they advise holistically (Clark & Kalionzes, 2008). As such, advisors can employ a broader description of developmental advising practices, incorporating those practices which encompass aspects of a holistic approach by educating themselves and their students by gaining awareness and understanding of the student's past experiences and future goals (Clark & Kalionzes, 2008, p. 214). Validation can serve as a vehicle for the co-construction of understanding within advising.

Existing research on the theory of validation has not specifically studied the experience of nor the role of advising in supporting the success of first-generation Latinas in engineering. Rendón (2016) identified validating practices employable by validating agents within STEM, but has not yet explored the role of advisors in validating Latinas in engineering. Colorado-Burt (2015) recognized the role of advisors in validating provisionally admitted Latino students; however, she concluded advisors should employ cultural awareness in working with Latinas yet did not specifically identify the role advisors could play in validating students. Barnett (2011) explored the role of faculty and validating practices in the classroom. Nora, Urick, and Quijada Cerecer (2011) further explained how most research studies exploring validation explored programs and the

programs' impact on students, not necessarily on the experience of students as they experience validating practices.

Validating Advising Practices

Validating practices incorporate multiple elements (Rendón, 1994). The responsibility for initiating the discussion between students and agents lies with the agents; it is the responsibility of the agent fostering academic and interpersonal development in an ongoing process. This serves as a precursor to student development, promoting students so they feel as though they are capable and empowered learners both in and out-of-class. These practices create the most impact when delivered early on in the college transition (Rendón, 1994). Parallels to intrusive and developmental advising emerge from these elements.

To complement the discussion of validation, *sympathetic touch* is a concept introduced by Du Bois in relation to teachers' interactions with students (Rojas & Liou, 2017). Du Bois described how teachers developed sympathy by first learning about students' background, history, and aspirations within the context of social injustice and inequity. Next, teachers engaged in practices designed to liberate and empower students. Finally, teachers worked collaboratively with students to envision and enact a new, liberated future. This process is relational and emerges from constructed "dialogue, reflection, and generation new knowledge through the process of realization, self-affirmation, and transformation" (Rojas & Liou, 2017, p. 30). Rojas and Liou explored how teachers developed their sympathy through an understanding of theirs and their students' life experiences to enhance the relationships built with students.

At the core of validating advising practices is the development of an authentic relationship between the advisor and student. To build a relationship, they need dialogue, which is described in the following way:

To enter into dialogue presupposes equality amongst participants. Each must trust the others; there must be mutual respect and love (care and commitment). Each one must question what he or she knows and realize that through dialogue existing thoughts will change and new knowledge will be created. (Freire Institution, 2017)

This co-constructed relationship emerges from a sympathetic understanding and appreciation between the advisor and student for the promotion of new practices designed to support Latinas in engineering.

As such, the advisor seeks to empower, support, and affirm the student while working with them to develop a deeper understanding of one another. Advisors empower Latinas to transform them into highly capable learners (Rendón, 2002; Stanton-Salazar, 2011). “Here, empowerment is defined as the active participatory process of gaining resources, competencies, and key forms of power necessary for gaining control over one’s life and accomplishing important life goals” (Stanton-Salazar, 2011, p. 1090). Advisors affirm Latinas when they ratify, uphold, and/or confirm a Latina student’s culture, voice, and value of previous experiences (Rendón, 1994, 2002). Advisors support students when stating their belief in students to succeed, offer support, connect student to university services and resources, and focus on developing the strengths of a student (Rendón Linares & Muñoz, 2011). Overall, through empowerment, support, and affirmation, advisors seek to validate Latina students to support their persistence by tapping into first-generation Latina students’ strengths, cultural knowledge, skills, and abilities to successfully navigate the college climate (Yosso, 2005, 2006).

Community cultural wealth. Affirmation, empowerment, and support are closely intertwined and mutually dependent. Affirming a student becomes central to the empowerment and support of students. Affirmation occurs as a result of the recognition of a student's sources of strengths and capital (Rendón, 1994; Yosso, 2005) Yosso et al. (2009) describes a student's strengths as assets which remain with them in all contexts and communities. A student's community cultural wealth (CCW) include (Yosso, 2005):

- *Aspirational capital* refers to the ability to maintain hopes and dreams for the future, even in the face of real and perceived barriers. (p. 77)
- *Linguistic capital* includes the intellectual and social skills attained through communication experiences in more than one language and/or style. (p. 78)
- *Familial capital* refers to those cultural knowledges nurtured among familia (kin) that carry a sense of community history, memory, and cultural intuition. (p. 79)
- *Social capital* can be understood as networks of people and community resources. (p. 79)
- *Navigational capital* refers to skills of maneuvering through social institutions. (p. 80)
- *Resistant capital* refers those knowledges and skills fostered through oppositional behavior that challenges inequality. (p. 80)

CCW emerged from a CRT framework through a grounded theory study as a counter to deficit perspective thinking. Yosso (2005) explained the deficit view of students by stating “in other words, cultural capital is not just inherited or possessed by the middle class, but rather it refers to an accumulation of specific forms of knowledge, skills and abilities that are valued by privileged groups in society” (p. 76). Hence, education serves as a way by which subordinate groups acquire privileged knowledge and minoritized students arrive at college with deficits which must be addressed by the institution. However, by employing a CRT framework and an asset based approach, Yosso (2005) identified the strengths of minoritized students which they leveraged for success while maintaining a connection to family and community (Solórzano & Yosso,

2002; Solórzano et al., 2005). The affirmation of a student's CCW has emerged in various studies as a precursor to validation and student success.

Martin, Simmons, and Yu (2013) explored first-generation immigrant Hispanic students' social capital and concluded how Hispanic students rely more on institutional staff and faculty than families to learn about the major selection process for engineering, the application and matriculation processes, and the developments of support systems such as study groups. The researchers emphasized the role of the institution in redressing the knowledge gaps for the student. Additionally, other studies found Latina students successfully leveraged different aspects of their CCW to succeed academically (Peralta et al., 2013; Rendón, Nora, & Kanagala, 2014; Samuelson & Litzler, 2016; Romasanta, 2016). All of these studies reflect the value of CCW as a model for explaining first-generation Latina student persistence within engineering.

Indeed, as a result of validation, students feel they can succeed, are excited about learning, feel part of the community, and feel cared about as a person (Rendón & Jalomo, 1995). Validating academic advising leads to an even deeper, more holistic understanding of their complex experiences in college (Hernández, 2017). By incorporating the experiences and identities of individuals, advising interventions and support programs become more inclusive of student's and advisor's lived experiences, which contributes to first-generation Latina students' feeling of validation as capable learners (Patton et al., 2007). Students who experienced validation from an out-of-class institutional agent such as an academic advisor ultimately persisted at higher rates (Rendón, 1994; Hausmann et al., 2007; Hurtado, Ruiz Alvarado, & Guillermo-Wann, 2015; Tinto, 2012).

Conclusion

In summary, this chapter explored key frameworks and concepts which can be employed to better understand validating advising practices with first-generation Latina students. It began with a discussion of higher education in the U.S., clarification on the role of race and racism in education, and the use of critical race theory and LatCrit to explore the persistence of students. Next, the chapter discussed academic advising practices within higher education. The theory of validation, identifying validating advising practices which seek to empower, support, and affirm students, and the role a Latina student's assets play in validating practices within engineering were discussed. Through exploration of advising from a LatCrit perspective, approaches to student success evolve to include the assets and strengths in order to empower, support, and affirm first-generation Latina students. When administrators and educators in higher education understand intersectionality and view established theories from a critical race lens, they "can create interventions that are inclusive...moving diverse individuals from the margin to the center of discourses, programs, interventions, and theories may create campuses in which everyone feels validated for their differences" (Patton et al., 2016, p. 48). These ideas are further explored in Chapter 3 as I outline a new program implemented within the COE as well as the data collected to address the research questions.

CHAPTER 3

RESEARCH DESIGN

The primary purpose of this study was to explore the experiences of first-generation Latina students with validating advising. Specifically, my goal was to create environments within which first-generation Latina students shared their *testimonios*, counter-narratives, which were told from their point of view as a minoritized student. Their *testimonios* serve to “counter” traditional, deficit viewpoint stories about student persistence (Delgado Bernal, 2002; Yosso, 2005). Additionally, this study is designed to understand how academic advisors experience validating advising practices. Therefore, through this study I created advising interactions which elicited student *testimonios*, co-created between the advisor and student. The advising interactions were designed to explore how first-generation Latina students experienced validating advising practices and the interactions with the advisors. Critical race theory served as the methodological framework for this qualitative, action research study as I sought to answer the following research questions within the study:

1. How do academic advisors influence the construction of validating advising practices with first-generation Latina engineering students?
2. How do first-generation Latina students in engineering describe their strengths and assets within constructed validating advising practices with their academic advisor?
3. How do first-generation Latina students in engineering describe the influence of validating advising practices with their academic advisor?

Epistemology and Methodology

CRT and LatCrit inform an epistemology and methodology in research studies in order to identify and transform subordination within educational systems and structures (Solórzano & Yosso, 2002). Epistemology, or way of knowing, considers the possibilities within and legitimation of knowledge creation in research (Delgado Bernal, 1998). Delgado Bernal (2002) urges the use of race and raced-gendered epistemologies, which include epistemologies which challenge traditional research paradigms and seek to unearth the unique knowledge of minoritized individuals. Delgado Bernal (2002) stated how critical raced-gendered epistemologies “offer unique ways of knowing and understanding of the world based on the various raced and gendered experiences of people of color” (p. 107), whereby at the intersection of their internalized identities related to race, gender, class, and other forms of oppression (Pérez Huber, 2009), their knowledge emerges as central within the research study.

Critics of a critical raced-gendered epistemology argue that CRT positions race as an essential component of an individual’s identity (Delgado Bernal, 2002). However, identity is not rooted in a category of race or ethnicity, instead it emerges as a social construction based upon the various intersections of experiences realized as a function of race, gender, class, and other forms of subordination. Indeed, to disregard race, other epistemologies reinforce notions of meritocracy and or colorblindness in education (Delgado Bernal, 2002; Pérez Huber, 2009; Parker & Lynn, 2002). A second critique of critical raced-gendered epistemologies highlights the argument of subjectivity versus objectivity (Delgado Bernal, 2002). At its core, this argument attempts to invalidate how other forms of knowledge may emerge through research studies. Instead, a critical raced-

gendered epistemology acknowledges and integrates other ways of knowing into research (Delgado Bernal, 2002; Pérez Huber, 2009).

To align this study with a critical raced-gendered epistemology, I engaged participants in creating *testimonios*, a form of counterstorytelling, to better understand their identities, educational experiences within the COE at SU, and experiences with validating advising practices. The *testimonios* emerged as tools which enabled understanding the unique experiences of minoritized students through conscious and purposeful listening (Delgado Bernal, 2002) while utilizing the elements of critical race theory (Solórzano & Yosso, 2002). Yosso (2006) identified these four functions of counterstorytelling: “counterstories can build community among those at the margins of society; counterstories can challenge the perceived wisdom of those at society’s center; counterstories can nurture community cultural wealth, memory and resistance; counterstories can facilitate transformation in education” (pp. 14-15). As a result, it is through the use of *testimonios* that the research participants’ knowledge developed into data (Delgado Bernal, 2002; Pérez Huber, 2009).

As a methodological tool, *testimonios* enable researchers to hear and make meaning of non-majoritarian, deficit student perspectives (Delgado Bernal, 2002). Dunbar (2008) describes the richness of *testimonios* between researcher and participants as “instances/nuances that are best transmitted and understood when shared experiences, epistemologies, and the relationship to both are evident between the researcher and the observed” (p. 90). From this description, then, it becomes clear how advisors further deepen their understanding of and relationship with first-generation Latina students as a result of hearing the stories and understanding their minoritized experiences (Reyes &

Curry Rodríguez, 2012). While critics of *testimonios* might argue about the subjective nature of their content, a critical race study does not seek objectivity; instead, it situates the participant's lived experiences at the center of the study (Delgado Bernal, 2002).

Research Design

This action research study involved the engagement of students and advisors as they co-created advising practices. Creswell (2015) describes action research study designs as “systematic procedures done by teachers (or other individuals in an educational setting) to gather information about and subsequently improve the ways their educational setting operates, their teaching, and their student learning” (p. 579). An action research orientation fosters inquiry within a context addressing a specific problem of practice (Buss, 2018).

Critics of action research argue the approach lacks scientific rigor due to its nature as applied research as well as with the employment of multiple methods (Creswell, 2015). However, action research supports change efforts within an organization, engages participants through collaboration, encourages reflective processes by the researcher, and fosters the testing of new ideas/innovations (Buss, 2018; Creswell, 2015). Furthermore, through a critical raced-gendered epistemology, research participants may also be included in the analysis of data (Pérez Huber, 2009).

Qualitative Methods

With qualitative methods, researchers study empirical materials such as personal experiences, interviews, texts, observations, and reflections (Mertens, 2015). Qualitative methods “are used in research that is designed to provide an in-depth description of a specific program, practice, or setting. It consists of a set of interpretative, material

practices that make the world visible” (Mertens, 2015, p. 236). In this study, the use of qualitative methods supported the collection of experiences of both students and advisors in utilizing validating advising practices. The types of qualitative methods for this study included interviews, responses to open-ended questions, a researcher reflection journal, and a focus group. Each will be discussed in more detail as a qualitative data collection tool.

Setting

I conducted the research study at Southwest University (SU) within the College of Engineering (COE). SU is a large metropolitan institution with multiple campuses enrolling 71,049 graduate and undergraduate students in 2015. The COE at SU is the largest engineering program in the country. Table 2 reflects the population of freshman who matriculated in Fall 2016.

Table 2

Enrollment Data Fall 2016

Population	Total	Hispanic/Latino		Female Hispanic/Latino	
		N	% Total Population	N	% of Hispanic/Latino Population
Southwestern University	11,456	2,855	25%	1,549	54%
College of Engineering	2,722	601	22%	162	27%

In fall 2016, 11,456 freshmen matriculated to SU. Of those, 25% (2,855) indicated an ethnicity of “Hispanic/Latino” on his/her admissions application. Within the COE, 2,722 freshmen matriculated and 22 % (601) indicated an ethnicity of “Hispanic/Latino” on his/her admissions application. Further exploration of the “Hispanic/Latino” group by gender at SU, 54% (1,549) are female. Within the COE, 27%

(162) of the “Hispanic/Latino” students are female. While overall Hispanic/Latino representation at the university and within the college are similar (25% compared with 22%), Latinas include only 27% of the “Hispanic/Latino” engineering population, but 54% of the “Hispanic/Latino” population within the university. As previously discussed, Latinas within COE were retained at 67% in 2015 within the COE. For these reasons, this study focuses on a first-generation Latina student in engineering.

The COE is organized with six schools (or departments), each comprised of related majors/disciplines within engineering. Each school employs its own set of academic advisors, who provide advising to students enrolled in those specific engineering majors. The COE currently employs 53 undergraduate advisors across the six schools of engineering. Each advisor, on average, advises 350 students.

Sampling

Sampling refers to the recruitment and identification of participants which allows researchers to generate information about the population of interest (Ivankova, 2015). As it is time consuming and inefficient to conduct the study with all first-generation Latina students in engineering, “the purpose of sampling is to ensure that the selected people and informational sources adequately reflect the characteristics of the population for whom the study results are intended and may be relevant” (Ivankova, 2015, p. 183). In this study, I followed a stratified sampling procedure and then a random sampling procedure to identify participants. In stratified sampling procedures, researchers divide the population based upon characteristics in order to study a specific phenomenon and then randomly select from within the identified group (Creswell, 2015).

I stratified the participant sample through a narrowing process occurring on multiple levels. During the application process for SU admissions, students self-report gender, race and ethnicity, and first-generation status. Based upon their self-reported data, I identified all first-generation Latina students in engineering. Next, I identified the three advisors participating in the study, who were purposefully selected. I recruited first-generation female advisors who worked in the three schools with the largest proportion of first-generation Latina students. I selected first-generation, female advisors so as to draw upon their own college experiences. Pérez Huber and Cueva (2012) referenced their own forms of knowledge gained from their own experiences and how their own intuition influenced their interpretations of research data and interactions with research participants. While these researchers were speaking of Latina/Chicana feminist researchers, I extended this definition to apply to these advisors because they have valid forms of *personal, professional and personal intuition* as females, advisors, and first-generation college students. Delgado Bernal (1998) describes these forms of intuition with the term, *cultural intuition*.

Once I confirmed the participation of the three advisors, I further stratified the student population to those students enrolled in majors within those three schools. I contacted all first-generation Latina students in those three schools and received responses from a total of 11 students. There were three students recruited from one school and four students each recruited from both of the other two schools. All students who replied to the recruitment email were included in the study. As an introduction to the participants, I included brief vignettes of the students and advisors below. All names have been changed to pseudonyms selected by the participants themselves.

Student Participants

Angie. Angie is studying computer science engineering. She is from Tucson, Arizona and lives on campus in a residential college for engineering students. Her parents were both born in the U.S. She comes from a blended family, with four older siblings who live across the country.

Carson. Carson is studying computer systems engineering. She was born and raised in a suburb near SU. Her father emigrated from Mexico, and her mother was raised in California. Carson is the youngest of three children. She commutes to SU with her sister daily.

Mona. Mona is studying computer science engineering. Mona is being raised by her single mother, who was born in Mexico. She is the fifth of six children. While her mom lives in a nearby suburb, Mona has chosen to live on campus in a residential college for engineering students.

Camila. Camila is studying civil engineering. Camila is from Tucson, Arizona. She is the tenth of twelve children and the first of her siblings to attend college. Both of her parents emigrated to the U.S. from Mexico. Camila is living on campus in the engineering student residential college.

Emma. Emma is studying environmental engineering. Born and raised in Phoenix, Arizona, she is the third of four girls. Her parents emigrated from central Mexico. Emma has a sister who graduated from college, another currently enrolled with her, and a third still in high school. Emma commutes to college daily.

Jenna. Jenna is studying environmental engineering. Jenna is from Tucson, Arizona. Her older sister is studying paper science engineering in North Carolina. Both

her parents were born in the U.S. Jenna is in the honors college at SU and lives in the residential college for honors students.

Jessica. Jessica is studying environmental engineering. She was born in Oregon and is living in the residential college for honors students. Her mother, an immigrant from Mexico, shares a love of music with Andrea. Her father is from California. Her younger sister is already applying to colleges herself.

Cindy. Cindy is studying biomedical engineering and is from Phoenix, Arizona. Cindy is the younger of two girls. Her sister briefly attended college but did not yet finish. Both Cindy's parents are from Mexico. Cindy lives in the honors students' residential college.

Emily. Emily is studying biomedical engineering. Emily's two older brothers completed engineering degrees in Mexico. Emily was raised in a border town in Mexico. Emily is studying at SU under the Deferred Action for Childhood Arrivals (DACA) program. She lives off campus in an apartment.

Marissa. Marissa is studying biomedical engineering. Marissa is the younger of two girls. Her sister started, but did not complete college. Her father is from El Salvador, and her mother is from Mexico. Marissa grew up in a suburb near SU and commutes to college.

Advisor Participants

Audrey. Audrey was born in Minnesota. She completed her undergraduate degree in English and a master's in elementary education. After completing her student teaching, she determined she would prefer another career path within education. Therefore, she

began her career in academic advising. She has worked in the field for five years. She is a first-generation college student. She identifies as White.

Jennifer. Jennifer was born in Arizona. She is a first-generation college student and identifies as White. She completed her undergraduate degree in education with an emphasis in math. Her master's degree is in adult learning. She taught high school math for two years before beginning her career as an advisor eight years ago.

Elena. Elena was born in Mexico. She identifies as a Chicana. She traveled to the U.S. without legal immigration status, obtaining legal status in the late 1980s. Her undergraduate degree is in sociology with a minor in Chicano studies and completed her master's degree in higher education. She worked as a social worker for six years before becoming an academic advisor. She worked as a community college advisor for one and a half years and has worked at SU for six years.

Role of Researcher

My role as researcher in this study was to create, facilitate, investigate, and participate. I created a relationship with the students, facilitated discussions between the students and the advisors, investigated the experiences of the students and advisors with validating advising practices, and participated in capturing the student *testimonios*. I am a Latina, daughter of first-generation college students who grew up listening to stories about my parents' experiences as minoritized students within the state. I engaged this insight and knowledge throughout the study. As a practitioner, I draw upon my own experience as an advisor, my responsibility to all support all students towards persistence, and findings I collected during an earlier cycle of action research. I first began to recognize the colorblind practices in place and see the opportunity to enhance our efforts

at student persistence through those experiences and reflections. I am aware, though, through my participation in the study I served in a role of authority and responsibility for both students and advisors.

Action Plan

The research study participants engaged in a 10-week long study. During the study, the advisor engaged in validating advising practices with the students. Additionally, the students participated in one semi-structured and focus group interview with me. Meanwhile, the advisors participated in an interview and training session before the validating advising program and completed an interview after the validating advising program. The validating advising program is described further in this next section.

Validating Advising Practices

This study explored the role of advisors and students in co-creating and experiencing validating advising practices. The practices included specific interaction points where an advisor proactively engaged with a student to provide validation. In line with the validating behaviors identified in previous research studies, these interactions were initiated by an out-of-class agent designed to empower, affirm, and support and were offered early on in the first semester of the students' college experience (Rendón Linares & Muñoz, 2011). In the context of this advising intervention, several practices were central:

- Advisors and students shared knowledge and became partners in learning.
- Advisors initiated the interactions.
- Advisors used authentic, affirming statements, such as “You can do this. I am going to help you.”

- Advisors engaged a student's community cultural wealth resources.
- Advisors served as mentors.

The intervention included two phases. Typically, first semester students only meet once with their advisor, during a large group session. A student can choose to schedule an appointment with an advisor, but not all students do this or even know why an appointment might be beneficial. The first phase began with a face-to-face individual meeting between the student and advisor. During this meeting, the advisor followed a pre-determined set of narrative interview prompts designed to build an advisor's understanding of the student and her student's past successes and goals. One to three days after the meeting, the advisor emailed each student, in which she highlighted key discussion points and requested the student to complete a series of reflection questions collected via an online Google document. The reflection questions were designed to elicit the student's deeper thought process on their current and past experiences. Next, the advisor completed an initial set of her own reflection prompts and completed an asset map template. Once the student completed her own set of reflection prompts, the advisor reviewed the student's responses and completed the final two questions of her own reflection prompts.

The second phase was quite similar to the first. It began with a face-to-face individual meeting between the student and advisor. During this meeting, the advisor followed a pre-determined set of narrative interview prompts designed to build an advisor's understanding of the student's progress, concerns, questions for the first semester, as well as discuss plans for the second semester. One to three days after the meeting, the advisor emailed each student, in which she highlighted key discussion points

and requested the student to complete a series of reflection questions collected via an online Google document. The reflection questions were designed to elicit the student's deeper thought process on their current and past experiences. Next, the advisor completed another set of her own reflection prompts and updated relevant sections of the asset map template. Once again, after the student completed this second set of reflection prompts, the advisor reviewed the student's responses and completed the final two questions of her own reflection prompts. This figure outlines the actions taken by each participant after the student and advisor met.

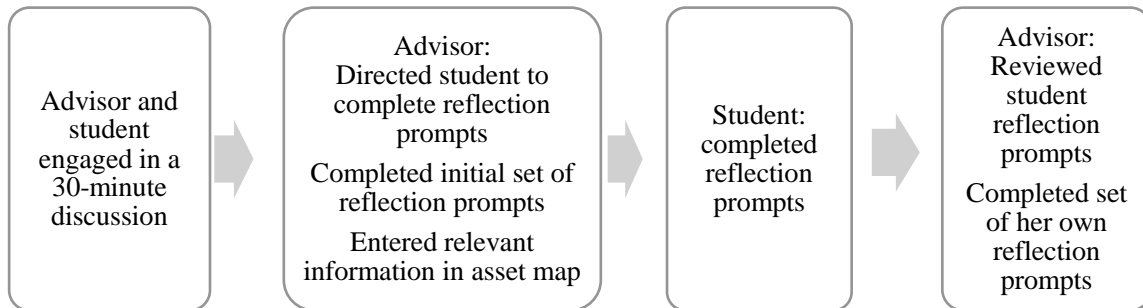


Figure 1. Validating advising practices.

Timeline

This research study began in August and concluded in November. The timeline for the study is presented in Table 3. This table reflects the intervention and data collection steps. Data collection is discussed further in the subsequent section.

Table 3

Action Research Timeline

Timeframe	Intervention Steps	Data Collection Steps
August	<ul style="list-style-type: none"> • Researcher identified and invited students and advisors • Researcher led training session with advisors 	<ul style="list-style-type: none"> • Researcher conducted 1:1 semi-structured interviews with advisors • Researcher conducted 1:1 semi-structured interviews with students
September	<ul style="list-style-type: none"> • Advisor met individually with students, conducting a narrative interview. After the meeting, the advisor: <ul style="list-style-type: none"> • sent student email with link to open-ended questions • completed her own set of open-ended questions • entered relevant examples into the student’s asset map 	<ul style="list-style-type: none"> • Researcher continued to conduct 1:1 semi-structured interviews with students
October	<ul style="list-style-type: none"> • Advisor met individually with students, conducting a narrative interview. After the meeting, the advisor: <ul style="list-style-type: none"> • sent student email with link to open-ended questions • completed her own set of open-ended questions • entered relevant examples into the student’s asset map 	<ul style="list-style-type: none"> • Researcher conducted three total focus groups, one per school with only those students from her school • Researcher conducted 1:1 interviews with advisors

Data Collection Resources

To collect data to answer the research questions, I employed qualitative data in an action research study. The qualitative data collection instruments included participant *testimonios* captured through multiple interview types and the students’ responses to open-ended questions. Additionally, the advisors participating responded to two sets of open-ended questions, attended two interviews with me, filled out an asset map on each

student, and completed a training session. Also, I maintained a researcher reflection journal. Each of the data collection tools are described in this next section. Table 3 above includes the timeline for when this data was collected.

Interviews

Interviews enable researchers to elicit a participant's point of view, discover the meaning of their experiences, and learn about their lived experiences (Brinkmann & Kvale, 2015). "The research interview is based on conversations of daily life and is a professional conversation; it is an inter-view, where knowledge is construction in the inter-action between the interviewer and interviewee" (Brinkmann & Kvale, 2015, p. 2). Creswell (2015) identified nine steps for conducting interviews which include: "identify the interviewee, determine interview type, audiotape the questions and responses, take brief notes, locate a quiet, suitable place, obtain consent, have a plan, use probes for additional information, and be courteous and professional" (pp. 219-220). In this study, all interviews were recorded via software on cell phones (the researcher's and the advisors'). The advisors sent me electronic versions of the recordings after their meetings with the students from their school. Within this study, multiple forms of interviews were conducted. Table 3 references each interview by type and the timeframe in which it was conducted.

Semi-structured interviews. A semi-structured interview is an interview in which the researcher organizes and guides the interview and asks follow-up questions when clarification is needed (Ravitch & Mittenfelner Carl, 2016). Within this study, semi-structured interviews occurred at two points. The first point was as the beginning of the study when I met individually with each student and advisor (See Appendix C for

protocols). The semi-structured nature enabled me to explore certain topics as they arose from the students and advisors. For example, questions such as these were asked of the student: (1) Why did you decide to study engineering? When did you decide? (Explore to find out more, especially if there were family or friends who prompted this decision); and (2) How has your family, family, or another individual influenced your decision to be an engineer? (Explore to find out more about the relationship with that person, why was that person influential).

The second point at which I conducted semi-structured interviews was at the conclusion of the study when I met individually with the three participating advisors. I asked questions such as these during the second interview with the advisors: (1) “How did you feel using the protocol for the narrative interview? (Explore to find out what was valuable? What was helpful? Were there barriers to using those questions? If so, what were they?),” and (2) “How, if at all, are your relationships with students who participated different than from those students who did not participate?” The semi-structured interviews were used as a form of data collection within the study.

Narrative interviews. The second method of interview used was a narrative interview. Within the study, the narrative interviews served two purposes. The first was as a way to guide and structure the advisor’s meetings with her students in order to elicit the student *testimonios*. Additionally, the narrative interviews served as a data collection tool. A narrative interview focuses on stories and encourages participants to elaborate on key points related to their experience or history (Brinkmann & Kvale, 2015). The interviewer often initiates the story by introducing a question such as “tell me about a

time when...” or “describe an experience when...” The interviewer asks follow-up questions to seek clarification but most often plays the role of a listener.

The narrative interviews occurred between the advisor and student at two points during the study, once in September and again in October (See Appendix B). The advisor audio recorded the interviews and submitted a copy. I reviewed the audio recordings at a later date. The role of narrative interviews was critical in this study as they are used to elicit a story. Advisors often meet with students, but typically at the student’s request. During the validating advising program, advisors initiated the discussion. Therefore, they needed to guide the conversation in such a way as to deepen their understanding of the student’s experiences, history, and assets. Advisors asked questions such as these during the two narrative interviews they held with each student: “Describe for me how you decided to study engineering,” “Describe a time when you felt connected at SU,” and “Describe a time when you faced a past challenge.”

Focus group interviews. The third method used was a focus group interview, which typically consists of four to six research participants, where discussion is guided by the researcher to encourage the sharing of viewpoints and foster collaboration, not necessarily to reach consensus (Brinkmann & Kvale, 2015; Creswell, 2015). The focus group interviews were held in November between myself and the students (See Appendix C for protocols). I led three separate focus groups: one for each of the groups of students working with one advisor. I audio recorded each focus groups. The focus group served multiple purposes in the context of this study. First, I explored the students’ experiences in engineering. Second, I shared my preliminary findings in my analysis, which will be further explained in the subsequent section of this chapter. Third, this was the first and

only time the students met one another, thereby creating a community amongst themselves in their major. Examples of questions being asked at the focus group included the following: “In what ways do you see yourself as part of the SU campus community?” “What would you tell the next group of freshman students about studying engineering at the COE?” and “How did your advisor offer support to you during this semester?”

Open-ended questions. Open-ended questions allowed for exploration of themes directly from the participants as they reflect on and comment about their own interpretation of their experiences (Creswell, 2015). Additionally, participants may be asked to complete responses to open-ended questions as a means of sustaining a connection with participants or capturing a participant’s reflections over time with an intervention (Walton & Cohen, 2007).

Within this study, students and advisors responded to unique sets of open-ended questions provided in a Google document within a password-protected folder. In September, the advisor conducted the first narrative interview. Afterwards, the advisor emailed the student to complete the first round of open-ended questions. Likewise, I emailed the advisor and directed her to complete a unique set of open-ended questions. After the student completed her responses to the open-ended questions, I again emailed the advisor. I asked the advisor to read the student’s responses and then answer two additional questions based upon the advisor’s reflection on the student’s responses. For example, the student was asked to respond to this question: “Is your college experience different than you thought it would be? If so, how?” The advisor was asked a question such as this one: “Thinking back to your first meeting with the student, what struck you as most meaningful about the interaction? Why was that?” After the student completed

her responses, I directed the advisor to review the student's responses and then answer this type of question: "Please read the student's responses on her Google doc. What struck you as most meaningful from those responses? Why?" These questions further engaged the advisor in exploring the student's assets.

The following month, the advisor again met with the student and completed the second narrative interview. After this meeting, the advisor and student completed responses to the open-ended questions. The advisor emailed the student to complete the questions. I emailed the advisor to complete her own set of questions. After the student completed her questions, I emailed the advisor to read the student's responses and complete two additional questions of her own. This was the same set of activities the advisor followed after the initial meeting with the student.

Researcher Reflection Journal

Generally, the researcher reflection journal includes notes, reflections, questions, and step-by-step processes followed by a researcher (Ravitch & Mittenfelner Carl, 2016). A researcher reflection journal also tracks the research process and structure of research design, references, action plans, and the evolution of thoughts or ideas. Research journals may be included in the data analysis process and follow a relatively informal structure. I maintained my own journal on the process and procedures of the study. I noted key dates when I completed activities, observations I made throughout the study, and procedures I followed as I set up the components of the study such as the process for scheduling interviews, creating and sharing the Google documents, and capturing my reflections on any connections being made through the data collection phases.

Asset Map Template

Within a qualitative research study, text collected as data can serve as a foundation for interpretation (Flick, 2014) both in the data collection and analysis phase (Flick, 2014). Furthermore, “participants actively produce realities and objects through the meanings they ascribe to certain events and, second, the view that social research cannot escape the ascription of meaning if it wants to deal with social realities” (Flick, 2014, p. 97). To better understand how the advisors assigned meaning to their experiences with the students, the advisors completed an asset map template for each student. The asset map template was a simple structure with each asset from the community cultural wealth model listed and defined (See Appendix D). Next to it was a blank box where an advisor was directed to fill in examples of when the student discussed that specific asset and how the asset was discussed. Figure 2 includes an excerpt of the template.

Student Name: _____

	Experiences to note for each form of capital (include date and location of interaction)
ASPIRATIONAL Ability to maintain hopes and dreams for the future even in the face of real and perceived barriers	
FAMILIAL Refers to those cultural knowledges nurtured among <i>familia</i> (kin) that carry a sense of	

Figure 2. Excerpt from the asset map template.

After each interaction between the student and advisor, the advisor was directed to update this asset map template. One of the open-ended questions completed by the advisor asked the advisor to reflect upon the experience of updating and utilizing the asset map template. This template served as a data collection tool, but also as a tool to

understand how the advisor interpreted the concept of the community cultural wealth knowledge and her ability to recognize and draw upon those assets in her discussions with the student.

Researcher Led Training

The final data collection tool was a recording from a training session I led for the three participating advisors. The three-hour training session covered topics such as critical race theory, the social construction of race, the theory of validation, and community cultural wealth. Additionally, the session covered interviewing techniques, the rationale for narrative interviewing, and a review of the validating advising program (See Appendix E). I captured the audio recording from the session. During the session I asked the advisors questions such as these: “Reflect on the concept of ‘minoritized.’ What does it mean to you? How is it different from a phrase such as ‘underrepresented minority’?” I recorded the session to ensure I captured their responses and discussion amongst one another.

Table 4 outlines the data collection methods, description, justification, and research question:

Table 4

Data Collection Overview

Data Collection Instruments	Description	Justification	Research Question(s)
Student responses to open-ended questions via Google Docs	Responses to open-ended questions.	Capture student voices	1, 2, 3
Student one-on-one interview with researcher	Responses to semi-structured interview with researcher	Capture student voices	1, 2, 3
Student one-on-one meetings with advisor	Responses to narrative interviews with advisors	Capture student voices and explore construction	1, 2
Student focus group interview	Student participation in focus group interview	Capture student voices and engage student in data analysis	1, 2, 3
Advisor responses to open-ended questions via Google Docs	Responses to open-ended questions	Understand advisor experience with validating advising practices	1
Researcher and advisor interviews	Responses to semi-structured interview with researcher	Understand advisor experience with validating advising practices	1, 3
Advisor entries on asset map	Advisor text added to asset map	Understand how an advisor interprets student data and utilizes data in future interactions	1
Researcher led training	Advisors attended a three-hour training session on key concepts	Explore how an advisor understands the key theories in the validating advising program and within the study as well as how to capture student stories in the narrative interviews	1

Data Analysis

I employed qualitative data analysis techniques to scrutinize and interpret the collected data. Approaching qualitative data analysis critically and authentically involves the following considerations: iteratively and recursively analyzing data by relying upon and composing analytic memos throughout data collection and data analysis aspects of the study, attentively capturing participant language and context, seeking out multiple perspectives to make sense of results, also known as triangulation, engaging with others in the data analysis, and recognizing my own role as a researcher within the study in terms of my position of power and authority (Ravitch & Mittenfelner Carl, 2016). The data in this study were analyzed with two approaches, one embedded within the other. The two approaches included thematic analysis (Braun & Clarke, 2006) and a three-phase collaborative analysis (Pérez Huber, 2009) process. Each will be described in more detail as well as the rationale for the use of two approaches.

All interviews were audio recorded using a recording software on each advisors' and the researcher's phone. Recordings were then transcribed using rev.com, an external transcribing company. Thematic analysis is an "approach to identify, analyze, and report patterns within data" (Braun & Clarke, 2006, p. 79). I employed a theoretical approach to the analysis, which involved using theoretical frameworks and codes related to those frameworks during the coding process (Braun & Clarke). First, I familiarized myself with the data, reading the transcripts and listening while reading (Creswell, 2015). I began taking notes about what I was seeing and reviewed the field notes from interactions in which I engaged.

Next, I developed a set of codes within the data corpus. A code is “a word or short phrase that symbolically assigns a summative, salient, essence capturing, and/or evocative attribute for a portion of language-based or visual data” (Saldaña, 2016, p. 4). Coding involves categorizing and labeling data which then leads to interpreting the data or understanding the data within the context (Creswell, 2015; Flick, 2014). A variety of approaches were considered in the coding process in order to address the research questions. Additionally, throughout the coding process I created analytic memos. Researchers employ analytic memo writing throughout the coding process to reflect and expound upon connections being made, interpretations being considered, and note insightful connections (Saldaña, 2016).

The data corpus was reviewed and then coded using initial coding. Initial coding is appropriate for most quantitative research studies, can be used for theoretical analysis, and is often considered a starting point to begin to see themes and patterns emerge (Saldaña, 2016). A total of 47 codes emerged for this question. Next, I completed a second round of coding, focused coding, which enabled the initial codes to be categorized within the context of these theoretical frameworks (Saldaña, 2016). I wrote analytic memos to document questions and the relationships between the codes.

Once the coding was completed, I considered the codes and categories in the context of the thematic frameworks outlined for each research question, which are described in the follow subsection. I referred to the analytic memos and the frameworks themselves to ensure the themes adequately captured and described the data. The next phase of the analysis considers how to define and name the themes.

Research Question #1

For research question 1, which explored construction, the following theoretical frames guided the process of defining and naming themes. Construction is the experience of knowledge creation which emerges from authentic dialogue between the student and advisor (Pérez Huber, 2009). Authentic dialogue is characterized by: (1) the building of trust and understanding through sharing of stories, (2) embracing students' ways of knowing, and (3) articulating solidarity (Freire Institute, 2017; Stanton-Salazar, 2011). Trust and understanding emerge as a student's goals are elicited and her voice is centered in the discussion (Stanton-Salazar, 2011). Ways of knowing are embraced when a student's past history and unique forms of knowledge are recognized as pivotal in accomplishing her academic and interpersonal goals (Pérez Huber, 2010; Rendón Linares & Muñoz, 2011), where advisors and students collaborate to make meaning of the student's world in order to empower her to transform it (Hemwell & Trachte, 2009). Solidarity is articulated when practices are reflected upon and changed to reflect an understanding of students' ways of knowing (Freire, 1993; Rendón Linares & Muñoz 2011; Stanton-Salazar, 2011).

Research Question #2

For this question, I used a priori codes related to student assets, identifying those forms of assets which Yosso (2005) and Liou, Martinez, and Rotheram-Fuller (2016) identified. The data corpus was reviewed. Again, I completed two rounds of coding: initial and then focused coding. I wrote analytic memos to document questions and the relationships between the codes.

Research Question #3

For this research question I identified codes related to validation, advising practices, and student descriptions of interactions related to those codes. I followed a similar approach as the prior two research questions. The data corpus was reviewed. Again, I completed two rounds of coding: initial and then focused coding. I wrote analytic memos to document questions and the relationships between the codes.

Additional Analysis

Finally, while not a specific research question, I employed a modified data analysis model which originated from Pérez Huber (2009), who utilized testimonios as a methodology within her own research. This approach engaged the student voices in both the data collected as well as in the analysis of the data. The approach is referred to as the three-phase data analysis process and centers the students' voices as well as recognizes their role as holders and creators of knowledge in a CRT study. The visual model is depicted in Figure 3 and the adaptation of each component is explained in more detail.

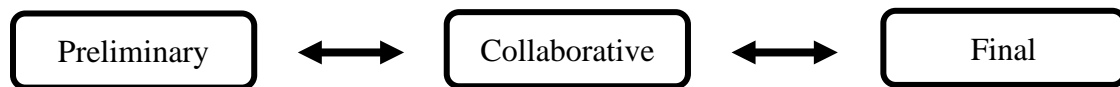


Figure 3. Visual model of three-phase data analysis process.

While Pérez Huber initially followed a grounded theory approach in the study, I adapted this approach for use in my study because of its relevance for use in studies which capture student testimonios through methodology within the framework of a raced-gendered epistemology.

Preliminary data analysis. The first phase, preliminary data analysis, includes recording, transcribing, and coding collected data. For this analysis, I selected only the interviews between the students and advisors because those discussions related to the interactions between them. I wanted to explore the types of discussions elicited between the student and advisor.

The goal of this was to identify certain statements made by students during their advisor interviews which spoke to their experiences as Latina first-generation students in engineering. I completed only one round of coding, initial. I identified dimensions of categories, i.e. *being Latina, being female, being an engineer*. I did not describe those categories, simply named them. The advisors asked the students questions specifically related to these identity roles and how they experienced those identities within the COE. Once identified, I narrowed down the multiple instances to include five transcript excerpts. The criterion for selecting those excerpts were to ensure at least one student from the three advisors was selected, at least one statement regarding gender, immigration status, or race were selected, and no one student is attributed with more than one excerpt.

Collaborative data analysis. This phase of analysis was conducted via the focus group with the students. As described above, through a preliminary round of analysis, I identified statements made during the advisor to student interviews and shared those with the participants. During the focus group, one participant read the statement aloud to the group. I then asked the group to discuss their feelings on or response to the statement. For example, I asked if they agreed with it, did not agree, or had a different experience. Through their discussion and group interaction, I began to view the data through their

unique points of view. This analysis approach supported a raced-gendered epistemology which centers the participants as creators of knowledge (Delgado Bernal, 2002).

Final data analysis. During this final phase, the findings of the preliminary and collaborative phases were combined with the broader data corpus so as to

engage a knowledge production process that incorporated participants into the analytic process...thematic categories were identified and brought to the group through a reflection exercise, where participants were able to reflect, discuss, and engage with each other (including myself) about how we could provide a clearer understanding of the categories. (Pérez Huber, 2009, p. 648)

I analyzed all codes and themes which emerged during the collaborative data analysis phase, along with my analytic memos to create larger theoretical connections (Pérez Huber, 2009; Pulido, 2015). As the process of testimonio includes reflection between those who narrate and those who hear the narrative, my own experiences were beneficial towards understanding how I have been influenced by their stories. I relied upon analytic memo writing during the final analysis phase as well.

Summary of data analysis. This process began with a thorough reading of the data corpus. The second phase of the thematic analysis involved identifying codes. Next, the theoretical frameworks guided the identification and naming of themes. Within this process, an additional round of analysis was performed while the study was underway, the three-phase collaborative analysis approach. This allowed for the centering of student voices and was supported by my critically-raced gendered epistemology.

Validation and Trustworthiness

I relied upon validation and trustworthiness strategies to establish credibility with my findings (Creswell, 2015). The specific approaches I used included member checking, triangulation, and peer debriefing. Member checking is a process which includes

participants in exploring the findings (Creswell, 2015). The second phase of the three-phase data analysis process (Pérez Huber, 2009), as previously explained, included the opportunity for member checking. Triangulation occurs when multiple forms of data are used to corroborate findings (Creswell, 2015). I found through the multiple open-ended questions and reflection journals consistent themes which emerged amongst each individual participant. The peer reviewer seeks to challenge assumptions in the research analysis to ensure trustworthiness. I relied upon my peers in my doctoral program to provide peer reviewing of my first and second phases of coding throughout the analysis process. Through these three approaches, I aimed to reinforce the trustworthiness and credibility of my procedures, analysis, and conclusions.

CHAPTER 4

ANALYSIS

The aim of this study was to explore advisors' and students' interactions within the implementation of validating advising practices. The qualitative data sources gathered to address the research questions in this study included audio data from student and advisor meetings (interviews) and written data (student and advisor reflection responses and advisor-completed asset maps). In this chapter I present the findings from analysis of each research question, providing supporting evidence through participant quotes and written responses.

Research Question #1 Findings

This section examines Research Question #1, How do academic advisors influence the construction of validating advising practices with first-generation Latina engineering students? This discussion considers two components: the advisors' perceptions and the advisors' approach to implementation of the constructed validating practices.

Advisor Perceptions

This first finding explores the advisors' initial perceptions about first-generation Latina students. During their initial interview as well as the advisor training, the participants were asked to describe the challenges they believe first-generation Latina students would face while studying engineering. Jennifer presented her viewpoint when she stated, "[First-generation students] have more questions...so, I think they need extra reassurance whereas maybe students who have both parents that graduated from college are like, 'oh, mom and dad will talk to me about this.'" Jennifer further stated "I think

first-gens have so many, I hate to say it this way, but cards against them. It's hard when no one has done it." In these statements, Jennifer described how first-generation students need additional support because their parents did not attend college. The assumption within these statements suggests if the students' parents had attended college, they would have been able to provide them with additional (necessary) support. Further, she suggested she was in a position to provide the additional support to fill a perceived gap in the students' understanding. Audrey expressed a similar sentiment when she said:

It seems like some of the first-generation students are a little bit more lost on how that works or how switching classes works or things like that, just because they might not necessarily have that resource that's been through that same process before.

Jennifer and Audrey attributed first-generation challenges to the lack of parental knowledge about college and assumed parents who attended college could provide the missing support. Jennifer expounded on the idea of parental support in this statement: "I agree with the parental support thing. Because I don't know if they're pushed as often as other ethnicity's parents." Notably, Jennifer attributed student success to not only parental knowledge, but also parental aspirations for their children. Jennifer suggested their parents may not reinforce the value of education as highly as others' parents do. This statement reflects views of the family's failure to transmit key knowledge about how to succeed in college reflects not only lack of interest in preparing them, but also suggests the parents have low educational aspirations for their children.

Overall these statements reflect widely-held deficit viewpoints about minoritized students (Gándara & Contreras, 2009; Solórzano & Yosso, 2001; Valencia, 2010). For example, "parental education is essential because it is tied to class, and class privilege is tied to social and cultural capital" (Gándara & Contreras, 2009, p. 51). The thinking then

follows that the families are responsible for developing the cultural knowledge and skills students need to be successful in college (Valencia, 2010, 2012; Yosso, 2005). If the parents and their students lack the needed capital, they are presumed to then arrive at college with deficits. Valencia (2012) describes this as the cultural deprivation model, where families are depicted negatively and the children are impaired as a result of the family's deficiencies.

While Jennifer and Audrey stressed the students' perceived deficits as a function of their families, Elena expressed a broader description of first-generation student challenges. She stated, "I would say that [first-generation Latinas] are probably under-prepared and under-supported. They probably didn't have quality of teachers, quality of courses, they may not have had, a parental familiar support or you know." In this statement, Elena expounded upon previous statements about deficits by highlighting their lack of preparedness and likely poor high school experiences; suggesting all of these contribute to a student's overall set of attributes. Research suggests rather than viewing the deficits of parents in supporting and preparing their students in college, educators should consider the positive resources and supports available within their various forms of assets and past experiences (Valencia, 2010; Yosso, 2005). The advisors did not describe those aspects of what families and past experiences could provide for students. Yet, viewing the students' strengths, rather than focusing on deficits is a cornerstone of validating practices (Rendón Linares & Munoz, 2011; Rendón, 1994).

Their rationale for participating in the study. The advisors' viewpoints were also reflected in their rationale for joining the study. Jennifer's stated, "when you asked me if I was first-gen, I was [willing to participate] because...I want to help people who

are like me, who struggled.” Elena’s rationale was consistent; she attributed her participation as wanting to help first-generation students. She stated, “maybe I can guide them.” Audrey stated she thought her participation would help, “I want to be the person that’s there for first-generation students.” Initially, these sentiments appear supportive, implying the students would benefit from the added support. Instead, they are viewing the students with low expectations for success without their support and intervention. Low expectations reinforce deficit thinking (Valencia, 2012). Teacher expectations have been found to predict educational achievement (Rojas & Liou, 2017). This extends the understanding of teacher expectations to apply to advisors, who in this study approached their practices with lowered expectations of student success under the belief they are helping students. “High achieving Latina/o students have also been shown to demonstrate a higher level of trust in their teachers and counselors, which can translate into *help seeking behavior*, an ability to search and tap into resources offered” (Rojas, 2014, pp. 53-54). Research suggests these students would put trust in their advisor. However, deficit frameworks impede relationship building and reinforce low expectations which inhibits help seeking behavior (Pérez Huber, Huidor, Malagón, Sanchez, & Solórzano, 2006).

Furthermore, these statements can be described as a reflection of deficit thinking known as *blaming the victim*. Valencia (2010) asserts that with blaming the victim includes the following steps: those who blame articulate the social problems; second, they identify the differences between those “victims” and the others; third, they articulate how the difference reinforce the problems; and fourth, they establish an intervention to make corrections. In the preceding section, the advisors’ descriptions of the students

aligned with this description of blaming the victim. Specifically, the advisors reinforced how they viewed the students through deficits and they could help the students overcome those deficits. The advisors articulated the societal problems in the context of the deficit frameworks (poorly funded schools, less qualified teachers). They identified how these students are different from others when they described how these students' parents lacked high aspirations and were unable to be supportive due to their lack of knowledge about college. They described how those differences result in compounding deficits as they described how these students had multiple "cards against them." Finally, the advisors described how they could "help" the students. The risk is that when individuals in positions of power frame their approach to their work as a need to "help" students, this reinforces educational inequities (Yosso, 2005) by sustaining the practices and policies that overlook institutional barriers such as the climate (Samuelson & Litzler, 2016) and lowered expectations (Rojas & Liou, 2017). Such an orientation further exacerbates perceptions of students as empty vessels to be filled through institutional practices (Freire, 1993).

The advisors' implementation. The goal of validating practices was to elicit students' assets and then engage those strengths to empower, support, and affirm the students. Therefore, this following subsection considers how the advisors engaged with the intervention protocol, thus, influencing the experience of *construction* between her and her assigned students. Validating advising practices included interactions between the advisor and student within their two interviews as well as virtually via two reflection journals. The practices also included advisor reflection upon the interviews, the students' reflections, and her own insights in the various forms of capital the student conveyed

through her comments on the asset map template. The advisors and students engaged in dialogue (verbal and written) within those interactions to construct their validating practices. Further guiding the analysis of this research question is the understanding that “relationships that increase student access to critical resources or skills needed for academic success can be developed through relationships with institutional agents that move beyond simple mentorship roles, thus having a meaningful impact” (Rojas, 2014, p. 12). Thus, the role of the agent within the practices is critical.

In this study, construction was defined as the experience of knowledge creation which emerged as a result of the authentic dialogue between the student and advisor (Pérez Huber, 2009). Authentic dialogue is characterized by (1) the building of trust and understanding through sharing of stories, (2) embracing students’ ways of knowing, and (3) articulating solidarity (Freire Institute, 2017; Stanton-Salazar, 2011). The practices were outlined to support construction. Through the analysis, this framework of construction, as supported by the literature, continued to emerge through their statements and interactions. Accordingly, it is used as a framework to describe how each advisor approached the process of construction uniquely. In Table 5, each approach to construction is described in the context of the three components of authentic dialogue.

Table 5

Analytic Framework

Components of authentic dialogue	Description of Advisor Approach to Construction		
	Audrey's Practices	Jennifer's Practices	Elena's Practices
Build trust and understanding through shared stories	Reluctantly elicited information	Experienced deeper understanding	Articulated appreciation
Embraced ways of knowing and created new understanding	Restrained herself from fully engaging	Reflected upon her own positionality	Recognized influence of deeper connections
Acted with solidarity by sharing responsibility to enact change	Continued to employ legacy advising practices	Articulated a change in practices was needed	Implemented practices broadly

Audrey's advising practices. The analysis finds how Audrey reluctantly elicited information in her interactions with the students, restrained herself from fully engaging in the protocol, and limited her understanding, and she continued to engage legacy advising practices as her practice remained relatively unchanged. These three aspects of her approach to authentic dialogue are discussed within this section.

Build trust and understanding. Initially, Audrey expressed her interest in participating in the study as she explained her rationale. She said:

It's just ... I think it would be interesting to get the chance to talk ... you know have a maybe a little bit closer relationship with a couple students or get the chance to talk with them a little bit more about what their experience are. And you don't necessarily get that ... don't necessarily get to set time aside to do that and so it would be interesting to get to do that.

She expressed an interest in getting to know students more deeply, citing time as the current barrier to being able to develop her understanding of students' experiences. In the final interview, Audrey stated:

I'll be nice to you, but I don't wanna be super close. And so I feel myself in some advising appointments, especially with young women, for some reason, I always get this feeling that they wanna be much closer to me than I want to be close to them. And for some reason it's really draining for me to put that much emotional response behind advising appointments too.

In this statement, Audrey explained how she felt herself pulling back from sharing aspects of herself and in creating an emotional connection to students. When asked to explain her reluctance to experience an emotional connection in an appointment, she responded:

they shared things and I tried to validate it or relate to it in some way, but I think that was one of the reasons why I maybe pulled back a little bit...because if they did share too much, I didn't know necessarily how to respond to that and make them feel comfortable in sharing it.

In this statement, she explained how she wanted to validate the student, but she continued to fear her own level of discomfort in eliciting and responding to their stories. She wrote further about this further in her reflection journal:

The narrative prompts pushed me a little further outside of my comfort zone than I'm used to. I typically will ask a student more general questions. So it was a little more difficult to ask these types of questions and then follow up on them as these aren't things that I'm used to talking about with students.

Her statements reflect how she wished to maintain a distance between herself and the students. In her reflection on another student, she wrote "sometimes as an advisor I feel like students want me to make their decisions for them." Here she described how she feels the need to respond to students' expectations about her role. Yet, she pulls away emotionally to distance herself. Perhaps she does so in order to not have to make those

decisions for the students. However, to engage in a dialogue, the advisors needed to view themselves as participants in the discussion, versus simply facilitators of the discussion. Indeed, Audrey's accounts of her interactions in the above statements reflect her hesitation in engaging fully in the construction of validating practices.

This played out when she and Camila discussed her family and the support they offered her, as shown in the exchange below:

- Audrey: I know last time we talked about kind of your family and how they didn't always understand you had homework to do or things like that. How's that been going?
- Camila: I don't know. They don't really ask me about school or anything. They just ask how I'm doing. I'm like, "you know, I'm fine." ...I don't know. I don't really talk to my family about just school. I don't know.
- Audrey: So, it's more just family stuff?
- Camila: Yeah.
- Audrey: That's good. Awesome. How do you feel about your major?

In this exchange, Audrey missed an opportunity to discuss the role of family in Camila's academic experience. In their first interview, Camila expressed how her father was an inspiration to her for attending college. Audrey noted this within Camila's asset map "she was inspired to become a civil engineer after watching her father in construction" and noted how in both interviews Camila described her family and "having to explain college to them." Additionally, Audrey wrote in her reflection journal how she maintained the emotional distance from the student through her approach to the narrative interview. She said:

I feel like I cut part of our interview short because I couldn't find things to follow up with her on. Again, part of this is my fault because I was asking closed-ended questions, but she seemed to not want to elaborate on things such as her family.

Audrey limited further discussion on the topic of family and concluded after Camila's interview that Camila "keeps family separate [from school]" on Camila's asset map.

Further Audrey wrote on the asset map “she seems to show a lot of determination to go against her family’s urging to abandon her homework and have fun with them. Instead she said that she has to explain to them how important it is and that she finish everything.” Audrey conveyed in this statement a form of Camila’s *resistant capital*, a capital which reflects oppositional behavior which challenges inequality (Yosso, 2005). However, Audrey’s notations on the asset map reinforce her deficit viewpoint regarding Camila’s family, describing them as a form of distraction for her, something she should resist. Research suggests the opposite is true; Camila will draw strength from the knowledge and insight of her family and relationship to her family and community (Yosso, 2005). By engaging her familial capital and working with Camila to identify it as a source of strength, not a deficit, Audrey would have empowered her, ultimately validating the role of family in her success. Rendón (2006) describes how traditional views of students suggest they are a “solvable” problem; however, each student must be viewed holistically, full of strengths.

By not engaging in dialogue, the advisor centered her own intentions for the appointment, her own plan to guide and lead the conversation. This reflects invalidation because Audrey could not demonstrate authentic care or concern (Noddings, 1988) while emotionally detaching from the students (Rendón Linares & Munoz, 2011). Furthermore, interpersonal validation emerges from an advisor caring about students’ experiences and students feeling understood while invalidation results when students remain separated from students (Rendón, 1994).

Embraced ways of knowing and created new understanding. For each narrative interview, the advisor was provided with a set of question prompts to follow and discuss

with each student. Audrey opted to not ask certain question prompts. She explained this in her statement below:

Especially the first generation, like, "How did being a first-generation student impact your time at ASU, how did being a Latina student impact your time at ASU?" I don't think I ever actually asked that question to any of my students.

Audrey did not ask any of her participants about their experience as it related to their identity as first-generation or Latina. She explained why when questioned:

But I think just being a first-generation student too, I never felt like that put me in a different place as a student and I think, for me, highlighting that was just, is kind of a ... I don't know. It was kind of a weird feeling to basically label somebody like, "Hey, you're different from these other students. I want you to think about your being different and how that affects you."

Audrey did not want to highlight to the students when or how she perceived them as different, because she did not feel different when she was a first-generation college student. When asked to explain why she had not asked any of the participant's specific questions about how they felt as Latinas studying engineering, she responded:

Right. And I know. I saw that question when I was interviewing them. I'm just like, for some reason I couldn't get myself to ask that question and I don't know why. I mean, I can't really go back and blame how I grew up, but Minnesotans are very, we don't like to be touchy feely. And I'm very much that type of person.

She further explained how "I don't know. Minnesota is very Scandinavian, very Norwegian, Swedish, And German, so we didn't have a lot of interaction with diverse populations." Audrey attributed her upbringing to explain her emotional distance as well as her limited interaction with diverse populations. Yet, rather than eliciting and learning from the students' experiences and histories, she avoided discussions on race, instead emphasizing that she did not want students to feel different.

Further, when Audrey specifically stated, "There's definitely a need to feel like they aren't different than other students," Audrey minimized the role of race. Bonilla-

Silva (2017) described a form of colorblind racism known as abstract liberalism. It is characterized by individuals who subscribe to the thinking that all individuals should be treated the same, appearing reasonable about equal opportunity while opposing approaches which might lead to change. Audrey elaborated on this further when she wrote in her reflection journal

I did feel kind of a “pull” to go back to the academic/class-related topics that I’m more comfortable discussing with students rather than the more personal questions about why they came here, why they chose their major, etc. (and I think this kind of obvious in the interview recording). So it was challenging to try to dig in deeper to those personal discussions instead of keeping the conversation more “academic” oriented.

In this statement, Audrey described how she preferred to discuss academics. She described how their discussions inevitably centered on academics citing the students as her rationale for approaching the discussions. She said, “[The discussions] kind of fell back on the things that would be really common for any other student to struggle with, like struggling in chemistry or struggling with math or things like that.” This reflects a consistency with the preceding subsection, where Audrey expressed a desire to maintain an emotional distance from the students.

Audrey described if she felt her participation in the study was valuable. She said:

Yes, It was nice to get some time just to not be so academic focused and get to focus on the students a little bit more. And I did like going back and reflecting on it, especially filling out the asset map. That was helpful in putting together the student as a whole and getting to see in a different light what strengths I have, what potential weaknesses could be.

Audrey continued her explanation of her positive orientation towards the study and stated:

I think the participants are a little similar that way, where they're like, "I know this. I know what I'm doing. I know where I'm going. I'm not going to let being

first-generation or Latina define me.” And I think it's just validating that I'm supporting it and making sure that they know that it's okay.

Additionally, Audrey noted these observations in her reflection journal. She described her second interview with Jessica:

[Jessica] Doesn't see being a first-generation student a hindrance in college. She said that she sometimes feels a little different than other students in that her parents may not fully understand what she is doing or may not be very insightful in an issue she is having, but she doesn't see this as something that is holding her back.

Yet, Audrey did not ask Jessica in the second interview about her experience as a first-generation student. Instead, Audrey noted how Jessica did not view her generational status as “holding her back.” This sentiment further reflects deficit viewpoints, Audrey concluded how by even discussing this with Jessica it would illuminate how being first-generation could be perceived as a deficit.

In these statements, Audrey described how she felt she was responding to the student's internalized perceptions of the role their generation status and ethnicity played in their college experience. Yet Audrey explained how she avoided discussions related to how the students may discuss their experiences due to their race, gender, or first-generation status and instead focused on academics as a way to maintain that distance.

People avoid discussions of race because it can cause them to feel threatened, reveal differing viewpoints, and feel their own beliefs are invalidated (Sue, 2013). By relying upon a neutral topic like academics, Audrey enlisted a form of race-based talk (Sue, 2013) which has been described as way for Whites to minimize potential feelings of guilt about racialized outcomes (Fergus, 2017). Sue (2013) specifically describes Audrey's approach as a form of race-based talk known as an *academic protocol* (Sue, 2013). Individuals who follow the academic protocol focus on objectivity and

detachment. Audrey explained how she did not ask follow-up or probing questions, due to discomfort and not wanting “to elaborate on such things.” Audrey expressed a preference to treat the students like everyone else and resisted asking questions which would lead to authentic dialogue and discussion. By refraining from asking questions as outlined in the interview protocol, she acted colorblind and limited the creation of authentic dialogue. Consequently, she limited the opportunity to affirm the students’ histories, assets, and forms of knowledge, thus shattering her own deficit viewpoints (Rendón Linares & Muñoz, 2011). She did not elicit their stories and minimizing life experience is a form of invalidation (Rendón & Jalomo, 1995). Further, Freire (1993) describes dialogue in this statement:

Dialogue is an encounter among women and men who name the world, it must not be a situation where some name on behalf of others...it must not serve as a crafty instrument for the domination of one person by another (p. 70).

This statement suggests that individuals engaging in dialogue come together as partners, not where one acts in their own interest over the others. By centering her own comfort with the approach, Audrey acted in her own interest above that of her students.

Acted in solidarity. Audrey describes how participation in this program has influenced her practice. She stated:

I don't think [my practice] has [changed or shifted] yet. I think it's ... The one thing that I was kind of surprised about with these students in particular was, in some of those interviews I think they were pretty rough and I feel like I didn't do a great job of asking more questions and getting to know them.

Audrey acknowledged her own reluctance to ask questions which enabled the student to share their stories and build understanding. When asked “have you found yourself doing anything else differently in other advising appointments.” She replied

“no.” She described why when she outlined a previous experience she had within her former job in another college at SU. She said,

To recruit for [X program] that we picked out the students and put them in their own room separate from everyone else. I learned from that is that the students did not react well to be treated differently, from the beginning. They really rebelled against it and there was always that concern of being different and standing out from their peers in that situation.

Here Audrey explained how students identified for a program based upon their standardized test scores or high school GPA, resisted being involved in the program because they were treated differently.

And so, I think that it's important to make sure to meet their needs but try to do it in a way that's individual to them and not just pulling them out to treat them differently from the beginning.

Audrey felt that differentiating treatment immediately created an internalized deficit perspective amongst the students, one she did not want to perpetuate. When asked to elaborate, she explained “I think giving everybody kind of the same treatment to begin with, but then as you get to know students and pick out what their needs are, their differences, maybe start adapting to meet those needs a little bit better.” She expressed a desire to want to differentiate her approach to students, to customize it for their needs. Yet, she struggled within her practice to do differentiate and her fear of treating students differently along with her perceptions about their reaction to differentiated treatment led to her continued use of her traditional advising approach.

Summary of Audrey’s approach to validating advising practices. Audrey’s approach missed opportunities for validation or invalidated because “the uncritical acceptance of the premise that all students can and should be successful on their own terms privilege students who have significant financial, social, and academic capital”

(Rendon & Munoz, 2011, p. 27). Audrey reluctantly elicited student stories, thus, her approach did not validate students experience, histories, or forms of knowledge. Audrey emphasized her own goals for the student meetings, choosing to focus instead on her intentions, not the students' intentions. Freire (1993) describes how by centering her own voice in the discussions, Audrey missed the opportunity for students to communicate their history, thus limiting authentic dialogue. Audrey continued her legacy, colorblind practices. Accordingly, it is unlikely her practices will result in different outcomes. She might then conclude the practices were ineffective and continue to reinforce subordination. The risk is "when these efforts do not produce the desired success, deficit beliefs are likely to be reinforced, and the cycle repeats itself" (García & Guerra, 2004, p. 151).

Jennifer's approach to validating advising practices. Within this subsection, descriptions of Jennifer's approach to the validating practices frame a level of caution as she engaged. While she followed the protocols outlined within the validating advising practices, she expressed cautiousness about the experience of sharing stories while she reflected upon her own positionality and history and enacted subtle changes within her advising practices. These three characteristics of her approach to authentic dialogue and construction will be described in more detail.

Built trust and understanding. When Jennifer began the study, she described her experience with "minority" students, she said:

If I can generalize a little bit, I think any minority group typically has their own challenges that come from not just being in the majority, like you're around people that look different or act different or have difference socioeconomic statuses. And that's totally generalizing.

Jennifer explained her broad statements about being a minority and how in general they have “challenges.” As the study progressed, Jennifer opened herself up to hearing about their very personal experiences and the related emotions the students shared. This exchange below shows how Jennifer elaborated within critical discussions. She asked Cindy to describe her experience as a Latina student in engineering. Below is their exchange:

- Cindy: Because, obviously, seeing there's a majority of people who aren't like me makes me different
- Jennifer: Why would you say that?
- Cindy: So, obviously there's a wide range of different people. So you'll see like Caucasian kids are with Caucasian kids. You'll see the Latino with Latino kids, the Asian kids with the Asian kids. But, obviously American kids don't see me being super close to them, because they think I have more different things going on in my life.
- Jennifer: So, you see that, you see different groups of people associating with their "group"?
- Cindy: Yeah. So, then I feel like that comes into play when I want to ask help with other people. Because, obviously, they'll have their groups, so they don't really know what to do when I want to join them. It shouldn't be that way, but I've seen that.

Jennifer probed further about Cindy’s feelings and learned how she felt different because of her race and those feelings impeded her ability to form relationships with other students. Cindy had previously expressed to Jennifer, “It's hard for me to make friends, which is my biggest issue. I want to change that about myself.” Cindy saw her race as a barrier to building those relationships, which would keep her from experiencing the growth she wanted to experience.

Jennifer additionally had an exchange with Emily regarding Emily’s relationship with her mother. When she asked Emily to describe a past success, they had this exchange:

- Emily: I'm going to get all personal now.

Jennifer: That's okay. Please do whatever you are comfortable with
Emily: Right now, I have a girlfriend, and my mom is very religious, so she didn't agree with that at all. And then we stopped dating, but then, January from senior year, we started talking again. We got back together and now I'm living with her up here. She was supportive with everything else, I love my mom, she is so supportive in school stuff and work stuff, but when it comes to that, no
Jennifer: You guys sound very close, so that is probably challenging
Emily: Yeah
Jennifer: Does your mom come and visit you at all?
Emily: No, I haven't seen her since graduation
Jennifer: Is that tough? Or is that how you prefer it?
Emily: I think I prefer it because she is not accepting me for who I am.

In this brief exchange, Jennifer delved into the strained relationship Emily had with her mother. As their discussion continued, Jennifer stated "It seems like you have a very high level of independence," and Emily replied, "yeah, I have to." Jennifer elicited a deep understanding of both Cindy's and Emily's fears and experiences. Cindy expressed isolation from her peers while Emily described the independence she was gaining from her relationship with her mother.

During the final interview with me, Jennifer was surprised by the depth of the feelings the students shared with her. She said, "it was hard to hear their challenges because hearing them made it more real." When asked why it was "hard," she explained "I didn't feel prepared to respond to these deep feelings. And I thought I would because of my experience teaching high school and working as an advisor." Additionally, she shared, "and so I think this experience for me has almost made that more real, because you don't always see [their struggles]." Jennifer revealed her challenges in deepening her understanding of the students' challenges, because she was unprepared to help them navigate such complex experiences.

Even though Jennifer described these interactions as “hard,” she learned about their deep struggles and concerns. She built an understanding of them and then was able to validate those feelings simply by probing and asking more questions ensuring that she understood how “real” those situations were for the students. Validating advisors can “provide students with care, encouragement, and support...to be successful in college” (Rendón Linares & Munoz, 2011, p. 21).

Embraced ways of knowing. Through these deeper conversations, Jennifer expressed how she was unprepared to support them emotionally. Part of her lack of preparedness was explained when she said,

For me I feel like it's because I am not a minority, and I was asking those questions. ‘How is being Latina? How is being the daughter of an immigrant? How is...’. I almost felt like I shouldn't be...I wouldn't normally ask those questions.”

In this statement, Jennifer described how she did not feel she had the right to ask those questions about the students’ intersectional identities. She further explained her feelings when she stated:

I think you have to be more safe. You don't want to be offensive because everybody's different. I just would, I would never want to offend someone, but knowing isn't the offensive part. I think it's that it would be me asking the question that would be perceived that way.

This statement suggests Jennifer did not want to offend the students by asking “those questions.” Further, she described how she responded to speaking with Emily about her experience being a Latina. During the discussion Emily shared her challenges studying at SU under DACA.

Yeah, and I think ... I sort of realize why now, because it's such an emotional thing. Being from here and being who I am and how I was raised, I've never, it's very foreign to me to feel that way.

In this first part of her statement, Jennifer described here how she recognized her position of power. She said, “being who I am and how I was raised.” Jennifer is White and from a middle-class upbringing. She further explained,

Looking back on it, I don't know if that was a good decision or not [to ask Emily about DACA]. She seemed comfortable with it after we talked about it, but just because it was so foreign to me, I wanted to know more about that. But maybe my other students that are in that position have tiptoed around it, but they haven't said this, because I think sometimes they're afraid to. I don't blame them why, now that I've heard all that's involved with it.

As she further discussed this experience, she articulated how she better understood the experience of DACA students and how she had previously shied away from those conversations with students. She considered their discussion in her reflection journal as she wrote:

Listening back on our second interview, I realized that I probably shouldn't have asked Emily more about DACA (since she teared up and got a bit emotional). Asking the follow up questions came from a positive intention (I've never spoken with anyone who in her situation, and was truly curious). But, I feel awful about asking follow up questions regarding such a sensitive personal matter. She didn't seem upset with me for asking.

Through this journey, Jennifer first questioned her positionality as a White women, wondering if she had the “right” to ask questions about race, ethnicity, or immigration status. Later, she recognized she probably had minimized conversations with students in the past because she had not asked them about DACA. Finally, she concluded she should not have asked because of Emily's reaction when she teared up. Yet, she concluded her last statement by saying “she didn't seem upset with me for asking.” Thus, Jennifer described her conflicting emotions.

Additionally, Jennifer identified and engaged Cindy's strengths during her second narrative interview with this exchange:

- Jennifer: I would think that that would be kind of neat. Like, I look at being bilingual as a strength that I don't have. Was Spanish your first language? Or no, was it English? Okay, English was.
- Cindy: It was a dialect. It was Nahuatl. So, that's why I always say, in the honors class, I can add different input. Because it's not just like I'm Hispanic. There was deep native Mayan roots. That's one of their old languages.
- Jennifer: Okay. I totally look at that as a strength. I think that, when you know different languages, it has enabled your brain to function in a neat, different way. You can learn in different ways.
- Cindy: Yeah, because, when I can't learn something in English, I'll translate it to Spanish, and I can learn that way, or opposite way.
- Jennifer: It's a good strategy, and a learning tool for you. And it's adding to your discussion in class.

Jennifer and Cindy's interactions exemplify how Jennifer elicited and responded to Cindy's strengths. Jennifer provided this background for how she viewed validating advising practices when she said:

[validating advising is] trying to elicit their story and then using those things to help empower them, or even, because not all of the things on the asset ... I mean, the asset map was positive things, but I learned some of their things they struggle with in these conversations, so helping them navigate that and use their strengths to their advantage, even in those situations. I think I just realized [the asset map] would help me get to know them better.

Jennifer described here how she recognized the role of the asset map in building her understanding of the students and the benefit she saw of incorporating it into her practice. Jennifer engaged in critical self-reflection on what she learned of the students. Critical self-reflection suggests she began to question her own beliefs and assumptions as a result of her collaboration with the students (Freire, 1993). She can then work in collaboration with the students to implement practices which best support them (Hemwell & Trachte, 2009; Puroway, 2016).

Acted with solidarity. As a result of her deeper understanding and acknowledgement of the students' ways of knowing, Jennifer described how her practice has understanding has changed as a result of her participation in the study. She stated:

I just feel like this has made me realize that they're here because they need answers, but sometimes they're here because they just want to be heard and they need to talk. Whether or not we think it's an urgent, urgent question, it's urgent enough to them that they made an appointment and came in. These young ladies have really big things on their plates that they're dealing with. I don't know that they would have all come in on their own, so I'm glad they did. But it just made me listen more and be more aware.

Jennifer also explained how in addition to the asset map, she sought to integrate the narrative interview prompts into her practice. She explained "I think it's very valuable. I want to ask these questions with other students. I created abbreviated versions of them to make it easier to incorporate them." Additionally, she explained why she created abbreviated versions,

I think it's really shown me how much more I could get to know some students and I don't. So I want to try to weave in, even if we don't implement it across full-time, just asking not just the normal how things are going? How's class going? But, tell me a little bit about you 'cause otherwise I don't know their story.

Jennifer recognized the value of her interactions with her students because she deepened her understanding of them. Jennifer described her intent to modify her practice to recognize how her practice of advising benefited from the additional exploration of student assets and the discussion within the narrative interview prompts.

Summary of Jennifer's approach to validating advising practices. Jennifer's student interactions within validating practices reflect a transformation in her description of the students' deficits to an increased focus on student assets and strengths. She described how she found value in eliciting and reflecting upon their stories. While she recognized both she and the students might be uncomfortable with the experience, she

identified ways to incorporate validating practices into her day-to-day approach to advising as well as her colleagues' approach to understanding why students might visit advising. The descriptions of Jennifer's approach to validating advising aligns with Stanton-Salazar's (2011) description of an *institutional agent*. He clarified how an individual within a school setting emerges as an institutional agent when "forms of 'institutional support' are mobilized to benefit another, such as when he or she uses his or her position, status and authority, or exercises key forms of power...in a strategic and supportive fashion" (Stanton-Salazar, 2011, p. 1076). Even as Jennifer confronted her own positionality and history, experiencing discomfort, Jennifer modified her understanding of students' needs and began to shift her own practice as well as her colleagues' perceptions. Jennifer experienced what Freire (1993) might describe as, "a deepened consciousness of the situation as an historical reality susceptible to transformation" (p. 66). She began to authentically engage the students and opened herself up to current and future transformation for her practices.

Elena's approach to validating advising practices. Within this subsection, I outline how Elena's practices were characterized by her appreciation of shared dialogue, the influence of deeper connections with students, and the application of validating advising practices broadly across her work.

Built trust and understanding while embracing ways of knowing. Two components of authentic dialogue are discussed in relation to one another in this subsection. The components were intertwined as Elena engaged in the validating advising practices. Elena described her approach to advising prior to incorporating validating advising practices. She explained:

Even though I thought before, I've always thought I took a moment to get to know the students, what their interests are, and things like that. I've never really asked more, unless there's a problem if I see red flags.

This statement reflects how Elena realized how she previously thought she understood a student's interests and their rationale for being in college. She further explained though how she recognized through her current practices she was only asking students who had "red flags" or negative academic indicators. She further explained, "I saw that I didn't get to the essence of the student, like why they're here, what drives them to be here, what supports they have." As her explanation continued, she described how she had not been developing as deep an understanding as she thought during previous student interactions. This exchange below illustrates how understanding emerged from a discussion with Carson about a deeply personal topic. This discussion stemmed from Elena's asking of the question, "describe your experience as a Latina at SU." Carson responded:

Carson: I think the biggest thing for me is definitely...the topic of immigration. You bring it up, like people always like, 'they need to go back to their own'. And I'm just like 'my dad came over. He's legal now, but he wasn't when he first came over'. So whenever, I get emotional sometimes talking about it. And I just feel like, well, if my dad didn't come over I wouldn't be here right now. He would've never met my mom. I wouldn't be here.

Elena: So you're more aware of that now as a college student?

Carson: Yeah. I don't know. I hear it more than I did when I was in high school, but I also think this is a bigger campus and you're going to encounter it at one point, whether it's in passing or directly.

Elena: So having to deal with it is a new thing? How are you handling it?

Carson: It still hurts...nobody wants anyone to insult their parents and whenever someone says that, it still stings.

Elena: It is hard to hear because I'm an immigrant, I didn't have papers back then either.

Carson: Yeah, it is.

In this exchange, Carson shared her emotions around discussions she is hearing in college related to immigration and the personal connection she feels because her father immigrated illegally. She conveyed how her existence was being invalidated when people discuss immigration; she said if her father had not immigrated to the U.S. and met her mother, she would not be here. Elena affirmed the experience by acknowledging her emotions and probed further, asking follow-up questions. Elena recognized Carson's experience was now influencing how she viewed college and engaged with people when issues of immigration arose. Additionally, Elena articulated her own experience with being an immigrant, demonstrating a level of trust in sharing her own personal experience. After their interview, Elena wrote in her reflection journal

I am always happy to meet with students, but we never get a moment to meet one-on-one and talk about non- curriculum topics. I feel like I know more about the goals and background of this student. That is a pretty cool feeling.

Elena recognized how she learned about Carson's background and goals in their interview and how the interaction was very positive. In her final interview, Elena was asked to describe the exchange they had. She said:

Elena: The immigration issue, and then she didn't know what to do. She wanted to say something, but she didn't know how to say something, and kind of defend her dad. I think she was having an internal dialog. She didn't know how to be appropriate to defend.

Researcher: Did you feel prepared to guide her through that part of your discussion?

Elena: I did. I think because I grew up during a different time where I was very cognizant of the differences and of having to defend my community 'cause I am very connected to my community. I was a Chicano studies major as an undergraduate. I worked with families and defending their rights and whatnot, and children's rights. I don't mind saying something, or supporting, showing people how to speak about it in a calm way, in an educated way. I think it's just because I've just been around it for so long.

In this exchange, Elena expressed comfort in asking follow-up questions and supporting Carson. As a result of their dialogue, Elena affirmed Carson's experience and acknowledged the reality of how her affirmation influenced Carson.

Elena and Mona had a similar exchange in their second interview. This exchange began when Elena asked Mona to elaborate further on her experience at SU as a first-generation student.

- Elena: Is there a difference, or what is the difference in experience that you, as a student coming from an immigrant background, your family, versus somebody whose family has been here for generations and generations?
- Mona: Coming from an immigrant family, especially from someone, my mom, who only moved here without speaking English, and who had to learn English. She had to suffer quite a bit too actually be in a stable position with a stable job. She actually knows English now, so it's pretty cool.
- Elena: Like, fluently?
- Mona: She can have conversations. Her superiors only speak English.
- Elena: You know, one thing that I remember when I was in school, like elementary school and definitely ... Because my mom, she didn't speak English. I remember I used to have to sign all of my old papers. I would just tell her what it's about, and then I'd just sign it, because it's so much easier.
- Mona: That's what I would do with my mom too, actually...probably stopped in high school. I would actually give it to her, and she'd actually read it. I would tell her, "This is this, and this is this," and I would have her sign it
- Elena: Did she sign it?
- Mona: Yeah.

In this exchange, Elena asked meaningful questions to draw out Mona's experience further. Elena shared her own personal experience with her Spanish-speaking mother and having to translate documents for her. Mona then shared how she too provided the same support to her mother. The exchange reflects constructed dialogue (Freire, 1993) in the sense that both participants shared their behaviors and views of their world.

This exchange further exemplifies how Elena explained her understanding of validating advising practices. She explained:

Yeah, I think [validating advising] is really about looking at them as a person. You know? And making connections with them as well. Connect them to things that based on who they are it is going to help them get to their goal.

Elena articulated a connection she felt to the students. This solidarity is a foundational step towards social change (Delgado Bernal, Burciaga, & Flores Carmona, 2012). Also, Elena explained in this statement how this was different than her typical practice. She said,

I wish I could do that with all my students. I'm going to try to figure out a way where I can figure it out. I do try to tap into them a little bit more about who they are, what got them here, and how does it feel, things like that. I've never really tried it before.

Elena described how the type of dialogue she had with the student was atypical.

These two examples reflect how Elena's education in Chicano studies, her experience in the advising office, and her family's history enabled her to glean meaning and understanding from the information she elicited from Carson and Mona during their interviews. By doing so, Elena drew upon her past personal and professional experiences, both of which are components of cultural intuition (Delgado Bernal, 1998). As a result of past life experiences, "individuals acquire an understanding of certain situations and why and what might happen in a particular setting under certain conditions. This often implicit knowledge helps us to understand events, actions, and words" (Delgado Bernal, 2002, p. 563). Essentially, Elena drew upon her own past experience to relate on a personal level with the experiences of Carson and Mona. Further, her undergraduate minor was in Chicano studies, adding to her professional experience. Elena responded to the students by encouraging discussion and building understanding to legitimize their experiences and

uncover their past knowledge (Delgado Bernal, 1998; 2002). These actions align with practices of validation (Rendón, 1994) and research suggests when agents validated students by expressing deep concern and support for minoritized students the agent and student experience positive outcomes (Museus & Neville, 2012).

Acted with solidarity. Elena described how the questions within the interviews fostered her dialogue with the students. She stated:

Yeah. I thought those [second interview] questions were so important that I felt I really need to ask them the way they were... with the first ones, they were get to know you, I felt like I was able to kind of integrate them into the conversation, but the second set seemed more serious almost. So I didn't want to lose the seriousness by not getting them out.

Above, Elena described how she recognized how critical those discussions in the second interview were as the students discussed more serious implications of their college experience. When asked how she arrived at the conclusion of their seriousness, she said:

Because we were getting to some of that really interesting things about first generation, how does being an immigrant impact you, how does being a Latina impact you" I always have a thought of understanding, "I have all these things against me." Not in a negative way, but, understanding that they exist because when you know they exist then you can advocate in a different way, for more broadly, like in different areas.

In this statement, Elena made the connection to their racial and generational experiences in college and described how such a connection would serve as a source of empowerment for them to be able to advocate for themselves and others. In their second interview Elena and Angie discussed the role her ethnicities have played in college. Angie identifies as bi-racial, Black and Latina.

Well, when I was [home] with, my mom's family ... So, my mom's Mexican, so her side of the family I was with more, and I never really met my dad's side of the family. So, I think I connected more with the Latina part of my culture, and so I still feel like that sometimes. And also, even in high school, I was in [Society of Hispanic Professional Engineers] SHPE in high school, and I'm in it now, too.

In her statement, Angie shared how she identifies with her Latina identity and has joined SHPE to build a connection with her community. She further described how her Latina identity was influenced her understanding of her feeling of connection within SU. She said,

I think to be more welcome, you just need more people, and that would just be welcoming by seeing it, and looking around you and seeing more people that. Just by seeing it, and like, looking around you and seeing more people that are like you.

Angie described to Elena how she recognized the role SHPE would play in helping her find mentors and build relationships with people like her. Elena expounded upon her experience within second research interview as she described Angie, when she said:

She understood that she had to be successful, and she had to be a role model for her community because she was going to show that there's a way. There was a way and it doesn't matter that you came from ... I feel that she more awake to the opportunities that she had and her own abilities to reach her goals, be a mentor, and later an advocate for, or even as she's working through school. I want to support her with that and so I told her "You have us here, and you can count on us. We want to see you succeed and we're here to help you get to your goal."

In this statement Elena outlined how Angie was striving to be a mentor and advocate for her community and how she can support her with accomplishing this goal. She wrote the following statement in her reflection journal after their second interview

I love hearing how much she has engaged [at college] and how aware she is. She seems to be doing some serious growing this year and growing as a leader. I also loved hearing her view on ethnicity and how she connects to her two ethnicities. I am glad that she is engaging many areas of her identity.

She perceived the seriousness of the second set of interview prompts. Further, she reflected how her perception influenced her understanding of the practices. Not only did she follow the practices, but she helped the student connect their past history and experience to their present circumstance. Elena demonstrated how through the questions

within the interviews she validated the students' experiences, identities, and could support them in applying those within their college experience.

Elena engaged with the students to learn about their stories, she experienced a transformation in her understanding of how she could support and empower them through her practices. In this sense, Elena acted as an *empowerment agent*. Stanton-Salazar (2011) described empowerment agents as institutional agents who connect students to their goals and empowers them to engage with necessary resources, yet additionally engages a mindset which questions forms of oppression and engages in implementing changes to processes and practices which reinforce oppression.

Furthermore, Elena implemented validating advising practices with a first-generation Latino student outside of this study. She described the experience below:

I think I saw how to use [validating advising practices] to connect with the student, because with this particular student, I was able to validate his experience and his strength and his effort that he's shown up until now, because I told him, "Wow, you have a lot on your shoulders. You're young and look how much you've already done. You have a place to stay, you're getting a job, and you're doing fairly well in school." He comes to school, he takes a bus for two hours every day. He gets up so early just to come, just to make it happen. I told him, "Your efforts are amazing. You're going to make it because you already have all of these things that you've shown you're such a strong person." I was able to do some of those things.

In this statement Elena demonstrated her ability to elicit a source of strength from the student and help him apply those strengths in college. She further explained how he responded to the validating advising approach:

I think that's why he connected with me. At the end, I told him, "I'm a first-generation student too. We all have struggles and your struggles, know that you're not alone" I think he was able to connect I think more. He has been emailing me every day since the appointment"

When asked why she considered applying these practices with him, she referred back to her experience with the students in the study. She said,

Yeah, I thought that they brought up the new things in the second interview. I think it was nice to see how they developed. During the first interviews they are still a little green, but a month later they've learned so much. I thought the approach would support him, too.

Elena described how through the intervention protocol she gained an understanding of the students and witnessed their development through the intervention. Further, she described how she perceived an enhanced level of support by following the practices with this other student.

Overall, Elena reflected solidarity by experiencing empowerment within the validating advising practices. First, she articulated the depth of understanding she gained and used the understanding to empower the student. Second, she felt empowered to apply the validating practices outside of the study and realized the value in the experience.

Elena affirmed the students in such a way that she validated their knowledge. This practice aligns with Yosso and Burciaga (2016) who describe how it is critical to listen to student stories to hear how they describe their “array of knowledge, skills, abilities, and networks” (p. 1) while they operate within systems which reinforce oppression.

Summary of Elena's approach to validating advising practices. Elena recognized a deeper appreciation for the level of understanding she achieved about and with her students. She described a more meaningful level of understanding about them. She transformed her advising practices to describe how other students might benefit from her eliciting their stories. Elena's practices align with Stanton-Salazar's (2011) description of an *empowerment agent*. An empowerment agent has an awareness of how systems perpetuate inequity and challenge traditional practices to promote the empowerment of

students (Rojas, 2014; Stanton-Salazar, 2011). Rojas (2014) described how, “a distinguishing feature between institutional agent and empowerment agent is that while both are concerned with Latina/o students’ access to social capital, the latter challenges traditional ways of schooling and the oppression facing students of color” (p. 68). While both an institutional and empowerment agent can employ validating practices, an empowerment agent builds on those practices to begin transformation of systems and structures for the student’s academic success.

Summary of Research Question #1. This research question considered the role of advisors in shaping the validating advising practices. This discussion began with the explanation of the advisors’ perceptions of student deficits. The discussion continued as the components of authentic dialogue were presented through the advisors’ and students’ interactions. Each advisor approached the practices differently, as a function of her own perceptions, emotions, and beliefs. The findings align with Rendón and Jalomo (1995) who described how, “validation occurs along a continuum, with a student experiencing differing degrees and forms of validation with distinct validating agents at different times and on different occasions” (p. 15). Indeed, the advisors acted along a continuum representing different forms of agents, with Audrey acting as a gate-keeping agent, Jennifer as an institutional agent, and Elena as an empowerment agent. Thus, Hurtado et al’s (2012) singular definition of an agent is incomplete based upon these findings. Those employing validating practices do not act only as institutional agents.

Freire (1993) describes how authentic dialogue can lead to change working along with oppressed individuals, not for oppressed individuals. Audrey continued to enlist her traditional, legacy approaches to advising. Jennifer recognized a need to shift, adjust her

practices and her orientation towards building understanding with students. Elena experienced a true transformation as she recognized how a student's voice deepened her connection with them. This study approached the students with the aim of validating students, yet, the advisors experienced resistance to or acceptance of transformation within their practices. The advisors positioned the students as being deficient of their circumstances, and thus articulated low expectations for the students' success which have the potential to limit authentic dialogue between the participants (Pérez Huber et al., 2006). The findings in this research question align with Rojas' (2014) description of how, "resource-generating relationships between students and institutional agents are complex, however, and can take on multiple forms". The movement from a gate-keeping agent to an empowerment agent occurs as a result of the advisors' engagement with authentic dialogue during construction.

Research Question #2 Findings

To examine Research Question #2, How do first-generation Latina students in engineering describe their strengths and assets within constructed validating advising practices with their academic advisor?, all collected data were analyzed as described in Chapter 3. Tinto (1993), who presented the most widely cited theory on student departure, suggests students persist when they separate from the past, transition between the past and present, and then finally integrate themselves into the current context of college. Rendón (1994) describes this process of separation-transition-integration for minoritized students when she wrote, "when these students enter college as strangers in a strange land, they are faced with unlearning past behaviors and attitudes while learning new practices, values and conventions that are quite removed from their worlds" (p. 2).

As a result, most higher education systems were created with the expectation that students must adapt to make the transition to college and become involved, which ultimately, it is believed, leads to persistence (Rendón, 2006).

As discussed in consideration to Research Question #1, the advisors began the study with deficit viewpoints of the students. Their perspectives, histories, expectations, and engagement shaped their approach to validating advising practices. Yet, Rendón (1994) describes how students arrive at college filled with strengths and assets. This research question considers the strengths and assets the students did bring with them to college, suggesting they arrived at college prepared to succeed, with clearly articulated goals, and necessary forms of capital to support their success in college. These three components, preparedness, goals, and networks will be discussed in more detail within this section as the students elaborate upon their forms of assets and strengths.

Student Preparedness

This subsection explores the students' descriptions of their preparedness for college and for studying engineering. This subsection also discusses how those descriptions interact with the advisors' perceptions discussed in the previous section. The charter of the university states "SU is a comprehensive public research university, measured not by whom it excludes, but by whom it includes and how they succeed; advancing research and discovery of public value; and assuming fundamental responsibility for the economic, social, cultural and overall health of the communities it serves" (Charter, n.d.). This charter frames an admissions approach which indicates anyone who meets admissions requirements is admitted to the university. University admissions standards for freshman include: high school diploma, completion of

competency courses in English, math, science, arts, and foreign language (a student may be deficient in up to two of these areas), top 25% of high school graduating class or 3.0 GPA in *competency courses* or a minimum ACT score of 22 (24 for non-residents) or SAT score of 1120 (1180 for non-residents).

Admissions standards into certain majors within the COE are higher than university admissions requirements. For admission into their majors, the students in this study achieved the following, higher admissions standards: high school diploma, no deficiencies in math or science competency courses, and a minimum of 1210 SAT or 24 ACT or an overall high school GPA of 3.0. These admissions requirements are higher than those for other majors. For example, the GPA and test scores are higher and students may not have any deficiencies in math or science. Therefore, these students have already demonstrated in high school their ability to achieve higher standards and metrics.

More so than meeting admission requirements, it is essential to note how all of the participants envisioned their future to include a college degree. Jessica's statement reflects this common sentiment, "it was just automatic. I didn't think of not going to college." Camila said, "Yeah, I've always wanted to go to college." Mona described her college attendance as almost inevitable when she said, "College has been drilled into me since middle-school. So it was never like an option not to go to college." These statements reflected the students' almost unwavering aspirations for college. These aspirations served as a form of community cultural wealth (CCW) for their college experience. Aspirational capital is evidenced when minoritized students remain hopeful they will attain their academic goals (Yosso, 2005). In this case, the students remained hopeful in high school they would persist to college.

After describing their plans for attending college, the students were asked to describe their family's perceptions of their college attendance. Emily described how her parents, "really want me to succeed and that's why I decided to even come to college because they're very supportive about it. [My mom] worked at fast food restaurants and she would always tell me you have to better yourself, go to college and stuff." Emily described how her mother motivated her to pursue college. Family played a role for Mona too, who described how her sister influenced her college attendance. She said "She would read to me because she didn't have anything else to do. She's the reason I am the way I am like going to college and kind of an intelligent person." Mona's sister is attending SU, too, but juggles a family and work while attending part-time. Mona's sister invested in her early on to encourage an interest in education.

Their descriptions of the role of family continued. Angie described how her family focused on her education. She said,

So I know that education was always the biggest focus in my household, so I never really had to do chores, because my dad said, "You should just focus on school and homework and stuff." Then, my mom is unemployed, so like her entire job is just getting me to and from school and getting me to and from the different activities that I have to do.

Her mother's "work" was essentially to support Angie. Marissa described her family's role when she explained how her parents feel about her attending college. She said, "I'd say they're just excited for me, and they're always pushing me to get my work done, stay on top of things." Marissa commutes to SU from a local suburb; as such, her family plays a daily role in encouraging her to study and stay prepared.

At the core of these statements is the role their family played in their motivation to attend college. This reflects the role of their family in their aspirational capital. The

stories shared amongst family members “nurture a culture of possibility” of a student moving beyond their parents’ level of occupation (Yosso, 2005, p. 78), which is described as their familial capital. Indeed, closely connected are the student’s discussions of their familial and aspirational forms of capital. These aspirations remain a part of their consciousness, fueled by the support and hopes of their families.

Outside of family, the students nurtured their college preparedness while in high school. Many students cited experiences in high school which influenced their aspirations for studying engineering. From the feeling of the inevitability of college attendance, they described the various engagement experiences they had prior to college which prepared them. Carson (computer systems engineering) shared this:

I got into the [X] program and I took a class over the summer before my senior year...also, my junior year I did a competition...I took first place and it was really cool and I loved doing it so I was like maybe engineering is where I need to be.

Carson described how she applied to, was accepted to, and completed a program while in high school. Additionally, as part of the program she participated in a competition.

Through her engagement, she concluded she “loved” engineering and it was her intended major. Similarly, Jessica stated “it all came down to my internship the summer after my junior year...I met a bunch of people...I got to learn about their majors.” These two examples reflect how summer experiences influenced their path in college.

A majority of the participants (eight of the ten) enrolled in Advanced Placement credit courses in high school. When asked to describe a previous success, many of them referenced their AP coursework as an indicator of their ability to succeed. Camila (civil engineering student) shared how a speaker in an AP high school class exposed her to engineering. She stated, “he did a presentation on all the different engineering topics and

I was like ‘oh, that’s like something I probably want to do’ and so I started researching civil engineering.” As a result of this speaker she found a way to connect her interest in art and architecture to her major. Marissa shared how completing the AP coursework influenced her, she said “my junior year I took AP biology. I ended up really liking it so biomedical engineering was what I moved towards.” The students realized benefits from their AP course participation and described how they drew upon those benefits within college.

The students engaged in these pre-college experiences and describes how those experiences were influential. Cindy said, “I know a lot of Hispanic girls drop out...I felt like that before too. I’ve been able to be captain of our robotics team, I’ve been in charge of all these things, why can I not do it?” Cindy expressed confidence as a result of this pre-college extra-curricular activity, which built her confidence in her ability to succeed in college. By engaging in this activity, she demonstrated social and navigational capital. Social capital refers to a person’s networks of people and resources and navigational capital refers to the skills a student develops to maneuver through institutions (Yosso, 2005). Navigational and social capital are closely connected as students facilitate navigation through systems with a connection to social networks. In a study about college readiness, Yamamura, Martinez, and Saenz (2010) found that while stakeholders (i.e. teachers, counselors, and family and community members) expressed “commitment to a collective responsibility for college readiness” (p. 145), being a high achieving Latina mediated college student access and preparation. The participants in this study tapped into their forms of familial, navigational, social, and informational capital while in college and thus applied those forms of capital at SU.

These examples demonstrate the navigational, informational, social, and aspirational forms of capital the students cultivated prior to attending college. To engage in these extracurricular and curricular activities, the students demonstrated agency to maneuver within high school, which reflects navigational capital (Yosso, 2005). Furthermore, these experiences reflect how they recognized the value of drawing upon social networks and resources to support their academic aspirations (Yosso, 2005). These statements reflect how the students built their *informational capital* (Cooper & Liou, 2007) through these experiences. Informational capital is described as acquired knowledge which can be “processed, stored, and transmitted into a set of actions that support and empower students toward academic and social success” (Liou et al., 2016, p. 121). Further, Peralta et al. (2013) explores the experiences of Latina/os students in STEM successfully leveraged their aspirational, familial, and linguistic forms of capital to succeed in spite of the negative stereotypes and climate of STEM. Considering the students’ academic success as measured by their admissions into the engineering majors and the students’ descriptions of their informational capital, the advisors’ perspectives of the students as deficient were indeed inaccurate.

Goals

Within their first advising meeting, Audrey asked her students to explain why they decided to study engineering. Emma shared the following with Audrey, “I’m really passionate about protecting the environment...I just want to work towards improving the environment in one way or another.” Emma demonstrated this commitment to the environment through her enrollment in a course which engages with local non-for-profit

partners to identify solutions to a problem they identify within the community. Emma described her experience:

One thing that I did learn in the [X] course is you can get into like water filtration stuff and I really want to do that. I'm hoping to work with like Engineers Without Borders or something and build water wells in like third-world countries or something like that.

Emma recognized how this specific course would be a bridge towards accomplishing her longer-term goal of improving water systems. Emma enrolled in this course based upon her broader desire to help the community and through the experience, identified a specific interest area she could accomplish after she graduates.

Camila shared how her father influenced her decision to study civil engineering.

She explained to Audrey:

With my dad, I don't know, I was always around my dad and he's a construction worker, so I'd go to his projects with him and stuff and I just loved it. I would help him out as much as I could, even when I was super young. I'm also an artist, so I kind of wanted to go into architecture first, but I figured civil engineering would be good because I'm better at math too. It's kind of all put together.

In this statement, Camila described how her experiences with her father exposed her to working on a construction site. She identified how combined with this early exposure, her interest in art, and her success in math aligned towards a major in construction engineering.

During the first interview between Audrey and Jenna, Jenna described how she decided on engineering because she “wanted something that was, like, really applicable to the world kind of. So that's why I ended up going environmental.” She further described though how she was also considering a major change to biomedical engineering because “I could make a difference still. I've always really liked biology and,

like, medical stuff.” Jenna did change her major to biomedical engineering during the course of the research study.

Marissa explained to Jennifer the future she envisions in being able to care for others. She said, “for me, studying engineering creates opportunities that not only have the potential to change my life but also the potential to change the lives of others as well.” Here, Marissa described how a degree in engineering will allow her to change her own and others’ lives. Marissa’s grandmother stressed the importance of education to her and her father plays a central role for her. She explained the relationship when she said

My dad didn’t have a college degree or whatever, so right now he’s working at a job where...he’s basically working until he can’t at his job...they don’t have a retirement plan for him or anything, and he’s been there for years. So, he’s just working until he can’t anymore. I can help him when I graduate from college.

Marissa explained how her father is impacted by his financial security because he has a job which did not require a college degree. Hence, when Marissa referenced helping others, she not only was speaking about the broader community, but also changing the life of her grandmother by realizing her grandmother’s aspirations for her and her father, by providing more financial security.

During an exchange with Jennifer, Cindy explained her long-term goals and rationale for choosing engineering.

In four years, I wanted to go to grad school to continue with, you know, getting a further emphasis on something that I want to do. But at the same time, I want to go to Med School because I wanted to be a critical care pediatrician.

Cindy explained her long-term goal of attending medical school. Jennifer then probed further, asking her why she might want to pursue medical school. Cindy replied:

Well mainly because at the beginning I had wanted to make prosthetics, just to make them cheaper and source out to different countries that need them, who can’t afford prosthetics like we can. I want to make prosthetics to help people who are

disabled. One of my friends, her brother has spina bifida...I'm going to study Biomedical engineering I can someday, maybe, create something that would help him not be viewed much as disabled, obviously right now he's a little kid, he uses the crutches, he's in a wheelchair, people are like "Who cares about them, they're no gonna contribute anything, so why do we need them?"

Cindy explained how she wanted to help to make prosthetics more accessible to people world-wide. Even more salient was the desire to help her friend's bother with his disability. She viewed biomedical engineering as a path to help provide him with physical support. She described how he was cast aside and therefore viewed as someone who cannot contribute to society. She was describing him as silenced and further described how her degree could help liberate him from that silence. As the interview continued, Jennifer asked Cindy what attending college meant to her. Cindy replied:

I see it as an opportunity to inspire others. I know we all see, I'm just going to describe it as an oppression. We see the oppression of established American society towards first-generation students or minorities coming in. Some don't see that, depending on where they grew up, but me seeing, because I volunteered at so many different places with little kids and their parents, they just came here. They don't see themselves becoming doctors or dentists or stuff like that. I see becoming an engineer, a professional, someday becoming somebody respectable that is inspiration to them to keep fighting for something that they're being taught to not fight for.

Cindy described how she could be a role-model, a mentor, or a guide for younger minorities as she spent time volunteering to show them how they too could become "somebody." Again, Cindy described how her degree in engineering would liberate others from being "nobody" or silenced by oppression. Cindy shared her motivation to help others as a resistance to current oppression. Resistant capital describes the skills students foster through behavior which challenges inequality (Yosso, 2005). Cindy described the close connection between her aspirational and resistant forms of capital;

reflected in her description to use to engineering degree to provide voice and agency to those experiencing inequality.

During Elena's interview with Carson, she shared how her physical disability influenced her attendance in college. She said

Personally for me, growing up in my situation of having a disability and kind of always needing extra assistance and stuff, I want to be able to just provide for myself for once...[to] use whatever I learn here to make a career out of that and be able to provide eventually for myself and my own family.

Carson, too, is describing a liberation for herself and her family with the pursuit of a college degree. Thus, she described the interplay of her aspirational, familial, and resistant forms of capital.

Mona described how she hoped to show her future family her accomplishments.

She said:

I want to be a part of some sort of world changing movement. Something that you can say, "Hey, I was a part of that." I can tell stories to my future children or grandchildren. Something to pass down like a legacy. My dreams since I was in high school have been to want to change the world somehow. I thought technology was the most important thing that society was going through. I felt like that was the way to go. To me, [an engineering degree] gives me the opportunity to do something great with my life almost. I know it's kind of setting the bar a little high, but it gives me the opportunity to just create something that I wouldn't be able to do otherwise.

Mona is describing her aspiration to create, to use technology to create and as a result lift herself and her family up from their current circumstances. The interest in "lifting others" is a reflection of social capital (Yosso, 2005). Mona and Elena shared this exchange during their second interview:

Mona: Twice a year I go to Mexico with my mom. It's really shocking to see the poverty in Mexico. Sometimes, when we go back to Mexico, it's kind of shocking, especially because I have First World privileges. When you see it in Mexico it's kind of sad, because it's not just people. It's also families who also struggle that much. For me, it's really sad.

Also, as Hispanic, I get kind of like, oh my God ... Emotional a little bit. Maybe if they had an opportunity to get an education, they probably could have had a job, and they wouldn't be suffering so much. That kind of impacts me, to think about if my mom didn't come from Mexico. I don't know what would happen. We could be ... She could have a job in ... I don't know. The standard of living is low, and so is the wages. She could have had a low-paying job, and I could have been suffering right now. But she didn't. She came here. That's kind of what I think about sometimes. That's how that impacts me.

Elena: Do you think that experience impacts you as student here at ASU, versus a student who doesn't have that background? Do you see an influence at all?

Mona: It impacts me when I am studying. I've seen it firsthand. When you don't know what's happening, the other option, you kind of just ignore it. You don't think about it...to my mom, my college degree means maybe a better future for her, because then I can take care of her. You know, reverse the roles of mother and child. She works a lot. It hurts me to see her tired and things like that. For her. It hurts me to see her tired and things like that. So, for her, I think for, or mainly for me, I guess it would mean to just be able to take care of her and for her it would be like, "Oh, I don't have to work anymore."

Here Mona described how as she grew up she was exposed to poverty and struggle amongst her family in Mexico. She recognized the opportunity she had to complete a college degree and how that occurred as a result of her mother moving from Mexico. Further, she used her experience as inspiration when she studied. She was inspired to take care of her mother, drawing upon the strength her mother had to leave Mexico. She closely aligned her social and familial capital as she described how her past experiences in Mexico and her desire to help her mother influenced her aspiration for a degree in engineering.

After their first appointment, the students were directed to complete a reflection journal. The first reflection prompt asked each student to describe what studying engineering meant to her. Angie wrote in her journal, "I've always seen engineering as being a way to help people through invention. Studying engineering allows me to bring

my own ideas on how to help advance society to the table.” Angie expressed how she could help others through her ideas and engineering is a vehicle to cultivate her ideas.

Emily wrote how she viewed studying engineering, she stated:

I don't want to waste the opportunity. There were some people that doubted me along the way so now that I am actually attending a university to become an engineer, I believe in myself more than ever. I want to have the capacity and resources to design something that people will find useful and hopefully life-changing. I feel so empowered knowing that I am free to study the major that I decide and that includes engineering.

In this statement Emily described multiple aspects of her decision to study engineering.

In the first part she discussed how others doubted her in the past. She described how others held deficit views of her. Yet, as she was finally studying engineering, she described how her pursuit of a degree proved those doubters wrong. She further described how by studying engineering she would have the tools to change lives and provide useful help to others. Through the knowledge she gained in college, she described feeling empowered and capable of studying engineering.

Through these discussions, the students expressed deep desire to influence their worlds – whether it is a broad societal goal exemplified by Emma who wants to provide clean water, a local goal as described by Cindy who wants to inspire other minorities in the community, or a family goal, such as the one Mona expressed to support her mother financially – the students want to make a difference. They described forms of capital related to their aspirational, familial, social, and resistant forms of capital. Furthermore, these statements reflect *communal goals*, goals to care for and work with others (Diekman, Weisgram, & Belanger, 2015), as their rationale for choosing a degree in engineering. Romasanta (2016) describes how first-generation Latina students felt the obligation to pay it forward and change the circumstances of their family. Yosso (2006)

argues educational “practices usually aim to fill up supposedly passive students with forms of cultural knowledge deemed valuable by dominant society” (p. 23). Indeed, these students described a wealth of strengths aligned with their communal goals to care for their society and family.

Networks

The previous subsections described the communal goals expressed by the students as well as the vast forms of capital they already possessed when starting college. This final subsection considers their navigation within the systems and structures of SU. This statement from Rendón (2006) presented the theoretical framework which shaped the analysis of student strengths and assets; she wrote,

While involvement in college and getting engaged in institutional life are certainly important activities that can promote retention and student development, underserved students who have experienced invalidation in the past are not likely to get involved or utilize services easily. (pp. 5-6)

The assumption within this quote is that due to prior invalidating experiences, the students would need additional support to engage with and become involved in the SU academic environment.

During the second interview, students were asked to describe when they felt a particularly strong connection to the campus community. When Audrey asked Emma, they had this exchange below:

Audrey: Yeah, so has there been a particular time that you felt really connected to college so far?

Emma: Well, right from the start. I'm in NGSC. It's Next Generation Service Corps. It's a scholarship program, so I applied to it, and then I got in. We had a camp, I think it was the first weekend when school started, so I just met a lot of people from there, and I've been seeing them around. And then I have a class for that.

Audrey: Yeah, I saw that. So that comes with a scholarship, too, right?

Emma: Mm-hmm (affirmative), yeah. I have to take one class per semester, because I think at the end you get some leadership certificate.

Within this exchange Emma again demonstrated an activity she had engaged in prior to college starting which connected her campus and her peers. She described her navigational capital as she explained how she negotiated opportunities, both the community service course and this program, on her own. Both have been quite influential for her in outlining and acting upon her goals.

Additionally, Audrey asked Jessica to describe her feeling of connection with the community. Below is their exchange:

Jessica: I had an internship in high school. I got a research volunteer position-at the [X] lab for underwater fuel cells.

Audrey: Oh my goodness, that's exciting. How did you get that?

Jessica: I went to the SHPE (Society of Hispanic Professional Engineers) meeting, and there was a grad student in that club and he's the one that's basically my mentor, and he said that there's a volunteer opening, and I just applied for it.

Audrey: Okay. That's awesome. How did you find out about that?

Jessica: I found out about SHPE when I went to club fair.

In this exchange, Jessica references a pre-college experience that provided her with experience and exposure to working in a lab. She learned of this opportunity as a result of her participation in a student club, SHPE. She joined SHPE after attending an event promoting various ways for students to become involved. This reflects both her navigational and social forms of capital. She showed an agency in finding engagement opportunities for herself. Jenna described how she was engaging with the community at SU. She said:

I've been managing my study time to make time for clubs. I've been going to the meetings for SWE (Society of Women Engineers) and then I'm also in Talent Match. Talent Match is a program where they bus in a bunch of elementary school kids from surrounding schools, and they're typically from underprivileged

areas, kind of. You're paired up with them and you're supposed to teach them a talent and kind of just talk to them about college.

Jenna described in this statement how she prioritized her involvement in clubs. She recognized how her involvement in Talent Match connected her to the community youth and, she could influence them regarding their college attendance. Jenna too described the desire to lift up others, engaging her social capital to better those in her community.

Camila described her experiences with community at SU also through her interactions with extracurricular clubs. She said:

I was president of the student body in high school. I just love being involved so I try to put myself out there as much as I can and I try to talk to people, bring out my ideas and stuff. I've been to ASCE (American Society of Civil Engineers) and I'm considering more. There are so many clubs.

Camila expressed how she hopes to build up her social network at SU based upon her success with her social network in high school. This shows her social capital and informational capital. Camila successful at navigated the social system within her high school and identified how that success benefited her in college as she sought to further build her social capital.

Jennifer asked Cindy to explain the resources she utilized when she needed support. Cindy explained "I go to office hours, ask my peers, or use the internet to get explanations for concepts I do not understand. I use tutoring resources for math help."

Cindy described how she leaned on faculty engagement, the internet, and tutoring when she needs help. Jennifer asked Emily the same question, and they had this exchange:

Emily: I've been reaching out for tutoring and getting help. I could be doing more in this area.

Jennifer: That's a great quality. I think that that ... I agree. I do think it will help you. So, I noticed after we talked, and in some of your responses, you mentioned that multiple times, and I think that that is something that will continue. If, things come up that are challenging, I think you'll be

reminded that, "Hey, I got here, and I did this, and I did it on my own, and-"

Emily: And I can do it.

Jennifer: And I'm being successful. You know? So, it's a great, great quality.

In their discussion Emily shared how she reached out for help, but still could be doing more. Jennifer then led her to acknowledge that she was already demonstrating success in her past experiences and should build upon that to further succeed.

In their second appointment, Elena asked her to share a success she had recently experienced. Carson described:

Um mm, another thing that's going good? I don't really know, I mean, everything ... there's nothing bad going on I guess would be ... like there's nothing too terrible going on that I'm like, "Oh my God." I finally ... I've been meaning to, but, I didn't really, like, not confidence, but have like the courage I guess to go, but I finally went to ASU counseling.

Elena replied, "that's really good. It's hard for us to admit when we need help. You're the first student who's done it so quickly." Carson communicated how she engaged with the resources offered by SU and COE when asked to describe a recent success.

During their second interview, Elena asked Angie to describe her college experience. Angie shared this:

I live in a dorm, I go to classes, I study in the library, and I go to clubs. So, like yeah I feel like pretty connected to college life. I'm in WICS (Women in Computer Science), SoDA (Software Development Association), SHPE (Society of Hispanic Professional Engineering), NSBE (National Society of Black Engineers), and MAES (Latinos in Science and Engineering).

Angie described how many social organizations she had joined, thus drawing upon and building her social capital. Furthermore, she demonstrated navigational capital by finding and engaging with many student organizations.

These examples reflect how the students already had strengths in building their communities, and their past experiences added to their aspirational, navigational, and

social capital. Rojas (2014) describes how, “Social capital pertains to the networks and resources that increase students’ access to institutions (such as colleges and universities) and positions of power and capital” (p. 4). Participation in social networks does not necessarily imply integration in social networks (Hurtado & Carter, 1997) as Tinto’s (1993) early work might suggest. Involvement and engagement remain critical to student retention, but students who have been invalidated in the past do not engage easily (Rendón, 2006). As such, Attinasi (1989) found how rather than integrate, students form affiliations. These affiliations:

help them acquire the skills to negotiate the social, physical and cognitive geographies of large campus environments. Students “scale down” their perspectives of the environment to make sense of it and, over time, get to know their large campus environments. (Hurtado & Carter, 1997, p. 329)

Tinto’s (2017) later work emphasized that the bonds students make to smaller communities on campus anchor the student to the broader institution. Martin et al. (2013) identified how Latina students in STEM developed peer and institutional support systems, leveraging those systems to support their persistence. As described above, the students selected courses, chose clubs, attended tutoring, and began working in research labs as ways to “scale down” and create meaningful affiliations. Thus, engagement with others and the students’ perceptions of that engagement, these affiliations mattered to student success (Tinto, 2017).

Summary of Research Question #2

This discussion of research question #2 explored how these students were prepared for college; they built up their informational, navigational, and social capital to meet the higher admissions standards for admission into their engineering degree. They had already identified their aspirations for helping the community, their family, and

themselves as they described their communal goals. Within their discussions of those goals, they described their navigational, social, and resistant forms of capital. Finally, as evidence of their navigational and social capital, these students actively engaged with networks of support to accomplish their goals. The findings in this section suggest the advisors' deficit-based perceptions of the students were indeed inaccurate and misplaced. Further, the findings indicate that through the validating advising practices, the advisors elicited these strengths and assets.

Research Question #3 Findings

Findings for research question #3, How do first-generation Latina students in engineering describe the influence of validating advising practices with their academic advisor?, suggest the students experienced the advising practices in ways which aligned with the three differing approaches employed by the advisor. The discussion for this research question explores how they described their need for and understanding of academic advising as a result of their participation. This discussion is organized by advisor: first Audrey's students', then Jennifer's students', and finally Elena's students' descriptions of the influence of the validating advising practices will be presented.

The codes identified during analysis were established a priori in alignment with the descriptions of the theory of validation (Rendón, 1994) and developmental advising approaches (Creamer & Creamer, 1994). Validation is "an enabling, confirming and supportive processes initiated by in- and out-of-class agents that foster academic and interpersonal development" (Rendón, 1994, p. 44). Validation occurs when agents actively assist students to "trust their innate capacity to learn and to acquire confidence in being a college student" (p. 40). Validation is a precursor to student development.

Theories surrounding student development serve as the foundation for developmental advising (McGill, 2016). Creamer and Creamer (1994) explain that developmental advising includes, “the use of interactive, teaching, counseling and administrative strategies to assist students to achieve specific learning, developmental, career, and life goals” (p.19). Since each advisor approached the validating practices differently, the students experienced the practices differently.

Students Working With Audrey

This discussion describes the influence of the validating advising practices on Camila, Emma, Jenna, and Jessica as they worked with Audrey. In the findings for research question #1, Audrey’s practices were described as a reluctance to engage student stories, hesitation to fully engage with the validating practices, and a continuation of her legacy advising practices. This subsection describes the students’ experiences with Audrey’s approach to validating practices.

At the start of the study, students were asked to describe the role of an academic advisor. Emma responded, “if I need advice on which classes to pick.” Camila made a similar statement when she said, “to make sure I am on track with my classes.” Jessica stated she would see her advisor “to make sure I have planned out the right courses for my major.” Jenna differed and described how Audrey could help her explore how to get involved when she said, “I would go to her with questions about getting involved with clubs and stuff.” Their descriptions focused primarily on academics and involvement.

During the focus group at the conclusion of the study, the students were asked to describe why a student should visit an academic advisor. Jessica explained an advisor could, “help if you have academic problems.” Camila described how, “an advisor can

help you choose your major.” Jenna explained how Audrey could serve as a guide when she said, “She’ll answer your questions and if she can’t, she’ll direct you to someone who can.” Furthermore, the students were asked to describe their interactions with Audrey. Jenna described Audrey as “super friendly...she helped me pick my schedule.” Camila explained “she does offer help about getting involved.” Jessica concurred with Camila’s statement. Emma explained how Audrey provided “a lot more feedback than I was expecting about my schedule.” These descriptions were consistent with their earlier descriptions of advising, an emphasis is placed on advising as a resource for course and involvement information.

Additional topics were raised during the focus group. Specifically, the students were asked if they felt their participation in the study was beneficial to them. Emma explained, “I don’t think I would have met my advisor until next semester. It’s just going to be more comfortable when I do have to speak with her for school challenges.” Emma described how she could engage with Audrey when she needs her because now they know one another. Camila shared how her participation was “a push to go talk to my advisor. It’s super helpful to talk to her about my career path.” Both students concurred that through the study they met with their advisor earlier than expected and these early interactions established a foundation to their relationship for future discussions. Jessica added to their comments and said:

This was a lot of reflection of my time here. I wouldn't have thought through a lot of the decisions I've made. I'm going to clubs or how to change my schedule around a little bit so that I have time to go to clubs, or just getting myself out there and trying to feel more connected with campus life.

When asked to explain further when she felt that way, she indicated it was a result of the reflection prompts. She further stated:

Just like how do you feel about being here and if I wasn't content with that, then I would try to think of ways on how to change that and I wouldn't have realized it if I was just focusing on my studies and not even taking the time to realize how I felt.

Here, Jessica explained how, as a result of the reflection journal, she took action to get more involved and considered her own experience in college. Jenna added to this discussion when she said,

I probably also wouldn't have seen Audrey unless I was required to for this, and then meeting with her the second time...in between the two meetings I really took the time to think about what questions do I want to ask her next time I see her and what information do I want to look up on my own...if I hadn't been required to do that second meeting, then I might not have followed up with her, so yeah, it was beneficial.

The students fairly consistently identified the long-term value of their participation in the study because they felt they now understood how to interact with Audrey.

Through these descriptions, the students continued to articulate Audrey's role as a resource, a person who could help them broaden their network and their understanding of the university and curriculum. This understanding suggests that rather than viewing Audrey as an individual capable of validating them and supporting their development, they viewed Audrey as an essential component of their network. In the discussion of research question #2, students described how they actively cultivated their own "scaled-down" networks to navigate college.

Their descriptions in this section align with prescriptive approaches to advising. Crookston's (1994) description of prescriptive advising describes how advisors share academic information with the students, yet leave the decision making in the students' hands. The advisor assumes the role of authority figure: knowledgeable about university policies and procedures. The student acts on the advisor's guidance and is reliant upon

the advisor's guidance (Crookston, 1994). Research has found that freshman students prefer prescriptive approaches, because those approaches align with their past experiences with a high school counselor (Smith, 2002). However, Smith further suggests that if students better understood the role of advising, they would achieve a higher level of interaction with advisors and that the efficacy of those interactions is enhanced through developmental, versus prescriptive advising. Prescriptive advising is predominantly one-sided with the advisor acting as the authority. Alternatively, validation involves listening to and affirming student voices as they describe their strengths, journeys, experiences, and successes (Rendón, 2002). As a result, while the students described a widely-used approach to advising, their descriptions lacked alignment with critical aspects of validation.

Students Working With Jennifer

Within the discussion of research question #1, Jennifer's approach to validating advising practices was to elicit student stories, reflect upon her own positionality, and begin to adjust her advising practices and her understanding of why students engage with advising. Jennifer worked with three students in the study, Emily, Cindy, and Marissa. This subsection considers the influence the validating advising practices had with these three students.

At the start of the study, they provided insight as to how they viewed advising and why they would work with advisors. Emily said she would see an advisor if she wanted "to switch a class." Cindy said she would meet with Jennifer to "talk to her about double majoring." Finally, Marissa shared that she would talk to an advisor if she was "struggling in a class." These descriptions are fairly consistent with those of Audrey's

students; the role of the advisor was to support through academic discussions. Marissa added how Jennifer could support her if she was struggling. These descriptions align with prescriptive practices where the advisor provides guidance for the student to follow or act upon herself.

During the focus group, the students were asked to explain if their participation in the study was beneficial. Marissa explained, “She was really nice and before this, it was kind of intimidating to talk to the advisors before because of what they said at orientation.” When asked to explain further about what occurred at orientation, Cindy explained:

Before this [study], it was kind of intimidating to talk to the advisors because, when was it? The ASU Welcome? Orientation, yeah. The group of advisors, they said “only schedule appointments when you can't find the answers to something that's online.”... Yeah, and so that's why I was, like, intimidated. I was like, "huh?"... But it turned out it wasn't like that, so that was great.

Cindy described how one advisor had indicated the students should only reach out to advising when they would not find answers themselves. As a result, Cindy described feeling intimidated to reach out to the advisors. When the other two biomedical students were asked if they had heard a similar message, they concurred. Marissa described how the message she heard from Jennifer's colleague at orientation was that she should not “waste an appointment” on a question which could be researched independently. The three students attended different orientation sessions, which suggests this message was repeated at multiple orientation sessions. The students' earlier interactions with Jennifer's colleague resulted in them feeling as though they could not reach out to advising whenever they needed, but instead, could only contact an advisor when other resources were unavailable.

The participants were then asked to describe how their understanding of advising had changed since orientation. Cindy then explained how she viewed advising after participating in the intervention. She said:

Yeah because often meeting with her, who is somebody you perceive as somebody with higher power, you also think like oh I can approach other higher power people and talk to them and be confident about it 'cause maybe it'll be just like her, people who are willing to spend time and discuss things.

Cindy identified above the long-term value of having a relationship in which Jennifer could serve to support her career goals. Additionally, Cindy identified Jennifer's role within the power-structure of the university. Emily agreed with Cindy's comments and then described how, "It's important that students feel like advisors understand them and maybe even relate to them in some way, which I do now." Emily described her relationship with Jennifer when she was asked, she said, "Jennifer's an amazing advisor. She has a way of connecting with students and making them feel like she really listens to them." Emily felt a connection to Jennifer and felt that Jennifer heard her. Cindy highlighted the value of meeting with Jennifer when she said, "the personal connections, cause again, someday you are going to need somebody who knows you to help you go through." Cindy recognized how Jennifer could help her navigate the systems of SU and plans to rely on that relationship further.

Marissa had a very critical interaction with Jennifer. During Marissa's second advising appointment, she and Jennifer discussed her academic struggles. Marissa has received multiple warnings from faculty about her academic performance. She and Jennifer had the following exchange:

Jennifer: Why don't you tell me how you are feeling about college right now?
Marissa: It's very fast paced. I don't know, because if I withdraw or anything I'm going to lose my scholarship and I think I need all my credits.

Right now I am looking at going to a [community college] and just doing my general studies

Jennifer: That's a big decision to have already made. What's been making you feel that way?

Marissa: I don't know, I feel like I should have done an exploratory major instead of biomedical because I just don't have the passion for it

In this discussion Jennifer elicited from Marissa her concerns about her current academic progress. A key point of discussion was Marissa's decision to leave SU because she feared she could not renew her scholarship (students at SU on certain scholarships must maintain a 3.0 GPA and complete 30 credit hours after the first year to retain the scholarship into the second year). Their discussion continued:

Jennifer: You came in and you are super motivated and you've navigated from high school to college, which is huge. Like the application process, the financial aid process, finding your classes, finding office hours. I mean I want you to think about all the things you have already done before you leave SU.

Marissa: Yeah, I understand that.

Jennifer: You have a scholarship. You have done a lot.

Marissa: Yeah, the only reason I was considering the community college was because I was going to lose the scholarship.

Jennifer: No, you will not lose it for spring

Marissa: Yeah, I didn't to go to GCC, but I was already accepting that fact.

Jennifer: No, I'm glad you came in. I'm so glad you came to talk about this.

As their discussion progressed, Marissa explained her misunderstanding; she mistakenly believed she had to complete 15 hours in the fall (which she was unable to do) and would lose her scholarship, forcing her to transfer to a community college. Jennifer continued the discussion and explained that Marissa could continue at SU, and they mapped out a set of courses for the spring semester that would align with Marissa's interest to change majors while helping her maintain her scholarship. They conducted two additional meetings to discuss Marissa's plans for the spring term which included changing her major to a non-engineering degree.

When Marissa was asked about the value she experienced from participating in the study, she said “I would definitely say that because of Jennifer I will meet with my new advisor.” Marissa also shared, “Jennifer cares about me.” Jennifer’s support compelled Marissa to recognize the value of a relationship with her advisor. Additionally, had Marissa not participated in the study, she would not have visited with an advisor based upon how she felt after orientation. After the appointment, Jennifer contacted advisors within the departments Marissa was interested in and helped Marissa change to another major. She reassured Marissa and stated, “even if I am not your advisor, you can continue to ask me questions and I can help.” Jennifer planned to continue supporting Marissa even after she changed from biomedical engineering, which is not a requirement of COE advisors.

Marissa, Cindy, and Emily’s descriptions of Jennifer’s practices are consistent with those of developmental advising.

Developmental academic advising is distinguished further by certain behavioral attributes of the advisor. Specifically, the advisor demonstrates a caring attitude and uses sympathetic dialogue to establish and sustain humane relationships with all advisees. The advisor assesses developmental status in each advisee and works to foster developmental growth in each interaction. (Creamer & Creamer, 1994, p. 20)

Initially, the students described Jennifer’s practices in alignment with prescriptive advising. As a result of the intervention, their discussions revealed an understanding of their emotional connection to her, a rich description of advising, and a change in the students’ understanding of advising from their earlier interactions with advisors over the summer. Rendón (1994) describe how validation is a developmental process, not an end in itself; the more students get validated, the richer the academic and interpersonal experience. When present, students feel capable of learning.

Students Working With Elena

Elena's advising practices were transformed as she engaged a deeper understanding of her students and the meaningful relationship she described with them. Elena worked with Carson, Angie, and Mona. This subsection describes the students' experiences with her approach.

At the start of the study, Elena's students described advising similar to their other peers (described in the previous sections). Carson highlighted, "If I wasn't sure where to go with my major, my advisor would help." Mona suggested she would meet with an advisor to discuss courses and careers. Angie indicated should meet with an advisor to "help me pick my courses." These descriptions are quite similar to those of Audrey and Jennifer's students; Elena's students focused on course and major options in their understanding of advising practices.

At the final focus group, Carson and Angie shared their perspectives on their relationship with Elena based upon their interactions with her outside of the study. Carson described her interactions with Elena as she considered a major change. Carson met with Elena a third time (only two meetings were required within the study) to discuss a major change. After their second required meeting of the study, but before the focus group, Carson scheduled an additional meeting with Elena. Carson disclosed the following regarding her interaction with Elena during that meeting, she stated:

Because I was really scared to email her about my major change because I was like "Gosh, this is terrible. I'm dreading this, because we just met." And then when I was actually sitting there with her and she was helping me through the process, she said to me ... As I was getting up and leaving she said to me, "Even after you switch, if there's ever anything you need, feel free to email me." And I was like "That's amazing." I guess in my head I was expecting it to be like ... I'm changing my major, I'm disowned now. She's not going to want to help me

anymore. She was so nice about it and she made me feel so much better about my decision.

Carson explained her nervousness about explaining to Elena that she changed majors. She also expected that her relationship with Elena would end as a result of her major change. Instead, Elena supported her decision and reassured her of their continued connection.

During the focus group, Angie described an interaction she had with Elena outside of the study, at a required out-of-class networking event which Elena volunteered to attend. When Elena greeted Angie at the event, they embraced. Angie said, "I'm a student that she cares about and she knows my name, she's talked with me, she knows me. I know she cares." When asked how she knew Elena cared for her, Angie said:

At the event, Elena was helping me find an open professional, because I could not find anyone because it was so crowded. She was pointing them out to me. And then I'd be sitting with a professional and she'd be like, "When you're done with this professional, there's someone over there who's sitting alone. Come see me and we'll find someone else for you to talk with." I was like, "Thanks!"

Angie described how Elena guided her to meet various professionals during the event. Angie shared how Elena "knew her better" and "I'm not just another student to her." There were close to 2,000 students in attendance at the event and Angie described how her relationship with Elena was beneficial to her in navigating the event, and she felt personally connected to Elena.

While they did not meet outside of the study, Mona shared how she experienced support from Elena. She said, "She gave me lots of reassurance that I could succeed, she was supportive and comforting." When asked to explain how Elena offered support, she said, "She let me know about resources and she can offer me the best advice because she

knows me more than anyone here.” Mona indicated that Elena understood, supported, and guided her during the study. Furthermore, Mona outlined the following:

Whenever I mentioned I was interested in something, she would do research there with me, and she would find something and then she would email it to me so I could take a closer look at it. I would say, like, college is new and you don't know everything about it. It's always nice to have someone who knows the system better than you to help you find what's right for you.

In the above statement, Mona identified how having someone who understands the “system” was beneficial to her. She was specifically highlighting how she identified that her relationship with Elena would build her navigational capital.

When you're meeting more than once and you're getting to know your advisor and you're getting that relationship with them, you feel more inclined to say, "Okay, these are my concerns. I don't think I can do this." And then, when they give you the feedback of you can do this or it's okay if you can't, it's hard, it's so nice just ... like, outside of this. It's just nice as like a person to just have that. I think this has probably been the greatest thing I've ever been a part of, so far.

Mona described how she felt comfortable with sharing her concerns to Elena and that she felt Elena provided support back saying to her, “You can do this.” Angie added to Mona’s statement and said, “I feel like the way I need the most support is just by having someone to ask questions too, since there are many things about university that still confuse me at times.”

The students were asked to explain if their participation in the study was beneficial. Angie said:

Yeah, it was also nice working through my own thoughts. Trying to figure out who I am, too. Like, speaking out loud and trying to formulate why I'm in Engineering. Does being a Latina and a woman relate to that? That's not something I think about on my own time very much. Yeah, yeah. Because it was sometimes questions you wouldn't think about that, maybe an example about that has happened to me but I haven't really categorized it and be like, "This is an example of...." Something that has happened this time, like when I haven't felt valued.

Angie described how the dialogue within the interview led her to consider her racialized and gendered experience at SU, specifically when, “I was asked to describe a time when I felt like my contributions were not feeling valued or what was an experience I had where I felt like I belonged.” These were questions Elena posed to Angie during the second interview. Angie was then asked how she felt as a result of this increased awareness, this enhanced reflection. She said, “I feel like it was good because I was more aware.” Mona immediately added to Angie’s statement and said:

I feel like being aware is always a good thing. Like if you're aware, then you know ... you can find issues and the problems that exist. They say that ignorance is bliss and it is, in some cases. But only when you're able to be that ignorant. If there's problems that you need to fix, it's just going to get worse as time goes on.

Mona and Angie described how through their reflections they became more aware of “problems” needing to be fixed. Mona added to this and stated:

I was kind of already aware of the fact that people look at other people for their racist [views], you know, racism was kind of closeted. But with the most recent election I feel like people are being more free and open about it. Being more aware helps you see that people are more free about it and talk about how it’s impacting you.

Mona and Angie recognized through their involvement in the study they had developed an agency and an awareness which fueled their behavior.

The students’ descriptions of Elena’s practices at the start of the study align with prescriptive advising approaches, focusing on transactional discussions such as choosing courses. By the conclusion of the study, the students described developmental aspects to Elena’s practices (discussions of learning, development, career, and life goals).

Furthermore, they described the transformational practices Elena employed. Lowenstein (2014) describes how “advising is transformative, not transactional.” Indeed, advising is transformational when advisors work with students to help them make sense of their

academic goals and their interactions with the world, thus leading them to consider how their educational experiences come together to their accomplishment of their goals (Lowenstein, 2014).

Hemwall and Trachte (1999) suggest that advising should incorporate Freire's concept of praxis. Praxis is, "reflection and action upon the world to transform it" (Freire, 1993, p. 144). As such, advising as praxis considers how students develop a critical orientation of their world. Further, Hemwall and Trachte (1999) stated "praxis would suggest that advisors prompt advisees to engage in critical self-reflection or to see the connection between ideas and action" (p. 145). They further argue that advising should be aligned more closely to learning (Hemwall & Trachte, 1999) where the advisor facilitates the learning process (Lowenstein, 2014). While all the participants described their communal goals, Elena's transformational practices suggest she cultivated circumstances which enabled the students to view themselves as capable, empowered, validated learners.

Summary of Research Question #3 Findings

This discussion described how students' descriptions of the advisor's practices related to the validation the student described. At the start of the study, the students described advising as prescriptive, expecting the advisor would help them choose courses, support them in changing her major, or connect her to resources. Their descriptions outline how the advisor would "fill them up" with this information, similar to Freire's (1993) description of the banking-model of education. Since the findings in research question #1 revealed the advisors' deficit viewpoints, perhaps the advisors considered that to be their role as well. Yet, at the conclusion of the study, students

described the influence of their advisors' validating practices across a spectrum of prescriptive, developmental, and transformational approaches, which corresponded to the spectrum of invalidation to validation.

CHAPTER 5

CONCLUSION

This action research study focused on the application of validation theory within advising practices for first-generation Latina engineering students. With the pressing need to graduate more students prepared to work in STEM fields, higher education institutions need to find more effective ways to support the persistence of minoritized students. Current approaches to advising are based upon color-blind theoretical frameworks which fail to take into account the lived experiences of minoritized students. Thus, those practices fail to validate students as successful, capable, empowered learners in engineering. An intervention was developed whereby advisors and students employed asset-based, validating practices designed to center students' voices. As such, this study addressed the following research questions:

1. How do academic advisors influence the construction of validating advising practices with first-generation Latina engineering students?
2. How do first-generation Latina students in engineering describe their strengths and assets within constructed validating advising practices with their academic advisor?
3. How do first-generation Latina students in engineering describe the influence of validating advising practices with their academic advisor?

Summary of Findings

This 10-week qualitative research study led to several key themes which highlight how students and advisors experienced the influence of validating advising practices. To

understand their experiences, it is imperative to first consider how the advisors influenced the construction of validating advising practices.

Advisors' approaches to construction originated from a deficit framework and were deployed in nuanced, unique ways. Construction was considered through the creation of authentic dialogue between students and advisors. The literature describes how authentic dialogue emerges from the building of trust and understanding through shared stories, embracing ways of knowing, and articulating solidarity (Freire Institute, 2017; Stanton-Salazar, 2011). This definition of construction implies a set of expectations between both the student and advisor, that they can build trust, understanding, and create solidarity. They expect one another to engage in the process, be receptive to it, and work together to cultivate authentic dialogue. As a result, they develop a mutually beneficial relationship.

However, to discuss how the process of construction occurred, it is necessary to consider the advisors' starting point with the intervention. They consistently articulated deficit viewpoints of the students, stressing their perceptions of the students' gaps and how they could work to help fill those gaps. Yet, through a CRT framework this theory fails to consider how deficit viewpoints might reinforce barrier to academic success (Yosso, 2005). Therefore, the advisors' viewpoints that first-generation Latinas arrived at college with deficits reinforced dominant viewpoints. Ultimately, the advisors' orientations influenced their approach to construction and their approach to validation.

The advisor shaped the construction in nuanced, unique ways. Audrey's approach to construction was characterized by a reluctance to elicit information during her student meetings, restraint from fully employing the validating advising practices, and the

continued use of her legacy approaches to advising. Thus, Audrey acted as a gate-keeping agent, reinforcing current systems and structures while either missing opportunities for validation or invalidating students. Jennifer's approach to construction reflected her deeper understanding of her students, her own broader understanding of her positionality, and modifications to her advising practices. Her approach is consistent with Stanton-Salazar's (2011) description of an institutional agent, an individual who recognizes their positionality to exercise power and enact change. Further, she repeatedly affirmed the students' strengths and provided support, which are key elements of validation. Finally, Elena's practices were reflected in how she transformed her advising practices as a result of her deeper understanding of and connection with her students. This is consistent with Stanton-Salazar's description of an empowerment agent, who acts to transform systems. Empowerment is central to validation; therefore, in acting as an empowerment agent, Elena also acted to validate students.

These findings add to the literature on validation in multiple ways. First, Rendón and Jalomo (1995) described how validation occurs on a continuum. Indeed, this is evident through the findings in this study. Second, Rojas (2014) described the complexities of relationship building between agents and students. The advisors' approaches to relationship building were indeed nuanced and filled with their own experiences with deficit frameworks, their own feelings, and their own positionality. This leads into the third contribution; while Hurtado et al. (2012) drew upon Stanton-Salazar's definition of an institutional agent, this alignment was insufficient to reflect the continuum of forms that an agent may take. Finally, as Rendón (1994) failed to define an

agent in her original work, the findings add to a deeper exploration of the concept and role of an agent within validation.

These findings are consistent with and contribute to the literature on advising. Rendón (2006) describes how traditional views of students suggest they are a “solvable” problem; however, each student must be viewed holistically as an individual with strengths. Many descriptions of minoritized students describe that advising practices should include an awareness of individuals’ backgrounds (Clark & Kalionzes, 2008), reflect their histories (Kuhn, 2008), and should build a holistic understanding of the student (Crookston, 1994). Yet, the existing literature provides minimal guidance beyond the need for advisors to educate themselves on students’ diverse experiences while understanding their own positionality (Clark & Kalionzes, 2008). Furthermore, “professional academic advisors have increasingly varied academic and professional background and diverse journeys into advising” (Schulenberg & Lindhorst, 2008, p. 49). Thus, the findings add to a recognition that advisors would benefit from additional training about the complexities associated with building a deeper awareness of students’ past histories and experiences.

Forms of Capital

This study provides an asset-based understanding of the forms of capital the students cultivated as a foundation for their future success in college. Students described various forms of capital which they employed in high school to prepare them for college; specifically referencing examples of their navigational, social, aspirational, and informational forms of capital. These capitals worked in conjunction to support their aspirations to attend college. To study engineering at SU, the students had to meet high

admissions standards. They described pre-college experiences which served as a foundation for their aspirations for college success.

Once in college, the students articulated their future aspirations in the context of communal goals and cultivated networks of support, goals which reflect a desire to work with and help people or society (Diekman et al., 2015). Through their expressions of communal goals, the students drew upon their familial, social, and resistant forms of capital. The findings here align with research by Samuleson and Litzler (2016) who described how first-generation students,

demonstrate how the different types of capital contribute to persistence through students' ability to successfully navigate engineering programs, be motivated by future goals and family ties, and use their awareness of existing social injustices as a driving force for success. (p. 111)

Further, research on academic advising suggests that students set goals in partnership with advising (Creamer & Creamer, 1994). Instead, the students arrived with aspirations, articulated as communal goals, to advance their families and communities.

To accomplish their communal goals, the students demonstrated the navigational capital to build networks of support. The students described the courses, clubs, and resources they engaged with during their first semester. Research suggests first-generation students are less likely to engage in study groups, interact with faculty, participate in clubs, and utilize support resources (Engle & Tinto, 2008). Tate et al. (2015) suggested first-generation students were limited in their ability to develop a professional network and would ultimately experience challenges in career development. Yet, these participants have learned to navigate the educational system and engage in networks for the accomplishment of their goals.

The students viewed advising as a component of their network of support. The students viewed their participation in this study as a way to deepen their relationship with advising. Engle and Tinto (2008) described how advisors should reach out to students proactively and intrusively to offer support and connect students to resources. Findings in this study reflect how the students cultivated those networks independent of the advising intervention provided in this study. Further Romasanta (2016) identified how first-generation students cultivated resilience strategies, indicating that students identified networks to support their academic achievement, which includes not only joining clubs and utilizing support services, but also includes academic advisors.

The findings in this study align to literature which emphasizes a focus on asset-based perspectives for programs and practices. Samuelson and Litzler (2016) described how Latinas bring with them dynamic and interwoven forms of capital when they begin college; persistence in engineering is better understood as a function of those forms of capital. Colorado-Burt (2015) identified how first-generation Latinas employ their assets to overcome invalidations and benefit from interactions which cultivate their assets. Romasanta (2016) similarly emphasized the role of student assets in their development of protective factors, including resiliency, to persist in college.

Further, these findings align with CRT research. The students arrived at college with a wealth of assets and strengths. CRT researcher engages methodologies which center student voices (Solórzano & Yosso, 2002). This study elicited those voices in such a way that the students articulated their own forms of strength. Their experiences became relevant and central to the advising discussions and the advisors actively identified their assets using the asset map template during the advising intervention.

Furthermore, through the use of a LatCrit framework, the intersectional experiences of the students emerged. Stories such as those experienced by Emily as a DACA student, the consideration of the historical context of being in the U.S. studying under DACA as well as the intersection of Emily's roles as a Latina and an immigrant, emerged through her discussions with Jennifer. As a result, Jennifer gained a deeper understanding of Emily's strengths; Emily has succeeded through considerable challenges and Jennifer actively reminded Emily of that during their discussions. Therefore, by centering their voices, the students told their own counter-story to the advisor, thus adding a depth and richer understanding to the collected data and the analysis (Ladson-Billings, 2013).

The Role of the Validating Agent

The term *validating agent* describes a continuum of practices and their corresponding outcomes; not all agents validate the same way; the experiences of the students corresponded to which advisor with whom she worked. As was discussed in the finding for research question #1, advisors are not simply institutional agents by the nature of their role, rather they enact certain approaches to construction which reflect a nuanced and complex understanding of a validating agent. Consequently, the advisors' approach to validating practices revealed a continuum of descriptions by students of the influences of those practices on their college experience.

Each group of students described the influence of advising practices in alignment with their advisor. Camila, Jenna, Jessica, and Emma described Audrey's practices in alignment with descriptions of prescriptive advising practices. Prescriptive practices limit the voice of a student, thus failing to affirm and support them. Emily, Cindy, and Marissa

described how they felt Jennifer affirmed their voices and holistically supported their development. While these three students initially described her practices as in alignment with prescriptive practices, at the conclusion, the students described the validation they experienced with her. Carson, Mona, and Angie initially described Elena's practices as prescriptive, but at the conclusion of the study, the students described a transformed understanding of Elena and the relationship they could have with her.

The findings add to the understanding of validation within advising. Previous research with validation considered the role of agents in STEM (Rendón, 2016), the influence of validation with specific populations of students (Colorado-Burt, 2015), the role of faculty with in-class academic validation (Barnett, 2011), and the effect of programs designed to validation students (Nora et al., 2011), but had not fully explored validation as a construct within advising practices.

Further, the findings add to the discussion of advising in the literature. Often descriptions of advising frame the content of the advising approach, not necessarily how the student can influence those practices nor how their voice adds to an advisor's holistic understand of the student (NACADA, 2006). Lowenstein (2014) suggested advising is integrative, where the advisor and student collaborate to understand the student's overall educational experience, and then the advising relationship can be transformational as result of that collaboration.

Implications for Research

Advising Pedagogy

This study suggests there is a gap in the advising literature in terms of the need for a pedagogy within advising. Furthermore, there is a debate underway about how to

integrate a critical race theory framework into advising practices. As discussed in research question #3, Elena's practices were transformational and aligned with Hemwall and Trachte's (1999) and Lowenstein's (2014) description of advising as teaching. Puroway (2016) further proposed the inclusion of praxis within advising pedagogy, emphasizing the value of authentic dialogue for student learning and development.

However, Winham (2017) responded in a letter to the editor that Puroway's (2016) proposed "political" approach to advising is outside the aim of advising. Instead, advisors should consider their positionality and engage in reflection about the role advising plays to achieve the mission of the university. Winham's rebuttal excludes the reflection and understanding that can emerge within praxis.

This study adds to those work of researchers wishing to study praxis within their practices. The findings here align with these statements that:

Advisors need to think about advising as if they were teachers. Curricular goals must be identified and effective pedagogies must be developed if advisors hope that advisees will learn the values and goals educators set as the main purpose of college education. (Hemwall & Trachte, 2005, p. 9)

Consequently, advising would benefit from a pedagogy. Rendón (2014) proposed that those who seek to validate should incorporate an *asset-based pedagogy*. This pedagogy is characterized by a holistic view of students, an inclusive curriculum, and validating relationships with staff. Rendón states how an asset-based pedagogy permeates the design and implementation of student success strategies.

An asset-based pedagogy shares characteristics with a critical mentoring pedagogy described by Liou et al. (2016). A critical mentoring pedagogy is defined as:

A reciprocal and reflexive process between the mentor and the mentee to collectively foster a greater understanding of the mentee and their family's aspirational, navigational, and informational strategies to be empowered to resist

and transform institutional structures instead of reproducing stratified social relations and power. (Liou et al., 2016, p. 104)

This description aligns with the integration of praxis within advising proposed by Hemwall and Trachte, characterized by a student's reflection upon their place within the world. Yet, Liou et al expand that understanding to then suggest that from this reflection and understanding emerges an empowerment that supports transformation within oppressive structures and systems. These pedagogies reflect aspects of a pedagogy within a CRT framework (Sue et al., 2009) which center race, challenge dominant approaches to advising, engage a student's lived experiences, and reflect a commitment to social justice (Solórzano et al., 2005). By constructing practices with students and centering a critical pedagogy, the advisor develops a deeper understanding, enabling her to act as an empowerment agent to lead transformation.

Further Refining the Term “Agent”

In Rendón's work (1994; 2002), the term “agent” was undefined. This study adds to the literature to suggest further consideration of how an agent approaches validation and the influence of the agent's approach. Yet, this finding should also be considered in the broader discussion of advising. Within advising literature very few descriptions exist describing how an advisor should approach his/her practice. Emphasis is placed upon the content of and orientation towards the discussion. For example, a widely accessed website available as part of the Global Community for Academic Advising lists “developmental advising definitions” (NACADA, n.d.) while another is titled “definitions of academic advising” (NACADA, 2003). These two sites simply list the components or characteristics of varying approaches, providing little guidance on how to employ the practices. In the limited instances where guidance is provided, little is

discussed on how the advisor might experience that approach. For example, Clark and Kalionzes (2008) described how advisors can demonstrate cultural awareness:

[it] first requires a shattering of prevailing belief systems about diversity on campuses. To do this requires an unveiling of those powerful, shared belief systems that everyone agrees to follow and adhere to (most of the time unspoken) and critically look at those policies, practices, and systems that have created injustices and inequity. (p. 212)

They further describe the responsibility of the advisor to learn more about the student and support the student in building navigational skills. Yet, they fail to discuss how an advisor might begin to do that, nor do they discuss how an advisor might experience that process of learning more and providing support in such a way as to not reinforce oppressions by sustaining deficit views. Stanton-Salazar's (2011) and Rojas' (2014) discussion on the role of an agent might better enlighten advisors employing validating practices on the various roles they can play as agents as well as how students might experience those roles.

Implications for Practice

As an advising administrator, I am often asked, "How can advising increase the retention of X students" where X might refer to first-generation, international, Latino, or other minoritized students within the context of engineering. My epistemology for this study focused on how the students are holders and creators of knowledge (Bernal, 1998); therefore, this intervention was designed to bring their voices to the center of the advising interactions.

Enhanced Advisor Training

Rendón (1994) emphasizes how training must be provided for faculty and staff employing validating practices. Within this study, advisors were asked for the input as to

how validating practices could be applied broadly. They would have preferred more time during the study to read the reference materials. Jennifer said, “I could have spent the whole day there to consider and digest the topics”. Additionally, they would have liked more time to discuss the concepts as well as how they would be conducting the intervention. Audrey added, “I think I was just kind of overwhelmed with everything. I wanted to make sure that I was doing the work to prepare for each individual student and reading through the questions and making sure to follow up”. As evidenced through the description of research question #1, Audrey and Jennifer described moments of discomfort as students elaborated on their racialized and gendered experiences. To that end, effective training should include more time to discuss what might happen during student interactions within validating advising.

Developing sympathetic touch amongst advisors. A specific way to enhance the training would be to incorporate the concept of *sympathetic touch*. Du Bois described how teachers developed sympathy with their students (Rojas & Liou, 2017). This occurred as teachers first learned about students’ background, history, and aspirations within the context of social injustice and inequity. Next, teachers engaged in practices designed to liberate and empower students. Finally, teachers worked collaboratively with students to envision and enact a new, liberated future. This relational process emerged from “dialogue, reflection, and generation new knowledge through the process of realization, self-affirmation, and transformation” (Rojas & Liou, 2017, p. 30). As discussed in the results, the deficit viewpoints expressed by the advisors reflected low expectations for student success. Therefore, with the inclusion of training and support on the development of a sympathetic understanding leading to high expectations of the

students, the advisors are using the students' own voices along with their deeper understanding of student experiences to further develop asset-based advising practices.

Developing an awareness of the role of climate. Theoretical connections have aligned validation as a precursor to sense of belonging within negative climates. Sense of belonging acts then as a precursor to student persistence (Hausmann et al., 2007; Hurtado et al., 2015; Strayhorn, 2012). Hurtado et al. (2015) described this as:

The more students witness acts of discrimination or hear disparaging remarks from faculty, staff, or fellow students, the less validated they are likely to feel, and consequently, the lower their sense of belonging on campus. Conversely, the efforts made by concerned institutional agents to help students feel more empowered--a sense of validation--can fortify students against discriminatory experiences and help them feel included as part of their campus communities. (p. 72)

Audrey and Jennifer referenced their discomfort during discussions related to race and gender; they were unprepared for that information to be shared. Thus, developing an advisor's awareness of the negative outcomes associated with the often-described negative climate of STEM, advisors can prepare themselves to guide students through critical conversations about their experiences.

Next Steps

To advance this research beyond this project, the next cycles of action research will consider the advisor or the student. First, the next cycle will consider broadening the population of advisors and students involved. This study considered the experience of three advisors across the six schools of engineering within the COE. The next phase will consider at least two advisors within each school, thus broadening the population to consider all possible engineering disciplines and engaging with a broader student population of two to three students with each involved advisor. Refinements to the

current intervention model will be based upon Jennifer, Audrey, and Elena's input. They suggested a longer training session, fewer prompts within the interviews, and a simpler format for viewing the student reflection journals.

Second, the next cycle will add a longitudinal study aspect to the original student participants. This study spanned only one semester of that first year. Research suggests students who persist past the critical first year are still likely to depart engineering after the second year due to the climate (Hurtado & Carter, 1997). Additional discussions with the students on their experiences within engineering related to their gender, immigration status, and ethnicity will provide insight into the climate, possibly identifying where or when additional intervention might be appropriate. Additionally, a longitudinal study can capture student major, academic progress, and enrollment over the course of her engagement at SU.

Limitations to the Study

There are several limitations to the study which warrant discussion. Validity in the research design was considered through member checking, triangulation, and peer debriefing. These were discussed in Chapter 3. Yet threats to validity emerge as limitations in the study. The first is through my role as a researcher. There are two aspects to this limitation for consideration. The first is that I occupy a position of power in the organization. The advisors who participated might have felt compelled to participate simply due to the hierarchical nature of my position in relation to their position. This could have influenced how they followed the protocols and further how they described their experiences. Were they following the protocols because they felt compelled to? Were they describing their experiences authentically or simply providing

the information that they thought I might want to hear? The second limitation in my role as a researcher considers my interactions with the participating students. I completed an interview with them prior to the start of the intervention with their advisor. I asked questions that their advisor also asked. With this design, I may have then influenced their responses with their advisor as those meetings occurred after my meeting with them.

A second limitation considers sample bias. The findings discussed in the second request question described the students' strengths in forming their networks of support and how they perceived advising to be a component of that network. It could be that those students with that disposition are the only ones who volunteered to participate in the study. All first-generation Latina students within those three schools were invited to participate. Those students who participated in the study were the ones who volunteered; no one who volunteered to participate was excluded. Perhaps those who did not volunteer to participate may have provided an alternative viewpoint on their networks as well as their understanding of advising.

A third limitation speaks to generalizability. This study considered the experiences of three advisors and 10 students, but each advisor interacted with only three or four students. These findings should not be generalized across other Latinas nor should they be generalized across other minoritized populations. The intent of this study was not to generalize; it was meant to elicit their subjective perspectives in this context. CRT and LatCrit research seeks to center the stories and voices of those often minoritized in research specifically considering their experiences at the intersection of race, gender, and other forms of oppression (Solórzano & Yosso, 2002). It is in an attempt to generalize, be objective, or act colorblind that traditional research methods reinforce deficits and further

silence minoritized students (Solórzano & Yosso, 2002). Therefore, this study attempted only to elicit, share, and elaborate upon the experiences of these advisors and students, not to generalize.

Lessons Learned

The process of this dissertation has led to a critical reflection of my own practices, leadership, and understanding. I began this study with the orientation that I (similar to Audrey, Jennifer, and Elena), could help students through a more refined advising approach. This was a deficit-based framework. Yet, thankfully, an influencing factor in this creation of the intervention and the direction of this study were the voices of the students who participated in Romasanta's (2016) dissertation study. Romasanta worked with junior and senior students, some of whom were enrolled at SU in the COE.

Romasanta presented her work when I was in the first year of my doctoral coursework.

One of her participants stated:

I know advisors are training to be helpful, but it is hit or miss...Maybe we could start doing some inclusion training for advisors, how to work specifically with first-generation students and how you have to give them the extra nudge, the extra encouragement. Really take the time to check in on them. (p. 108)

As I reviewed Romasanta's work, I began to understand how a student's voice could influence advising practices in the COE at SU. As the administrator in a position to develop training and practices that could benefit first-generation students, I felt compelled to act. Thus, I engaged with a population of students minoritized in engineering nationally as well as within SU to better understand how advising might be enhanced to support their academic success. The students in Romasanta's study pointed out the need for better support.

Yet, the circumstances shaping advisor adoption of validating practices are complex and nuanced. As evidenced by the discussion within the advising literature, the inclusion of praxis into advising practices is controversial. As evidenced in this study, the advisors varied in their adoption of validating advising practices. Through the research, though, I recognized the transformation which occurred through the meaningful construction of authentic dialogue.

The broader implementation of validating advising practices as well as the development of a critical mentoring or asset based pedagogy requires creating a culture of advisors willing to engage with students through these practices and commit to transforming the students' experiences. I plan to engage these advisor participants to support a broader implementation, as well as enhancing training and on-going support as advisors engage with validating advising practices. As early adopters, Jennifer and Elena could generate interest and understanding amongst their peers, enabling the wider-adoption of validating advising practices and a critical or asset-based pedagogy within the advising practices at SU. At the conclusion of this study I realize the importance of creating a culture that is committed to empowering students through a critical approach to academic advising.

Concluding Thoughts

I began this research with the aim of deepening an awareness of how academic advising practices influenced by CRT could shape the experiences of first-generation Latina students, a population minoritized within engineering. The students in the study realized a deeper understanding of their advisor and articulated the value of an authentic relationships. It is unclear at this time what the long term effects of this relationship will

bring. As of the writing of this document, two students changed majors outside of engineering and one has transferred to a community college to reduce college costs but she is still planning to return to study engineering at SU. Already that is almost one-third of the participants.

To meet the pressing needs within the U.S. to graduate more students from minoritized populations, new practices and approaches are needed within higher education to empower rather than subordinate students. While a variety of factors shape minoritized student persistence in STEM majors (i.e. a negative climate, bias, stereotypes, and feelings of isolation) these factors describe the outcomes from systems and structures which sustain subordination. Alternatively, CRT provides a lens for perspectives, methodology, methods, and pedagogy, which supports programmatic development designed to empower minoritized students towards the completion of engineering degrees. The students brought with them a wealth of assets. Therefore, as an advising administrator, I have a responsibility to create and cultivate a team of advisors to operate within systems and structures which are committed to engaging those assets and thereby empowering minoritized students in engineering.

REFERENCES

- Acevedo-Gil, N., Santos, R. E., Alonso, L., & Solórzano, D. G. (2015). Latinas/os in community college developmental education: Increasing moments of academic and interpersonal validation. *Journal of Hispanic Higher Education, 14*(2), 101–127.
- Astin, A. W. (1993). *What matters in college: Four critical years revisited*. San Francisco, CA: Jossey-Bass Inc.
- Attinasi, L. C. (1989). Getting in: Mexican Americans' perceptions of university attendance and the implications of freshman year persistence. *The Journal of Higher Education, 60*(3), 247–277.
- Aud, S., Fox, M., & Kewal Ramani, A. (2010). *Status and trends in the education of racial and ethnic groups* (NCES 2010-015). Washington, D.C.: U.S. Government Printing Office.
- Barnett, E. (2006). *Validation experiences and persistence among urban community college students* (Doctoral dissertation). Retrieved from ProQuest Theses & Dissertations. (UMI No. 3250210)
- Barnett, E. A. (2011). Validation experiences and persistence among community college students. *The Review of Higher Education, 34*(2), 193–230.
- Beede, D., Julian, T., Langdon, D., Mckittrick, G., Khan, B., & Doms, M. (2011). *Women in STEM: A gender gap to innovation* (Issue Brief No. 04-11). Washington, D.C.: Economics and Statistics Administration.
- Berger, J. B., Blanco Ramírez, G., Lyons, S. (2012). Past to present: A historical look at retention. In A. Seidman (Ed.), *College student retention formula for success (The ACE series on higher education)* (pp. 6-33). Maryland: Rowman & Littlefield Publishers, Inc.
- Brinkmann, S., & Kvale, S. (2015). *InterViews: Learning the craft of qualitative research interviewing*. California: Sage Publications, Inc.
- Bollen, K. A., & Hoyle, R. H. (1990). Perceived cohesion: A conceptual and empirical examination. *Social Forces, 69*(2), 479–504.
- Bonilla-Silva, E. (2017). *Racism without racists: Color-blind racism and the persistence of racial inequality in America*. Lanham, MD: Rowman & Littlefield.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101.

- Braxton, J. M. (2002). Reworking the student departure puzzle. In J. M. Braxton (Ed.), *Reworking the student departure puzzle* (pp. 1-10). Nashville, TN: Vanderbilt University Press.
- Brown, K. & Jackson, D. D. (2013). The history and conceptual elements of critical race theory. In M. Lynn, & A. D. Dixson (Eds.), *Handbook of critical race theory* (pp. 9-22). New York: Taylor and Francis.
- Buss, R. R. (2018). Using action research as a signature pedagogy to develop EdD students' inquiry as practice abilities. *Impacting Education: Journal on Transforming Professional Practice*, 3, 23-31.
- Cabrera, A. F., Amaury, N., Terenzini, P. T., Pascarella, E. T., & Hagedorn, L. S. (1999). Campus racial climate and the adjustment of students to college: A comparison between White students and African-American students. *The Journal of Higher Education*, 70(2), 134-160.
- Campbell, M. A. (2013). *The impacts of intrusive advising on the persistence of first-year science, technology, and mathematics students identified using a risk prediction instrument* (Doctoral dissertation). Retrieved from ProQuest Theses & Dissertations. (UMI No. 3552312)
- Campbell, S. M., & Nutt, C. N. (2008). Academic advising in the new global century: Supporting student engagement and learning outcomes achievement. *Peer Review*, Winter, 4-7.
- Carbajal, S. C. (2015). *Exploring the undergraduate experience of Latina students in science, technology, engineering, and mathematics (STEM) majors: Strategies and achieving baccalaureate attainment* (Master's thesis). Retrieved from ProQuest Dissertations & Theses. (UMI No. 1598628)
- Chang, M. J., Sharkness, J., Hurtado, S., & Newman, C. B. (2014). What matters in college for retaining aspiring scientists and engineers from underrepresented racial groups? *Journal of Research in Science Teaching*, 51(5), 555-580.
- Charter. (n.d.). Retrieved February 3, 2018 from <https://president.XXX.edu/about/XXXcharter>
- Chen, X., & Soldner, M. (2013). *STEM attrition: College students' paths into and out of STEM fields. Statistical analysis report*. Washington, D.C.: U. S. Department of Education.
- Clark, C. E. & Kalionzes, J. (2008). Advising students of color and international students. In V.N. Gordon, W. R. Habley, & T. J. Grites (Eds.), *Academic advising: A comprehensive handbook* (pp. 204-226). San Francisco, CA: Jossey-Bass.

- Colorado-Burt, S. (2015). *Succeeding against the odds: Exploring academic, social and cultural experiences that account for provisional Latinas attaining success in higher education*. Retrieved from ProQuest. (1685036363).
- Cook, S. (2009). Important events in the development of academic advising in the United States. *NACADA Journal*, 29(2), 18–40.
- Committee on Prospering in the Global Economy of the 21st Century. (2007). *Rising above the gathering storm: Energizing and employing America for a brighter economic future*. Washington, D.C.: National Academies Press.
- Cooper, R., & Liou, D. D. (2007). The structure and culture of information pathways: Rethinking opportunity to learn in urban high schools during the ninth grade transition. *The High School Journal*, 91(1), 43–56.
- Council for the Advancement of Standards in Higher Education (CAS). (2013). *Standards and guidelines*. Retrieved from <http://standards.cas.edu/getpdf.cfm?PDF=E864D2C4-D655-8F74-2E647CDECD29B7D0>
- Creamer L. D. G., & Creamer, E. G. (1994). Practicing developmental advising: Theoretical contexts and functional applications. *NACADA Journal*, 14(2), 17–24.
- Crenshaw, K. (1991). Mapping the margins: Intersectionality, identity politics, and violence against women of color. *Stanford Law Review*, 43(6), 1241–1299.
- Creswell, J. W. (2015). *Planning, conducting, and evaluating quantitative and qualitative research*. Boston, MA: Pearson Education, Inc.
- Crisp, G., Taggart, A., & Nora, A. (2015). Undergraduate Latina/o students: A systematic review of research identifying factors contributing to academic success outcomes. *Review of Educational Research*, 85(2), 249–274.
- Crookston, B. (1972). A developmental view of academic advising as teaching. *Journal of College Student Personnel*, 13, 12-17.
- Crookston, B. (1994). A developmental view of academic advising as teaching. *NACADA Journal*, 14(2), 5-9.
- Curry Crotty, M. (1998). *The foundations of social research. Meaning and perspective in the research process*. California: Sage Publications, Inc.
- Delgado, R. & Stefancic, J. (2012). *Critical race theory: An introduction*. New York: New York University Press.
- Delgado Bernal, D. (1998). Using a Chicana feminist epistemology in educational research. *Harvard Educational Review*, 68(4), 555-582.

- Delgado Bernal, D. (2002). Critical race theory, Latino critical theory and critical raced-gendered epistemologies: Recognizing students of color as holders and creators of knowledge. *Qualitative Inquiry*, 8(1), 105–126.
<http://dx.doi.org/10.1177/107780040200800107>
- Delgado Bernal, D., Burciaga, R., & Flores Carmona, J. (2012). Chicana/Latina testimonios: Mapping the methodological, pedagogical, and political. *Equity & Excellence in Education*, 45(3), 363–372.
<http://doi.org/10.1080/10665684.2012.698149>
- Diekman, A. B., Weisgram, E. S., & Belanger, A. L. (2015). New routes to recruiting and retaining women in STEM: Policy implications of a communal goal congruity perspective. *Social Issues and Policy Review*, 9(1), 52–88.
<http://doi.org/10.1111/sipr.12010>
- Dunbar, C. (2008). Critical race theory and indigenous methodologies. In N. K. Denzin, Y. S. Lincoln, & L. T. Smith (Eds.), *Handbook of critical and indigenous methodologies*, (pp.85-99). Thousand Oaks, CA: Sage.
- Eagan, K., Hurtado, S., & Chang, M. (2010, October). *What matters in STEM: Institutional contexts that influence STEM bachelor's degree completion rates*. In Annual Meeting of the Association for the Study of Higher Education (pp. 1-34). Las Vegas, NV.
- Earl, W. R. (1988). Intrusive advising of freshmen in academic difficulty. *NACADA Journal*, 8(2), 27–33. <http://doi.org/10.12930/0271-9517-8.2.27>
- Else-Quest, N. M., Mineo, C. C., & Higgins, A. (2013). Math and science attitudes and achievement at the intersection of gender and ethnicity. *Psychology of Women Quarterly*, 37(3), 293–309.
- Engle, J., & Tinto, V. (2008). *Moving beyond access: College success for low-income, first-generation students*. Washington, D.C.: Pell Institute for the Study of Opportunity in Higher Education. Retrieved from <http://files.eric.ed.gov/fulltext/ED504448.pdf>
- Fergus, E. (2017). Confronting colorblindness. *Phi Delta Kappa*, 98(5), 30-35.
- Flick, U. (2014). *An introduction to qualitative research*. London: Sage Publications.
- Fowler, B. P. R., Boylan, H. R., & Fowler, P. R. (2010). Increasing student success and retention: A multidimensional approach. *Journal of Developmental Education*, 34, 2–10.
- Freire Institute. (2017). Concepts used by Paulo Freire. Retrieved from <http://www.freire.org/paulo-freire/concepts-used-by-paulo-freire>

- Freire, P. (1993). *Pedagogy of the oppressed*. London: Penguin Books.
- Gándara, P. (2015). *Fulfilling America's future: Latinas in the U.S., 2015*. Retrieved from <https://sites.ed.gov/hispanic-initiative/files/2015/09/Fulfilling-Americas-Future-Latinas-in-the-U.S.-2015-Final-Report.pdf>
- Gándara, P. C., & Contreras, F. (2009). *The Latino education crisis: The consequences of failed social policies*. Cambridge, MA: Harvard University Press.
- García, S. B., & Guerra, P. L. (2004). Deconstructing deficit thinking: Working with educators to create more equitable learning environments. *Education and Urban Society*, 36(2), 150–168. <http://doi.org/10.1177/0013124503261322>
- Gloria, A.M. & Castellanos, J. (2012). Desafíos y bendiciones: A multiperspective examination of the educational experiences and coping responses of first-generation college Latina students. *Journal of Hispanic Higher Education*, 11(1), 82-99. <http://dx.doi.org/10.1177/1538192711430382>
- Glossary National Center for Education Statistics. (n.d.). Retention rate definition. Retrieved from <https://surveys.nces.ed.gov/ipeds/VisGlossaryPopup.aspx?idlink=772>
- Hagen, P. L. & Jordan, P. (2008). Theoretical foundations of academic advising. In V. N. Gordon, W. R. Habley, & T. J. Grites (Eds.), *Academic advising: A comprehensive handbook* (pp. 17-34). San Francisco, CA: Jossey-Bass.
- Harper, S. R., Davis, R. J., Jones, D. E., McGowan, B. L., Ingram, T. N., & Platt, C. S. (2011). Race and racism in the experiences of black male resident assistants at predominantly white universities. *Journal of College Student Development*, 52(22), 180–200. <http://dx.doi.org/10.1353/csd.2011.0025>
- Hausmann, L. R., Schofield, J. W., & Woods, R. L. (2007). Sense of belonging as a predictor of intention to persist among African American and White first-year college students. *Research in Higher Education*, 48(7), 803-839.
- Hemwall, M. K., & Trachte, K. C. (1999). Learning at the core: Toward a new understanding of academic advising. *NACADA Journal*, 29(1), 113-118
- Hemwall, M. K., & Trachte, K. C. (2005). Academic advising as learning: 10 organizing principles. *NACADA Journal*, 25(2), 74-83.
- Hemwell, M. K., & Trachte, K. C. (2009). Learning at the core: Toward a new understanding of academic advising. *NACADA Journal*, 29(1), 113-118.
- Hernández, E. (2016). Using critical race theory to examine race/ethnicity, racism, and power in student development theory and research. *Journal of College Student Development*, 57(2), 168–180.

- Hernández, E. (2017). Critical theoretical perspectives. In J. H. Schuh, S. R. Jones, & V. Torres (Eds.), *Student services: A handbook for the profession* (pp. 205–219). San Francisco, CA: Jossey-Bass.
- Hurtado, S., & Carter, D. F. (1997). Effects of college transition of perceptions of the campus racial climate on Latino college students' sense of belonging. *Sociology of Education*, 70(4), 324–345.
- Hurtado, S., Ruiz Alvarado, A., & Guillermo-Wann, C. (2012). Inclusive learning environments: Modeling a relationship between validation, campus climate for diversity, and sense of belonging. In *Annual Conference of the Association for Studies in Higher Education* (Vol. 53, pp. 1689–1699). Las Vegas, Nevada. <http://doi.org/10.1017/CBO9781107415324.004>
- Hurtado, S., Ruiz Alvarado, A., & Guillermo-Wann, C. (2015). Creating inclusive environments: The mediating effect of faculty and staff validation on the relationship of discrimination/bias to students' sense of belonging. *Journal Committed to Social Change on Race and Ethnicity*, 1(1), 60–81.
- Ivankova, N. (2015). *Mixed methods applications in action research: From methods to community action*. Thousand Oakes, CA: Sage Publications, Inc.
- Jaschik, S. (2010). Arizona bans affirmative action. *Inside Higher Ed*. Retrieved from <https://www.insidehighered.com/news/2010/11/03/arizona>
- Jeschke, M. P., Johnson, K. E., & Williams, J. R. (2001). A comparison of intrusive and prescriptive advising of psychology majors at an urban comprehensive university. *NACADA Journal*, 21(1/2), 46–58.
- Johnson, D. R. (2012). Campus racial climate perceptions and overall sense of belonging among racially diverse women in STEM majors. *Journal of College Student Development*, 53(2), 336–346.
- Jones, S. R., & Abes, E. S. (2010). The nature and uses of theory. In J. H. Schuh, S. R. Jones, & S. R. Harper (Eds.), *Student services: A handbook for the profession* (5th ed., pp. 149–167). San Francisco, CA: Jossey-Bass.
- Krumrei-Mancuso, E. J., Newton, F. B., Kim, E., & Wilcox, D. (2013). Psychosocial factors predicting first-year college student success. *Journal of College Student Development*, 54(3), 247–266.
- Kuhn, T. L. (2008). Historical foundations of academic advising. In V.N. Gordon, W.R. Habley, & T.J. Grites (Eds.), *Academic advising: A comprehensive handbook* (pp. 3-16). San Francisco, CA: Jossey-Bass.

- Ladson-Billings, G. (2013). Critical race theory – what it is not! In M. Lynn, & A.D. Dixson (Eds.), *Handbook of critical race theory* (pp. 34-47). New York: Taylor and Francis.
- Liou, D. D., Martinez, A. N., & Rotheram-Fuller, E. (2016) “Don’t give up on me”: Critical mentoring pedagogy for the classroom building students’ community cultural wealth, *International Journal of Qualitative Studies in Education*, 29(1), 104-129, <http://dx.doi.org/10.1080/09518398.2015.1017849>
- Lowenstein, M. (2014). Toward a theory of advising. Retrieved on January 2, 2018 from <https://dus.psu.edu/mentor/2014/08/toward-a-theory-of-advising/>
- Martin, J. P., Simmons, D. R., & Yu, S. L. (2013). The role of social capital in the experiences of Hispanic women engineering majors. *Journal of Engineering Education*, 102(2), 227–243.
- McGill, C. M. (2016). “Cultivating ways of thinking”: The developmental teaching perspective in academic advising. *New Horizons in Adult Education & Human Resource Development*, 28(1), 50–54. <http://doi.org/10.1002/nha3.20131>
- Mertens, D.M. (2015). *Research and evaluation in education and psychology: Integrating diversity with quantitative, qualitative, and mixed methods*. Thousand Oaks, CA: Sage Publications, Inc.
- Museus, D. D., & Ravello, J. N. (2010). Characteristics of academic advising that contribute to racial and ethnic minority student success at predominately white institutions. *NACADA Journal*, 30(1), 47–58. <http://dx.doi.org/10.12930/0271-9517-30.1.47>
- Museus, S. D., & Neville, K. M. (2012). Delineating the ways that key institutional agents provide racial minority students with access to social capital in college. *Journal of College Student Development*, 53(3), 436–452. <http://doi.org/10.1353/csd.2012.0042>
- Musu-Gillette, L., Robinson, J., McFarland, J., Kewal Ramani, A., Zhang, A., & Wilkinson-Flicker, S. (2016). *Status and trends in the education of racial and ethnic groups 2016* (NCES 2016-007). Washington, D.C.: U.S. Department of Education, National Center for Education Statistics.
- NACADA. (n.d.). Developmental advising definitions. Retrieved from <https://www.nacada.ksu.edu/Resources/Clearinghouse/View-Articles/Developmental-advising-definitions.aspx>
- NACADA. (2003). Paper presented to the Task Force on Defining Academic Advising Retrieved from <https://www.nacada.ksu.edu/Resources/Clearinghouse/View-Articles/Concept-of-Academic-Advising.aspx>

- National Center for Education Statistics. (2013). *STEM attrition: College students' paths into and out of STEM fields*. Washington, D.C.: U.S. Department of Education. Retrieved from <https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2014001rev>
- National Science Board. (2016). *Science and engineering indicators 2016* (NSB-2016-1). Arlington, VA: National Science Foundation.
- National Science Foundation, National Center for Science and Engineering Statistics (NSF/NCSES). (2015). *Women, minorities, and persons with disabilities in science and engineering: 2015* (NSF 15-311). Arlington, VA: National Science Foundation. Retrieved from <http://www.nsf.gov/statistics/wmpd/>
- Noddings, N. (1988). An ethic of caring and its implications for instructional arrangements. *American Journal of Education*, 96, 215–230
- Nora, A., Urick, M., & Quijada Cerecer, P.D. (2011). Validating students: A conceptualization and overview of its impact on student experiences and outcomes. *Enrollment Management Journal*, 5(2), 34-52.
- O'Banion, T. (1994). An academic advising model. *NACADA Journal*, 14(2), 10-16. Reprinted from the *NACADA Journal*, 14(2), 10-15.
- Omi, M., & Winant, H. (2015). *Racial formation in the United States*. New York: Routledge.
- Ong, M., Wright, C., Espinosa, L. L., & Orfield, G. (2011). Inside the double bind: A synthesis of empirical research on undergraduate and graduate women of color in science, technology, engineering, and mathematics. *Harvard Educational Review*, 81(2), 172-208.
- Oseguera, L., Locks, A. M., & Vega, I. I. (2009). Increasing Latina/o students' baccalaureate attainment: A focus on retention. *Journal of Hispanic Higher Education*, 8(1), 23–53. <http://dx.doi.org/10.1177/1538192708326997>
- Parker, L., & Lynn, M. (2002). What's race got to do with it? Critical race theory's conflicts with and connections to qualitative research methodology and epistemology. *Qualitative Inquiry*, 8(1), 7-22.
- Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: A third decade of research*. San Francisco, CA: John Wiley & Sons, Inc.
- Patton, L. D., Harper, S. R., & Harris, J. (2015). Using critical race theory to (re)interpret widely studied topics related to students in U.S. higher education. In A. M. Martínez-Alemán, B. Pusser, & E. M. Bensimon (Eds.) *Critical approaches to the study of higher education: A practical introduction* (pp. 193-219). Baltimore, MD: Johns Hopkins University Press.

- Patton, L. D., McEwan, M., Rendón, L. I., & Howard-Hamilton, M. F. (2007). Critical race perspectives on theory in student affairs. *New Directions for Student Services*, (120), 39–53.
- Patton, L. D., Renn, K. A., Guido, F. M., Quaye, S. J. (2016). *Student development in college: Theory, research, and practice*. San Francisco, CA: John Wiley & Sons, Inc.
- Peralta, C., Caspary, M., & Boothe, D. (2013). Success factors impacting Latina/o persistence in higher education leading to STEM opportunities. *Cultural Studies of Science Education*, 8(4), 905–918.
- Pérez Huber, L. (2009). Disrupting apartheid of knowledge testimonio as methodology in Latina/o critical race research in education. *International Journal of Qualitative Studies in Education*, 22(6), 639–654.
- Pérez Huber, L. (2010). Using Latina/o critical race theory (LatCrit) and racist nativism to explore intersectionality in the educational experiences of undocumented Chicana college students. *Educational Foundations*, Winter-Spring, 77-97.
- Pérez Huber, L., & Cueva, B. (2012). Chicana/Latina testimonios on effects and responses to microaggressions. *Equity & Excellence in Education*, 45(3), 392-410.
- Pérez Huber, L., Huidor, O., Malagón, M.C., Sanchez, G., & Solórzano, D. G. (2006). Falling through the cracks: Critical transitions in the Latina/o educational pipeline. *CSRC Research Report*, 7, 1-14
- Provost. (2016). Advising & student success. Presented August 11, 2016.
- Pulido, B. (2015). *Home as grounding counterspaces: Mexicana undocumented students utilizing mother-daughter pedagogies of resistance to succeed in higher education* (Masters thesis). Retrieved from <https://pqdtopen.proquest.com/doc/1719463138.html?FMT=AI>
- Puroway, A.W. (2016). Critical advising: A Freirian-inspired approach. *NACADA Journal*, 36(2), 4-10
- Ravitch, S.M., & Mittenfelner Carl, N. (2016). *Qualitative research: Bridging the conceptual, theoretical, and methodological*. Thousand Oaks, CA: Sage Publications, Inc.
- Rendón, L.I. (1992). From the barrio to the academy. In Zwerling, L.S. & London, H.B. (Eds.) *First generation students: Confronting the cultural issues* (pp. 55-64). San Francisco, CA: Jossey-Bass Publishers.

- Rendón, L. I. (1994). Validating culturally diverse students: Toward a new model of learning and student development. *Innovative Higher Education*, 19(1), 33–51.
- Rendón, L. I. (2002). Community college *puente*: a validating model of Education. *Educational Policy*, 16(4), 642–667.
- Rendón, L. I. (2006). *Reconceptualizing success for underserved students in higher education*. National Postsecondary Education Cooperative.
- Rendón, L. I. (2014, March 3). Leveraging student strengths to support student success. Lecture presented at California State University, Northridge.
- Rendón, L. I. (2016). *The importance of working with a culturally-validating, asset-based student success framework in STEM*. Keynote address presented at STEM Cultural Colloquium, University of New Mexico.
- Rendón, L. I., & Jalomo, R. E. (1995). *Validating student experience and promoting progress, performance, and persistence through assessment*. Paper presented to the NCTLA Assessment Institute, Los Angeles.
- Rendón, L. I., Jalomo, R. E., Nora, A. (2000). Theoretical considerations in the study of minority student retention in higher education. In J. M. Braxton (ed.) *Reworking the Student Departure Puzzle* (pp. 127-156). Nashville: Vanderbilt University Press.
- Rendón Linares, L. I., & Muñoz, S. M. (2011). Revisiting validation theory: Theoretical foundations, applications, and extensions. *Enrollment Management Journal*, 5(2), 12-33.
- Rendón, L. I., Nora, A., & Kanagala, V. (2014). *Ventajas/Assets y Conocimientos/Knowledge: Leveraging Latin@ strengths to foster student success*. San Antonio, Texas: Center for Research and Policy in Education, The University of Texas at San Antonio. Retrieved from http://education.utsa.edu/center_research_policy_education/
- Reyes, K. B., & Curry Rodríguez, J. E. (2012). Testimonio: Origins, terms, and resources. *Equity & Excellence in Education*, 45(3), 525-538. <http://doi.org/10.1080/10665684.2012.698571>
- Rodgers, K., Blunt, S., & Tribble, L. (2014). A real PLUS: An intrusive advising program for underprepared STEM students. *NACADA Journal*, 34(1), 35–42.
- Rojas, L. (2014). *Unstandardizing teaching: The classroom teacher as an institutional and empowerment agent for Latina/o youth's college access* (Doctoral dissertation). Retrieved from ProQuest Dissertations Publishing. (UMI No. 3674338)

- Rojas, L., & Liou, D. (2017). Social justice teaching through the sympathetic touch of caring and high expectations for students of color. *Journal of Teacher Education*, 68(1), 28-40.
- Romasanta, L. R. (2016). *Students as experts: Using photo-elicitation facilitation groups to understand the resiliency of Latina low-income first-generation college students*. Retrieved from ProQuest. (1793406588)
- Saldaña, J. (2016). *The coding manual for qualitative researchers*. Thousand Oaks, CA: Sage Publications Ltd.
- Samuelson, C. C., & Litzler, E. (2016). Community cultural wealth: An assets-based approach to persistence of engineering students of color. *Journal of Engineering Education*, 105(1), 93–117.
- Schulenberg, J. K. & Lindhorst, M. J. (2008). Advising is advising: Toward defining the practice and scholarship of academic advising. *NACADA Journal*, 28(1), p. 43-53.
- Schwebel, D. C., Walburn, N. C., Jacobsen, S. H., Jerrolds, K. L., & Klyce, K. (2008). Efficacy of Intrusively Advising First-Year Students via Frequent Reminders for Advising Appointments. *NACADA Journal*, 28(2), 28–32.
- Smith, J. S. (2002). First-year student perceptions of academic advisement: A qualitative study and reality check. *NACADA Journal*, 22(2), 39-49.
- Solórzano, D. G., & Delgado Bernal, D. (2001). Examining transformational resistance through a critical race and LatCrit theory framework. *Urban Education*, 36(3), 308-342.
- Solórzano, D. G., Villalpando, O., & Oseguera, L. (2005). Educational inequities and Latina/o undergraduate students in the United States: A critical race analysis of their educational progress. *Journal of Hispanic Higher Education*, 4(3), 272–294.
- Solórzano, D. G., & Yosso, T. J. (2001). From racial stereotyping and deficit discourse. *Multicultural Education*, 9(1), 2-8.
- Solórzano, D. G., & Yosso, T. J. (2002). Critical race methodology: Counter-storytelling as an analytical framework for education research. *Qualitative Inquiry*, 8(1), 23–44.
- Stanton-Salazar, R. D. (2011). A social capital framework for the study of institutional agents and their role in the empowerment of low-status students and youth. *Youth & Society*, 43(3), 1066–1109.
- Stebbleton, M. J., Soria, K. M., & Huesman, R. L. (2014). First-generation students' sense of belonging, mental health, and use of counseling services at public research

- universities. *Journal of College Counseling*, 17(1), 6–17.
<http://doi.org/10.1002/j.2161-1882.2014.00044.x>
- Steele, C. M. (1997). A threat in the air: How stereotypes shape intellectual identity and performance. *American Psychologist*, 52(6), 613–629.
- Strayhorn, T. L. (2012). *College students' sense of belonging: A key to educational success for all students*. New York: Taylor & Francis.
- Sue, D. W. (2013). Race talk: The psychology of racial dialogues. *American Psychologist*, 68(8), 663–672. <http://doi.org/10.1037/a0014191>
- Sue, D. W., Bucceri, J., Lin, A. I., Nadal, K. L., & Torino, G. C. (2009). Racial microaggressions and the Asian American experience. *American Psychological Association*, 5(1), 88–101.
- Tate, K. A., Caperton, W., Kaiser, D., Pruitt, N. T., White, H., & Hall, E. (2015). An exploration of first-generation college students' career development beliefs and experiences. *Journal of Career Development*, 42(4), 294–310.
<http://doi.org/10.1177/0894845314565025>
- Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition*. Chicago, IL: The University of Chicago Press.
- Tinto, V. (2012). *Completing college: Rethinking institutional action*. Chicago, IL: The University of Chicago Press.
- Tinto, V. (2017). Through the eyes of students. *Journal of College Student Retention: Research, Theory & Practice*, 19(3), 254-269.
- Torres, V., Reiser, A., LePeau, L., Davis, L., & Ruder, J. (2006). A model of first-generation Latino/a college students' approach to seeking academic information. *NACADA Journal*, 26(2), 65-70.
- United States Census Bureau. (2013). About race. Retrieved from <https://www.census.gov/topics/population/race/about.html>
- United States Census Bureau. (2016). The Hispanic population in the United States. Retrieved from <https://www.census.gov/population/hispanic/data/2012.html>
- Valencia, R. R. (2010). *Dismantling contemporary deficit thinking: Educational thought and practice*. New York, NY: Routledge.
- Valencia, R. R. (Ed.). (2012). *The evolution of deficit thinking: Educational thought and practice*. New York, NY: Routledge.

- Walton, G. M., & Cohen, G. L. (2007). A question of belonging: race, social fit, and achievement. *Journal of Personality and Social Psychology*, 92(1), 82–96.
- Winham, I. (2017). Letter to the editor: Is advising a political activity? *NACADA Journal*, 37(2), 7-8
- Wolf-Wendel, L., Ward, K., & Kinzie, J. (2009). A tangled web of terms: The overlap and unique contribution of involvement, engagement, and integration to understanding college student success. *NACADA Journal*, 50(4), 407-428. Retrieved from https://kuscholarworks.ku.edu/bitstream/handle/1808/17576/Wolf-Wendel_JCSD_50%284%29407.pdf?sequence=1&isAllowed=y
- Yamamura, E. K., Martinez, M. A., & Saenz, V. B. (2010). Moving beyond high school expectations: Examining stakeholders' responsibility for increasing Latina/o students' college readiness. *The High School Journal*, 93(3), 126–148.
- Yosso, T. J. (2005). Whose culture has capital? A critical race theory discussion of community cultural wealth. *Race Ethnicity and Education*, 8(1), 69–91.
- Yosso, T. J. (2006). *Critical race counterstories along the Chicana/Chicano educational pipeline*. New York: Taylor & Francis Group.
- Yosso, T. J., & Burciaga, R. (2016). *Reclaiming our histories, Recovering community cultural wealth*. Los Angeles, CA: Center for Critical Race Studies at UCLA..
- Yosso, T. J., Smith, W. A., Ceja, M., & Solórzano, D. G. (2009). Critical race theory, racial microaggressions, and campus racial climate for Latina/o undergraduates. *Harvard Educational Review*, 79(4), 659–690.
- Yosso, T. J., & Solórzano, D. G. (2006). *Leaks in Chicano and Chicano educational pipeline*. *Latino Policy & Issues Brief*, 13. Los Angeles, CA: UCLA Chicago Studies Research Center.

APPENDIX A
IRB APPROVAL

APPROVAL: EXPEDITED REVIEW

Daniel Dinn-You Liou
 Division of Educational Leadership and Innovation - West
 -
 dliou@asu.edu

Dear Daniel Dinn-You Liou:

On 8/15/2017 the ASU IRB reviewed the following protocol:

Type of Review:	Initial Study
Title:	The Influence of Validating Advising Practices on the Sense of Belonging of first-generation Latina Engineering students
Investigator:	Daniel Dinn-You Liou
IRB ID:	STUDY00006540
Category of review:	(6) Voice, video, digital, or image recordings, (7)(b) Social science methods, (5) Data, documents, records, or specimens, (7)(a) Behavioral research
Funding:	None
Grant Title:	None
Grant ID:	None
Documents Reviewed:	<ul style="list-style-type: none"> • Recruitment Letters Coronella.pdf, Category: Recruitment Materials; • Protocol Template Coronella.docx, Category: IRB Protocol; • Updated Protocols V3.pdf, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions); • Consent Letters Coronella.pdf, Category: Consent Form;

The IRB approved the protocol from 8/15/2017 to 8/14/2018 inclusive. Three weeks before 8/14/2018 you are to submit a completed Continuing Review application and required attachments to request continuing approval or closure.

If continuing review approval is not granted before the expiration date of 8/14/2018 approval of this protocol expires on that date. When consent is appropriate, you must use final, watermarked versions available under the "Documents" tab in ERA-IRB.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

Sincerely,

IRB Administrator

cc: Tamara Coronella
Tamara Coronella

APPENDIX B
VALIDATING ADVISING INTERVENTION

Interaction #1: First narrative interview between advisor and student

Interviewer Name: Advisor
Length of Interview: 30 minutes
Location of Interview: Advisor's office
Data Storage Method: All interviews will be recorded through Just Press Record.
The data will be stored in a password protected Dropbox.

Email to student from researcher

Hello. I would like to thank you for participating in our study. It's time to schedule your first appointment with your academic advisor XXXX [insert name]. To do so, contact me at tami.coronella@asu.edu or 480-727-2497 and I will assist you with scheduling the appointment. The purpose of this first meeting is for you and your advisor to begin to get to know one another and discuss your goals for studying engineering. Please contact me by XXXX [insert date for 1 week later].

Sincerely,
Tami Coronella

First narrative interview with student and advisor

Hello. It's great to meet you...I look forward to talking with you more about your interest in engineering. Just as a reminder, since these meetings are part of the research study, I am recording our meeting today. The recording will be shared with the researcher, Tami Coronella.

The goal of the first meeting is to begin to form a relationship and affirm the students as capable learners in engineering. Questions and discussion should cover all of the following topics:

- Describe for me how you decided to study engineering.
- Barriers which might exist to student success or persistence.
- Tell me about a past success. Tell me about a past challenge. (Probe: How has the student overcome those success? What does the student draw upon to be successful?)
- Describe any times when you have felt connected to SU or the COE. Describe any times thus far when you have felt like you didn't belong at SU. (Probe: Has the student has experienced any invalidations or validations at SU thus far? Within the COE thus far? How has the student navigated those challenges, if any?)
- What do you plan to do with your major? (Probe: explore career plans)

Follow up email from advisor to student (advisor to send to student within 1 week and copy to researcher):

I appreciated the opportunity to learn more about you, your interests, successes, and goals. A part of our discussion that really connected with me was when you said XXXX [insert comment]. I can see how XXXX [insert comment] influenced/impacted you. [elaborate as needed].

I'd like to ask you to keep me posted on how things are going this semester. I set up this Google document [insert link] with some questions for you to respond to. Try to complete these within a week, so we can keep our conversation going.

As a reminder, I am here to help you succeed; let me know how I can!

Sincerely,

Advisor [insert advisor name]

Student open-ended questions:

1. What does studying engineering mean to you?
2. Is your experience different than you thought it would be? If so, how?
3. Describe a time when faced a challenge since you arrived. What are you doing to address it? Can this challenge even be addressed?
4. What successes have you experienced thus far? What do you think contributed to your success?
5. Anything else you would like to share with me?

Note from researcher to advisor (sent upon receipt of the advisor's email to the student):

Dear Advisor:

I see that you met with XXXX [insert student name]. As part of the study, I am interested in understanding how your interactions with the student can further influence our advising practices. Therefore, please complete your responses [insert link to Google Doc] to these prompts after student completes her responses.

Sincerely,
Tami Coronella

Advisor open-ended questions:

Part A: Complete after your first meeting with the student:

1. Thinking back to your first meeting with the student, what struck you as most meaningful about the interaction?
2. What has been beneficial about your interactions with the student so far (if anything)?
3. What has been most challenging about your interactions with the student so far (if anything)?
4. How did it feel following the narrative interview prompts? How, if at all, was that experience different than a typical advising appointment.
5. Describe your experience completing the asset map for this student.

Part B: complete after the student completes her responses:

6. Please read the student's responses on the Google Doc [insert link]; what struck you as most meaningful from those responses? Why was that?
7. Please note anything else of significance that you would like to include as you read the prompts.

Interaction #2: Second narrative interview between advisor and student

Interviewer Name: Advisor

Length of Interview: 30 minutes

Location of Interview: Advisor's office

Data Storage Method: All interviews will be recorded through Just Press Record. The data will be stored in a password protected Dropbox.

Notes: while this is a narrative interview with open ended prompts for the discussion, this interview now includes two required questions (indicated in the text below)

Email to student from researcher

Hello. I would like to thank you for participating in our study. It's time to schedule your second meeting with your academic advisor XXXX [insert name]. To do so, contact me at tami.coronella@asu.edu or 480-727-2497 and I will assist you with scheduling the appointment. The purpose of this next meeting is for you and your advisor to discuss this semester and plans for next semester. Please contact me by XXXX [insert date for 1 week later].

Sincerely,
Tami Coronella

Second narrative interview with student and advisor

Hello. It's great to see you again in person...I look forward to talking with you more. Just as a reminder, since these meetings are part of the research study, I am recording our meeting today. The recording will be shared with Tami Coronella, the researcher.

The goal of this meeting is to begin to empower them further as capable learners in engineering. Questions and discussion should cover these following topics:

- Describe your career goals. What does it look like when you are a practicing engineer? How do you envision your career? (probe for what student might be doing this semester to learn more about career, prepare for career)
- Describe a time when your contributions were valued in class. Anytime when your contributions were devalued? If so, how did you handle that?
- Have you experienced any disparaging comments or discrimination from staff, fellow students or faculty? If so, how did you handle that? How are you feeling now? (probe if student hasn't experienced this directly, has she witnessed any disparaging comments or incidents of discrimination; confirm student is okay and no follow up is needed from other university offices)
- In what ways do you see yourself as part of COE engineering community?
- How likely are you to stay in your major? (probe to see if student would stay in engineering) Why?

Follow up email from advisor to student (advisor to send to student within 1 week and copy to researcher):

Thank you for meeting with me on XXXX [insert date]. I appreciated the chance to touch base. A part of our discussion that really connected with me was when you said XXXX [insert comment]. I can see how XXXX [insert comment] influenced/impacted you.

I'd like to ask you to keep me posted on how things are going. I set up this Google document [insert link] with some questions for you to respond to. Try to complete these within a week, so we can keep our conversation going.

While the research study is drawing to a conclusion, our relationship will continue into the future. Please contact me should you have any questions. I look forward to our continued interactions as you pursue your goal of becoming an engineer.

Sincerely,
Advisor [insert advisor name]

Questions:

1. Have you experienced a time where your own experiences/history have contributed to the class discussion? If so, in which class? How did you feel?
2. Describe a time an instructor has shown interest in your development or shown you he/she believes you can succeed. How did he/she do that? In which class was it?
3. What are you most excited about for the spring semester? What are you most concerned about?
4. What goals do you have for the spring semester? What might be some ways I can help you accomplish those goals?

Possible interaction between student and advisor

The student may contact the advisor at any time. If the student does contact the advisor, the advisor will complete a response to the open-ended questions set up via Google Doc:

Length of time: based upon the student and advisor interactions (both frequency and length of contact)

Data Storage Method: All responses will be stored on a Google Drive accessible only by advisor and researcher.

Advisor open-ended question:

1. Outside of the research study, what additional interactions have you experienced with the student (if any)?
2. How has your participation in the research study been beneficial to those additional interactions (if at all)?

APPENDIX C
INTERVIEW PROTOCOLS

Semi-Structured Interviews with Students

Interviewer Name: Tami Coronella, researcher
Length of Interview: 45 minutes
Location of Interview: Researcher's office
Data Storage Method: All interviews will be recorded through Just Press Record.
The data will be stored in a password protected Dropbox.

Email to student from researcher

Hello. I would like to thank you for participating in our study. It's time to schedule our interview. To do so, contact me at tami.coronella@asu.edu or 480-727-2497 and we can schedule our appointment. The purpose of this first meeting is for you and me to begin to learn more about you and your goals. Please contact me by XXXX [insert date for 1 week later].

Sincerely,
Tami Coronella

First interview between student and researcher (conducted in-person at researcher's office)

Hello. I would like to thank you for participating on our study. As you know I am pursuing a doctorate in educational leadership. The purpose of this first meeting is for me to begin to learn more about you and for us to discuss your goals. I would like to learn more about your interests while you are student in your first semester in engineering. Additionally, I would like to obtain consent for your participation. I am recording our meeting today.

Semi-structured interview questions:

First, I'd like to get to know more about you, your family, and your decision to attend college and study engineering.

1. Tell me about yourself.
2. Tell me about your family.
3. What does coming to college mean to you? What does it mean to your family?
4. Why did you decide to study engineering? When did you decide? (probe to find out more, especially if there were family or friends who prompted this decision)
5. How has your family, family, or another individual influenced your decision to be an engineer?
6. What do you expect to be the most challenging aspects of studying engineering?
7. Who or what do you rely on for support? Why do you think that supports makes a difference?

Now, let's talk about the experience of being here and studying engineering...

8. In what ways have you found your experience at SU thus far?
9. In what activities have you engaged thus far? Did you participate in orientation? (probe for more details). Did you participate in camp before school started? If so, which camp? (probe for more details). Did you attend fall welcome? (probe for more details). Have you participated in any other activities sponsored by SU or the COE so far? (probe for more details)
10. Do you know who your academic advisor is? Have you met her already outside of this research study?
11. Can you describe to me why you would meet with or speak with an academic advisor?
12. What are you most excited about for this semester? What are you most concerned about? (probe for more details)

Semi Structured Interviews with Advisors

Interview #1: Researcher and advisor interview

Interviewer Name: Tami Coronella, researcher
Length of Interview: 45 minutes
Location of Interview: Advisor's office or conference room
Data Storage Method: All interviews will be recorded through Just Press Record.
The data will be stored in a password protected Dropbox.

Opening Statement:

Thank you for meeting with me today. I appreciate the opportunity to learn more about your experience with our students and your interest in participating in this study. As you know, this interview is part of my dissertation study. Our meeting is being recorded.

I would like to learn more about your college experience.

1. What was your undergraduate major in?
2. Why did you study that?
3. Who helped you succeed?
4. When did you know you wanted to attend college?
5. What was the greatest struggle you experienced in college? How did you overcome it?
6. Who in your family completed college before you? (probe to learn more about the role that individual played in the advisor's college experience)

Next, I would like to talk with you more about your career path.

7. What is your master's degree in? Why did you complete a master's?
8. Briefly describe your career path. (probe to learn how the career path led to a job in advising)
9. What do you find most valuable about working in advising? What is most challenging?

Finally, I'd like to learn more about your experiences advising engineering students.

10. What are freshman students' greatest challenges in engineering?
11. Do you think those challenges are unique for first-generation students? How are or are they not?
12. Do you think those challenges are unique for Latina students? How are or are they not?
13. How does our current approach to advising first-generation Latina students support them?
14. I invited you to participate in this study and you consented. Why?
15. Are there any other questions you wished I would have asked you in this interview?

Interview #2: Researcher and advisor interview

Interviewer Name: Tami Coronella, researcher
Length of Interview: 45 minutes
Location of Interview: Advisor's office or conference room
Data Storage Method: All interviews will be recorded through Just Press Record.
The data will be stored in a password protected Dropbox.

Opening Statement:

Thank you for meeting with me today. I appreciate the opportunity to learn more about your experience with validating advising practices and this program over this semester. As you know, this interview is part of my dissertation study.

1. Could you describe how you prepared for meeting with the students the first time?
2. Did you do anything differently to prepare for meeting with the students the second time? (Probe to see if advisor reviewed the student responses to the open-ended questions).
3. Walk me through your process for reviewing their responses to the open-ended questions. What did you learn, if anything, about the students beyond the first interview?
4. How would you describe your overall experience with the students?
5. How did you feel using the protocols for the narrative interview?
6. How, if at all, are your relationships with students who participated different than from those students who did not participate?
7. What would you change about this approach if we did it again? What would you keep? If we did do it again, what would help us scale it across the schools?
8. How has your understanding of a first-generation Latina engineering student's experience changed as a result of your participation?
9. How has your overall advising practice changed as a result of participation?
10. Are there any other questions you wished I would have asked you?

Focus Group Interviews with Students

Interviewer Name: Tami Coronella, researcher
Length of Interview: 90 minutes
Location of Interview: Researcher's conference room
Data Storage Method: Focus group will be recorded through Just Press Record.
The data will be stored in a password protected Dropbox.

Opening Statement:

Hello. I would like to again thank you for participating in our study. The purpose of this second meeting is for me to discuss your first semester in engineering and discuss how your experiences with your advisor have been going thus far. Additionally, I would like to share with you some of my initial findings as I have reviewed the data collected thus far. I am recording our meeting today.

The first 10 minutes will be spent on rapport building.

We will spend the first 40 minutes reviewing some of my initial findings in data analysis. I reviewed the recordings and transcriptions from your meetings with your advisors thus far.

5 phrases from prior interviews shared with the group for their discussion

We will spend the second 40 minutes answering a set of questions:

First, I'd like to talk about your experiences as a first-generation Latina student studying engineering at SU.

1. In what ways do you see yourself as part of the SU campus community?
2. In what ways do you see yourself as part of the COE?
3. How would you describe your feelings of belonging within engineering?
4. Do you plan to continue in engineering? Why or why not?
5. What would you tell the next group of freshman students about studying engineering?

Next, I'd like to discuss how your experiences have been going with your advisor.

6. How would you describe your advisor's practices?
7. Why should a student meet with their advisor?
8. What, if anything, did you gain from your participation in this study?
9. Why would you visit your advisor in future semesters?

APPENDIX D

ASSET MAPPING EXERCISE

Asset Mapping Exercise

After each interaction with the student, both the advisor and researcher will add content to an asset map for each student. One will be created for each student in a Google Doc. The advisor will have one version for her interactions with each student. The researcher will have one version for her interactions with each student.

Data Storage Method: The asset maps completed by the advisor will be accessible by the advisor and researcher. The asset maps completed by the researcher will only be accessible to the researcher. All asset maps will be stored on a google drive accessible only by advisor and researcher.

This is the template for the asset map:

Student Name: _____

	Experiences to note for each form of capital (include date and location of interaction)
ASPIRATIONAL Ability to maintain hopes and dreams for the future even in the face of real and perceived barriers	
FAMILIAL Refers to those cultural knowledges nurtured among <i>familia</i> (kin) that carry a sense of community history, memory, and cultural intuition	
SOCIAL Understood as networks of people and community resources.	
NAVIGATIONAL Skills of maneuvering through social institutions	
RESISTANT Refers those knowledges and skills fostered through oppositional behavior that challenges inequality	
LINGUISTIC Intellectual and social skills attained through communication experiences in more than one language and/or style	

APPENDIX E
TRAINING WORKSHOP PROTOCOL

Presenter Name: Tami Coronella, researcher
Attendees: Advisors participating in research study
Length of Workshop: 3 hours
Location of Workshop: Conference room
Data Storage Method: The overall session will be audio recorded through Just Press Record. The data will be stored in a password protected Dropbox.

Training Content:

- Context of STEM nationally
- Context of engineering locally
- Student persistence
- Traditional views on student retention
- Review identity, race, and racial classification topics
- Discuss climate of STEM
- Discuss student development theory
- Discuss key theoretical frameworks:
 - Critical Race Theory (CRT)
 - Theory of Validation
 - Review high impact practices from Rendón and Munoz & Barnett
 - Community Cultural Wealth – read article
- Discuss validating advising program and their role in program
- Discuss interviewing techniques and protocols

Open-ended questions asked during training:

1. Share some examples of where, when, or how we treat all students the same? Is this a problem?
2. To what do you attribute the departure from STEM of historically underrepresented minorities?
3. Reflect on the concept of “minoritized.” What does that mean to you? How is this different than how you view “underrepresented minorities”?
4. After reviewing critical race theory and learning about microaggressions, can you share an example of when you have either experienced one or witnessed one? What did you do? How did you feel? How did that influence your next actions?
5. Share some examples of where, when, or how we treat all students the same? What are your thoughts on doing everything the same now?
6. Is validating students different from enabling them? If so, how?
7. After reviewing the high impact practices, how do those apply to advising?
8. What is holistic advising? What is validating advising? How is it “more holistic”?
10. Why is an asset-based framework so important?
11. What questions do you have still about this advising program?