“My Race/Ethnicity is an Asset”: Recruiting Racially Minoritized Students to Optometry School by Acknowledging Their Community Cultural Wealth

by

Christian Alberto

Bachelor of Arts, University at Buffalo, State University of New York, 2010

Master of Science in Education, Baruch College, City University of New York, 2013

Submitted to the Graduate Faculty of the

School of Education in partial fulfillment

of the requirements for the degree of

Doctor of Education

University of Pittsburgh

2021

UNIVERSITY OF PITTSBURGH

SCHOOL OF EDUCATION

This dissertation was presented

by

Christian Alberto

It was defended on

June 16, 2021

and approved by

Guilherme Albieri, PhD, VP for Student Affairs and Chief Diversity Officer

Darris Means, PhD, Associate Professor, Educational Foundations, Organizations, & Policy

Dissertation Director: Gina Garcia, PhD, Associate Professor, Educational Foundations, Organizations, & Policy

Copyright © by Christian Alberto

2021

“My Race/Ethnicity is an Asset”: Recruiting Racially Minoritized Students to Optometry School by Acknowledging Their Community Cultural Wealth

Christian Alberto, EdD

University of Pittsburgh, 2021

Enrollment inequities among racially minoritized (RM) students is an ongoing challenge facing health professions programs in the United States, including optometry schools. As the Director of Admissions for one Doctor of Optometry program located in Northeastern United States, I aim to increase the percentage of RM applicants by 4% (from 12% to 16%) by March 1, 2025 through concerted efforts aimed at improving its recruitment process. For this inquiry, I developed a recruitment program that acknowledges RM students’ community cultural wealth (CCW) and integrates it into the existing recruitment strategy which has historically failed to center RM students. The inquiry was guided by two questions: (1) How does a recruitment program that acknowledges RM students’ CCW influence their habitus, aspiration, and application for optometry school?; and (2) How does a recruitment program that acknowledges RM students’ CCW influence SFV’s ability to attract them to the organization?

The inquiry was guided by English and Umbach’s (2016) Graduate School Choice model and Yosso’s (2005) Community Cultural Wealth theory, and redefined habitus as “an RM student’s sense of self and place within a health professions school context as influenced by their community cultural wealth.” It utilized an improvement science approach and adopted quantitative methods for assessing RM students’ self-reported measurements of their CCW (habitus), access to resources, aspirations for applying, and engagement with the optometry program over time. Data

were collected via a pre-, immediate post-, and delayed post-survey administered via Qualtrics XM.

The key findings demonstrate that acknowledging RM students' community cultural wealth in recruitment may improve their self-assessed perceptions of CCW (habitus) and how they may be assets in the application process. While this is a positive implication for increasing RM students' pipeline flow to optometry school, structural barriers concerning total costs and standardized exams persisted among participants and further consideration of these barriers is warranted. The inquiry provides recommendations for centering and empowering RM students in recruitment to meet an organization's diversity, equity, inclusion, and belonging goals.

Table of Contents

Preface ..... **xii**

1.0 Introduction **1**

1.1 Problem of Practice **5**

1.2 AIM / Change Idea **8**

1.3 Theory of Improvement **11**

1.4 Stakeholders **13**

1.4.1 Faculty on Admissions Committee **13**

1.4.2 Alumni/Practicing Optometrists **14**

1.4.3 Currently Enrolled and Prospective Students **15**

1.4.4 Pre-Health/Undergraduate Advisors **15**

1.4.5 RM Patients **16**

1.5 Conclusion **16**

2.0 Review of Supporting Knowledge **18**

2.1 Graduate School Choice **19**

2.1.1 Community Cultural Wealth **23**

2.2 Leaky RM Student Pipeline to Health Professions Programs **24**

2.3 Recruiting RM Students for Health Professions Programs **28**

2.4 Conclusion **31**

3.0 Methodology **33**

3.1 Inquiry Questions **33**

3.2 Inquiry Approach **34**

3.3 Inquiry Setting 35

3.4 Population 37

3.5 Recruitment Session Intervention 39

3.6 Methods 44

3.6.1 Quantitative Data 44

3.6.2 Qualitative Data 46

3.6.3 Trustworthiness 46

3.6.4 Limitations 47

3.7 Analysis 48

3.8 Epistemology and Reflexivity 50

3.9 Conclusion 52

4.0 Results 53

4.1 Survey Participants 53

4.2 Results Relating to IQ #1: How Does a Recruitment Program That Acknowledges RM Students' Community Cultural Wealth Influence Their Habitus, Aspiration, and Application for Optometry School? 55

4.2.1 Self-Rated CCW (Habitus) 55

4.2.2 Resources for Pursuing/Applying to Optometry School 59

4.2.3 Aspirations for Pursuing Optometry and Applying to Optometry School 61

4.3 Results Relating to IQ #2: How Does a Recruitment Program That Acknowledges RM Students' Community Cultural Wealth Influence SFV's Ability to Attract Them to the Organization? 62

4.3.1 RM Student Engagement with Optometry Program 62

4.3.2 Open Ended Responses 64

4.4 Conclusion 66

5.0 Learning and Action 68

5.1 Key Findings 68

5.1.1 Key Finding #1: Acknowledging CCW in Recruitment May Increase RM Students' Habitus and Have Positive Implications for Aspirations and Application to Optometry School. 69

5.1.2 Key Finding #2: Developing a Recruitment Program Centered on RM Students' CCW May Improve SFV's Ability to Attract RMs. 71

5.1.3 Key Finding #3: Structural Barriers to Health Professions Programs Persist, Which May Deter RM Students From Pursuing Optometry School and Should Therefore be Further Considered in Recruitment. 72

5.2 Implications for Practice and Future Research 73

5.3 Next Steps 76

5.4 Conclusion 77

6.0 Reflection 79

6.1 Core Principle 1 79

6.2 Core Principle 2 80

6.3 Core Principle 3 80

6.4 Core Principle 4 81

6.5 Core Principle 5 82

6.6 Core Principle 6 83

6.7 Conclusion 83

Appendix A Permissions..... 85

Appendix B English's and Umbach's (2016) Graduate School Choice Framework 91

Appendix C Driver Diagram for Improvement Inquiry AIM..... 92

Appendix D Invitation to Participate in the School for Vision's Improved Recruitment Session..... 93

Appendix E Invitation to Participate in Survey on Racially Minoritized Students' CCW (Habitus), Aspiration, and Application to Optometry School 94

Appendix F Survey on Racially Minoritized Students' CCW (Habitus), Aspiration, and Application to Optometry School..... 95

Appendix G Recruitment Session Agenda..... 99

Appendix H Community Cultural Wealth Bingo / SFV Enrolled RM Student Involvement 100

Appendix I Sharing the Wealth Resource Guide (Post-Session)..... 103

Appendix J Institutional Review Board (IRB) Exemption Approval..... 104

Bibliography..... 105

List of Tables

Table 1 Five-year Projections for RM Student Applications and Enrollment Percentages .. 8

Table 2 List of Outreach Contacts Sought by Current RM Students 38

Table 3 Description of RM Participants Who Completed Pre-Survey 54

Table 4 Friedman Test of CCW (Habitus) in Pre-, Immediate Post-, and Delayed Post-Tests 56

Table 5 Linear Mixed-Effect Model on "My Race/Ethnicity is an Asset Toward Becoming a Future Health Care Provider" 58

Table 6 Linear Mixed-Effect Model on CCW Total (Habitus) 58

Table 7 Descriptive Statistics of RM Students' Resources Over Time 60

Table 8 Descriptive Statistics of RM Students' Engagement Over Time 63

Table 9 Descriptive Frequencies of RM Students' Responses to Primary Influences 65

Table 10 Descriptive Frequencies of RM Students' Responses to Primary Hinderances 66

List of Figures

Figure 1 RM Student Applicants, Acceptees, and Enrollees at SFV, 2011-2020, in Percentage of Overall 6

Figure 2 5-Year Trends of RM Student Applicants, Acceptees, and Enrollees at SFV, 2011-2020..... 7

Figure 3 Yosso's (2005) Community Cultural Wealth Theory..... 10

Figure 4 Venn Diagram of Simplified Recruitment Strategy at SFV 13

Preface

It is my honor to dedicate this endeavor to all who have supported, believed in, and challenged me along the way. En primer lugar, Mamá, gracias por tu amor incondicional y el ejemplo de lo que significa ser fuerte y resistente. Eres mi fuente de inspiración y no podría haberlo logrado sin ti. Siempre estaré orgulloso de ser tu hijo. To my uncle Nelson, thank you for instilling your legacy of hard work, humility, and chasing dreams in me. It will always be my source of light and this achievement is as much yours as it is mine.

To my village, beginning with my siblings, Giovanny, Jahaira, and Jonny, thank you for always believing in your "little brother" and encouraging me to be authentically me. To my long list of first cousins (Joel, Cristina, Gina, Giselle, Dennis, Mayline, Janiris, Yuderka, Heidy, JJ, Mario, Jessy, Taylor), thank you for showing me the meaning of "it takes a village" and how to nurture it. To my "TNS" circle of friends, Pitt 2018 classmates (especially my 'Blue House' roomies), and work family, thank you for being the color and laughter I could always count on.

To my committee, Dr. Guilherme Albieri, thank you for the dedication you have shown and invested in my professional and scholarly development. I could not have made it through this journey without your leadership, wisdom, challenge, and support. I am forever grateful. To Dr. Darris Means, thank you for your scholarship on college access for minoritized students and believing in my work and ideas. You are a scholar mentor I have been honored to learn from and with. To my advisor, Dr. Gina Garcia, where do I even begin? You fully embraced me into our Team GG advisee family from day one and sharpened my lens for being critical, informed, and committed to a just, equitable, and inclusive higher education landscape ever since. It has been my

honor to learn and grow under your mentorship (*and never-ending love notes*). And finally, to all RM students who entrusted in me and embarked on this journey with me, thank you!

1.0 Introduction

Enrollment inequities among racially minoritized students (RM students, known commonly in the literature as Underrepresented Racial Minorities or URMs and comprised of African American, Latino/a/x, and American Indian students) is an ongoing challenge facing health professions programs in the United States. While these minoritized groups make up 33% of the total U.S. population (U.S. Census Bureau, 2019), they comprise no more than 15.2% of the total enrollment in health professions schools (American Dental Association, 2020). Yet, consideration of RM students' representation in health professions programs is essential for long-term improvement in access to and quality of healthcare for RM patients (Lacy et al., 2012; Marshall, 2018).

The U.S. population is becoming increasingly diverse in its racial, ethnic, and linguistic characteristics. The U.S. Census Bureau (2020) projects that by 2045, non-Hispanic whites will no longer make up a majority of the nation's population, and, as of 2020, over 50% of children in the United States were born a race other than non-Hispanic white. Projections further suggest that by 2028, 14.9% of the U.S. population will have been born in a foreign country, making this the highest percentage since 1850 (U.S. Census Bureau, 2020). People of two or more races are projected to be the fastest growing group in the United States followed by Asian and Latino/a/x populations. These population shifts are certain to prompt different needs in the delivery of and access to our nation's resources with an emphasis on healthcare and education being central to ensuring a vibrant, healthy, and educated society.

Historically, studies have shown that RM groups suffer disproportionate rates of health complications and are more likely to report their health as poor or feeling ill (Hall et al., 2015).

Despite this fact, 46% of Latino/a/x and 39% of African American adults report not having a regular doctor compared to 26% of White adults (Betancourt et al., 2003). Furthermore, 22% of Latino/a/x and 16% of African American adults report major problems in accessing specialty care compared to 8% of White adults (Betancourt et al., 2003). These realities are further exacerbated by the fact that RM groups are overrepresented among the uninsured population with Latino/a/x and African American adults reporting rates of 25% and 14%, respectively, compared to 9% of non-Hispanic whites (Buchmueller & Levy, 2020). As a result, RM patients are more likely to forego care compared to non-Hispanic white patients (Buchmueller & Levy, 2020), thus uncovering a stark racial disparity in access to healthcare in the U.S..

Evidence suggests that diversifying the sociocultural makeup of care providers has a positive effect on minimizing healthcare disparities confronting RM groups (Betancourt et al., 2003; Hall et al., 2015; Saha et al., 2003). While minoritized physicians make up just 9% of the physician pool, they care for 25% of the African American and 23% of Latino/a/x patient populations (Betancourt et al., 2003). Furthermore, 45% of African American and 24% of Latino/a/x physicians accept Medicaid for their patients compared to 18% of non-Hispanic white physicians (Betancourt et al., 2003). Racial concordance between the patient and the care provider is further linked to the quality and outcome of care as RM patients are more likely to self-rate greater satisfaction and higher quality of care with physicians who are of racial/cultural concordance (Saha et al., 2003). RM care providers are therefore more likely than their majority counterparts to serve the underserved and to work to improve accessibility and quality of care for some of the nation’s fastest growing populations.

These findings have promoted numerous strategies across the healthcare sector to improve health outcomes for minoritized patients including recruitment initiatives for RMs within the

Department of Health and Human Services, academic health centers, hospitals, medical schools, and other health professions schools (Betancourt et al., 2003). While medical and health professions schools have been working toward increasing the diversity of their student bodies over the past half-century, the racial and ethnic composition of the medical profession has not changed substantially over the past 30 years (Freeman et al., 2016). The Association of American Medical Colleges (AAMC) portrays a stagnant illustration of enrollment of racially minoritized students throughout the years with RM students comprising approximately 12% of U.S. medical school enrollees in 1991 (Freeman et al., 2016), increasing to merely 13.5% of the total medical school enrollment in 2019 (AAMC, 2019).

The gaps in RM student enrollment are seen across a multitude of health professions programs. The American Dental Association (ADA) reports the total enrollment of RM students in dentistry schools is: 9.3% Latino/a/x, 5.5% Black, and 0.4% American Indian/Alaska Native (2020). RM students, therefore, represent a total of 15.2% of all dentistry students. The Association of American Medical Colleges (AAMC) reports the total enrollment of RM students in medical schools is: 7.1% Black, 6.2% Latino/a/x, and 0.2% American Indian/Alaska Native (2019), with RM students representing 13.5% of all medical students. The Association for Schools and Colleges of Optometry (ASCO) reports the total enrollment of RM students in optometry schools is: 7.2% Latino/a/x, 3.4% Black, and 0.6% American Indian/Alaska Native (2021), comprising 11.2% of all optometry students. These data make apparent that a lack of representation of RM students in health professions programs persists.

Arguably, bans and limitations on race-based affirmative action (RBAA) have affected higher education's ability to racially diversify their student bodies, especially within health professions programs (Allen, 2005; Garces & Cogburn, 2015; Orfield et al., 2007; Tierney, 1997).

While former President Lyndon B. Johnson's 1965 executive order required that "all government contracting agencies take affirmative action to ensure that applicants are employed without regard to their race, creed, color, or national origin," public organizations were afforded the flexibility to create an affirmative action plan tailored to their unique interests (Tierney, 1997, p. 167). As a result, this variability in the execution of affirmative action plans contributed to an atmosphere of national contention and numerous Supreme Court rulings debating the constitutionality of race-based affirmative action in U.S. higher education.

Several state bans against RBAA pose significant challenges for increasing student enrollment of RMs in health professions programs. Eight states currently have RBAA bans in public university admissions (Garces & Cogburn, 2015; Garces & Mickey-Pabello, 2015), presenting obstacles to identifying and considering RMs in the admissions process and limiting the ability of health professions programs to actively work to increase RM student enrollment in these states. While only eight states have legal bans, other states have leaned toward race neutrality to avoid potential litigations with race conscious practices. Proponents of RBAA bans argue that race is an inconsequential component in admissions as administrators have a host of other factors to consider in diversifying their student bodies (Allen, 2005; Garces & Bilyalov, 2019; Garces & Mickey-Pabello, 2015; Orfield et al., 2007; Tierney, 1997). Despite this claim, while consideration of socioeconomics, first-generation college student status, geographic region, and high school attended may be effective alternatives to creating a diverse environment (Orfield et al., 2007; Reardon et al., 2017), no other factor increases or maintains the representation of RM students as effectively as RBAA (Flores & Horn, 2015; Kiddler & Gandara, 2017). The challenging climate around RBAA is a barrier in diversifying student bodies, and health professions programs'

admissions departments are faced with critically identifying alternatives to increase RM enrollment in their schools.

1.1 Problem of Practice

In concordance with the national RM student enrollment inequities confronting U.S. health professions programs, my place of practice, the School for Vision (SFV, a pseudonym), similarly fails to meet its enrollment goals for a more representative and diverse optometry student profile. As part of the strategic goal to "attract the brightest and most motivated students with demonstrated leadership potential," SFV has proposed to "further develop recruitment strategies to better attract and enroll racially minoritized (RM) and economically disadvantaged students to bring the College's RM enrollment profile above the national average in optometry [12% or higher]" (SFV, 2018, n.p.).

While a historic feat was achieved with the entering class of 2020 comprising 17% RM student enrollees (see Figure 1), SFV's average RM student enrollment between 2016-2020 remains at 9.9% (see Figure 2), and the entering class of 2021 is expected to remain at this average with 9% RM student enrollees. Thus, while significant improvements have been made, marked by the 5-year average increases over the past decade (see Figure 2), SFV's admissions practices are not yet meeting the institution's goal of enrolling RM students at the rate of 12% or higher. An improved approach for attracting and enrolling RM students is thus warranted to make significant progress towards meeting the stated goal.

Numerous strategies have been employed to recruit RM students and increase their enrollment at SFV. These include a state-funded pipeline program (SFPP, a pseudonym) offering

bi-annual internships to RM and/or economically disadvantaged students, a digital marketing campaign targeted for RM prospective students, purchasing lists of SAT takers by race/ethnicity, and collaborations with professionals who work with RM students such as pre-health advisors. The overarching approach of the strategies is to nurture an interest in optometry by educating prospective RM students to the profession and providing support in the application process (e.g., SFPP offers application and standardized test prep fee waivers). These strategies are expected to have contributed to increases in RM student enrollment realized over time, albeit not at the rate SFV proposed.

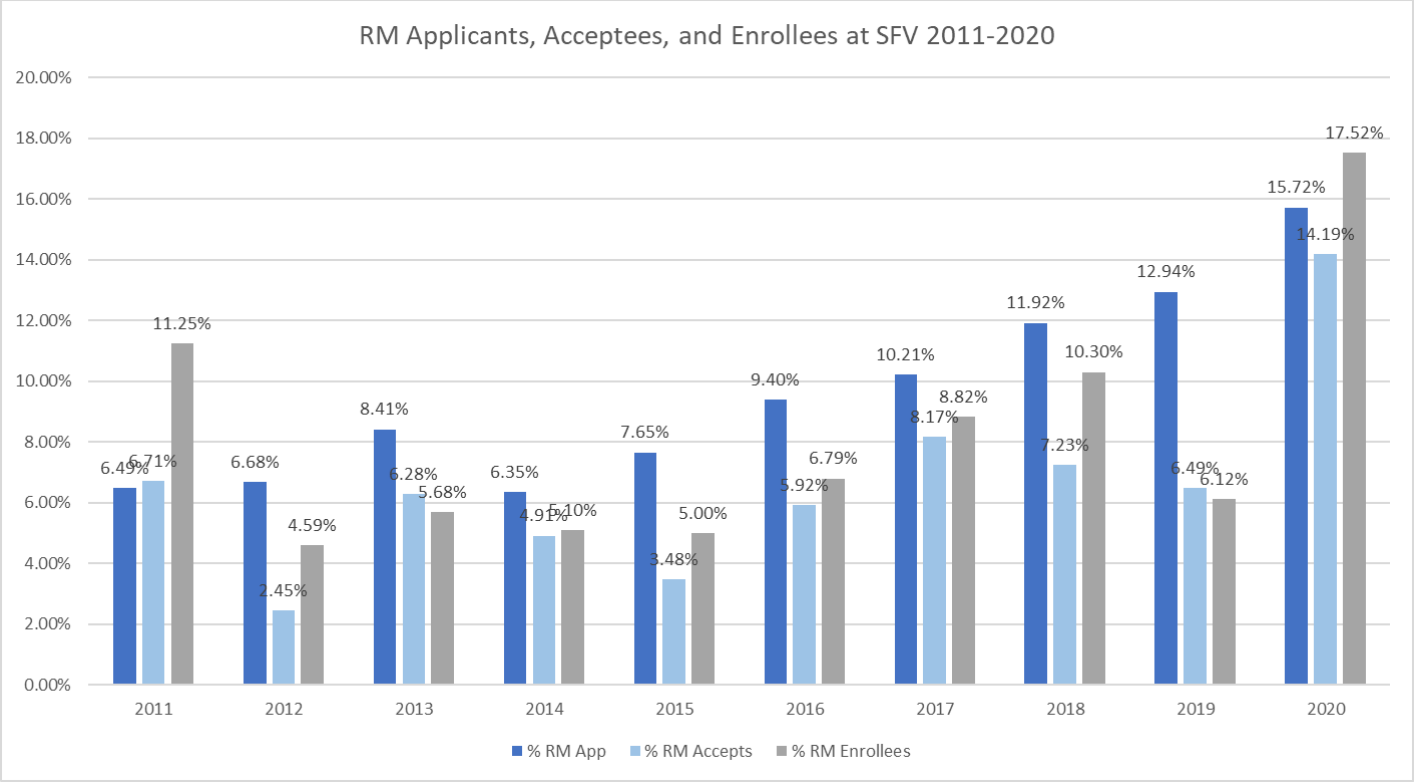


Figure 1 RM Student Applicants, Acceptees, and Enrollees at SFV, 2011-2020, in Percentage of Overall Totals in Each Category

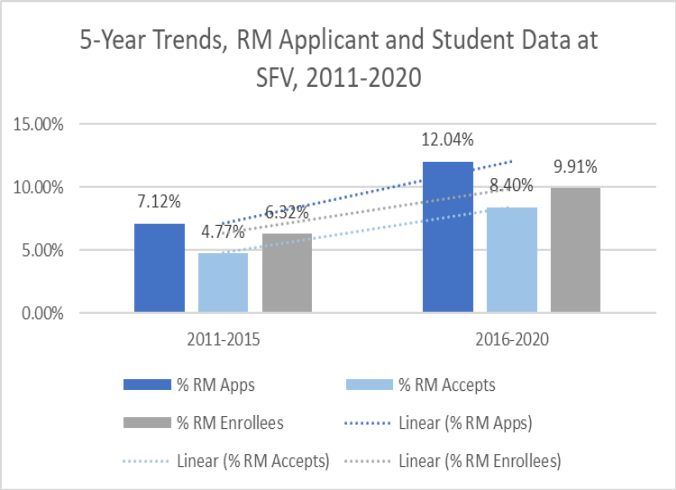


Figure 2 5-Year Trends of RM Student Applicants, Acceptees, and Enrollees at SFV, 2011-2020

Optometry as a profession also lacks representation of RM groups and has throughout history despite countless efforts aimed at diversifying its pipeline of doctors. Based on 2010 U.S. census data, African American and Latino/a/x optometrists represent 2.5% and 4.7% of the profession, while the former group represents 13% and the latter 19% of the total U.S. population (Chen, 2012; U.S. Census Bureau, 2019). The National Optometric Association was founded in 1969 to bring to center issues that resonate with African American optometrists, particularly the recruitment of minoritized optometry students and the practice of optometry in minoritized communities (National Optometric Association, n. d.).

As the Director of Admissions at SFV, I am positioned as the second in line administrative leader of the admissions department and overseer of this problem of practice. I report directly to the Dean for Student Affairs / Chief Diversity Officer who leads SFV's efforts toward realizing its diversity, equity, and inclusion goals. The admissions department is furthermore comprised of two staff members, nine faculty members, and four students who make up the Admissions Committee.

1.2 AIM / Change Idea

In response to my problem of practice at SFV and the review of supporting knowledge to follow, I aim to increase the percentage of RM applicants by 4% (from 12% to 16%) by March 1, 2025 through concerted efforts aimed at improving SFV's recruitment process. Specifically, I developed a recruitment program that acknowledges RM students' community cultural wealth (CCW) (Yosso, 2005) and integrates it into the existing strategy that historically failed to center RM students. At the time of this intervention, SFV had a five-year RM applicant acceptance rate of 22.61% and an enrollment yield of 75.03%, as shown in Table 1. Thus, if controlling for application totals, acceptance rates, and enrollment yield (as those are difficult to predict and beyond the scope of this inquiry), a 4% increase in RM student applications projects enrolling a RM student body of 12%, the goal of the organization.

Table 1 Five-year Projections for RM Student Applications and Enrollment Percentages

5-Yr Cycle	AVG Total Apps (n)	AVG Total RM Apps (n)	AVG Total RM Apps (%)	AVG RM Acceptance Rate (%)	AVG RM Enrollees (%)	AVG RM Enrollment Yield (%)
2011-2015	610	43	7.12%	17.90%	6.32%	75.78%
2016-2020	478	56	12.04%	22.61%	9.91%	75.03%
2021-2025	478	76	16.63%	22.61%	12.75%	75.03%

The aim and corresponding change idea of this inquiry were informed by English and Umbach's (2016) Graduate School Choice model and Yosso's (2005) Community Cultural Wealth theory[1]. Graduate School Choice is a theoretical framework for describing individual and

[1] I sought and received permission to use both theories for this inquiry (see Appendix A).

institutional characteristics contributing to graduate school aspiration, application, and enrollment (English & Umbach, 2016). The framework consists of four layers; however, they focus their inquiry on layers 1 and 2, concerning the individual and undergraduate institution characteristics (see Appendix B). They do not consider the graduate school context (layer 3) or the societal context (layer 4), and no other model or study has examined the Graduate School Choice framework to the extent that they demonstrated (English & Umbach, 2016). Their model posits that habitus, an individual's sense of self and place within society as influenced by cultural and social environments, is the individual characteristic most deterministic in generating all three phases of the graduate school choice (English & Umbach, 2016). While a helpful theory for practitioners involved in graduate school enrollment, the model comes with several limitations. In addition to excluding the outer two layers, English and Umbach do not directly assess habitus in their study. Rather, they arrive at their conclusion using previous definitions and assessments of habitus derived from Human Capital Theory (HCT), an economic theory that assumes an individual's ability to produce economic value relies on their knowledge, skills, and abilities (Becker, 1962). This definition was later converted to represent personal demographics operationalized by human and social capital (Perna, 2006). This definition of habitus may not fairly consider RM students given that traditional notions of cultural and social capital are derived from white normativism and fail to acknowledge or value the cultural and social norms of racially minoritized communities (Yosso, 2005). Therefore, for purposes of this inquiry, I situate my change idea within the Graduate School Choice model by replacing the traditional notions of cultural and social capital that influence habitus with Community Cultural Wealth. Community Cultural Wealth is a critical race theory revolved around understanding and learning from the cultural knowledges, skills, resources, and networks inherent among RM communities (Yosso, 2005) (see Figure 3).

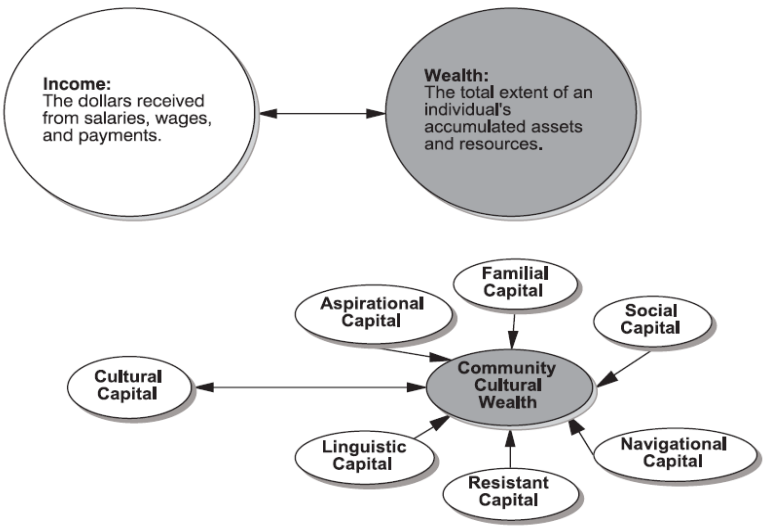


Figure 3 Yosso's (2005) Community Cultural Wealth Theory

Accordingly, I posited that, through development of a specialized recruitment program that acknowledges RM students' CCW in relation to their health professions goals, I may positively influence habitus (as I define it by CCW) and aspiration for applying to the OD program. I therefore expect to increase applications from this population related to the aim of this inquiry. To test this theory of improvement, I conducted a quantitative analysis measuring prospective RM students' self-rated habitus determined by Yosso's (2005) CCW, aspiration, and application to optometry school.

Minimizing enrollment disparities among RM applicants for the Doctor of Optometry (OD) program comprises both my responsibility and charge as Director of Admissions at SFV. Successfully doing so is tantamount to improving access to eye and vision care for RM patients and actualizing the cognitive benefits of diversity for all students, which are both goals of the organization (Garces & Jayakumar, 2014; Lacy et al., 2012; Marshall, 2018; SFV, 2018). This change idea was therefore deemed timely, strategic, and relevant to the problem of practice.

Recruitment strategies for growing the RM student pipeline in graduate education are most effective when integrated and reflective of a strong commitment toward diversity (Griffin & Muniz, 2011), further supporting the development of my recruitment program, "Applying Your Cultural Wealth Toward Your Health Professions Goals." Traditional recruitment programs that fall under my purview, concerning primarily the short term, are focused on what a career in optometry offers, why SFV's program is a premier option, and how to be a competitive applicant. My proposed changes to this program focused on what RM students offer the profession of optometry, how they possess the currency for being competitive applicants, and ways they can remain engaged or further explore SFV or optometry.

1.3 Theory of Improvement

Improving the approach and strategy in which SFV recruits RM applicants is most aligned with the aim of this inquiry, increasing this population's applications by 4% by March 1, 2025. My proposed strategy concerns short-term recruitment, which, compared to long-term, has proven successful at increasing RM applications across health professions programs (Griffin & Muniz, 2011) and allows for effective measuring of their impact (Anderson et al., 2009). Recruitment furthermore aims to inform and attract prospective students to a specific school or program (Griffin & Muniz, 2011) and, in the health professions, extends to the profession being represented (Andersen et. al, 2009). Thus, recruitment is the common practice utilized to generate interest and applications, the aim of this inquiry. It further relates to phase one of English and Umbach's (2016) Graduate School Choice model as it concerns prospective students' aspiration and application to graduate education.

SFV has a comprehensive recruitment strategy for prospective applicants. Prior to this inquiry, recruitment sessions focused on information/outreach were conducted at undergraduate institutions mostly targeting pre-optometry student clubs. There were also annual open houses promoted and offered to databases of 1,500-3,000 prospective students whose information were collected from inquiries with the admissions department, participation in previous outreach sessions, or purchased lists (SAT takers, for example). Finally, there were biannual internships offered by SFV's state-funded pipeline program (SFPP), a statewide STEM enrichment program targeted for RM and low-income students residing in the respective state that is home to the SFV (SFPP, 2019). It is primarily offered at undergraduate campuses, making SFV one of just a few graduate programs with a presence of the program.

While all previously established recruitment programs had the potential of capturing RM students, SFPP was the only program specifically targeted for RM students. SFPP operates out of its own department at SFV and is therefore separate from the admissions department. All other programs fall under my responsibility as Director of Admissions. See Figure 4 for a Venn diagram of how this change idea integrates into the existing recruitment strategy (simplified for brevity). To further support my theory of improvement, a visual display of "drivers" or contributors to the achievement of this aim, known as a driver diagram (see Appendix C), highlights that strategically creating a new approach for recruiting RM applicants may improve SFV's ability to increase applications from this population. Thus, I arrived at the conclusion that this strategy was most viable to achieve the aim of increasing RM applicants by 4% by March 1, 2025.

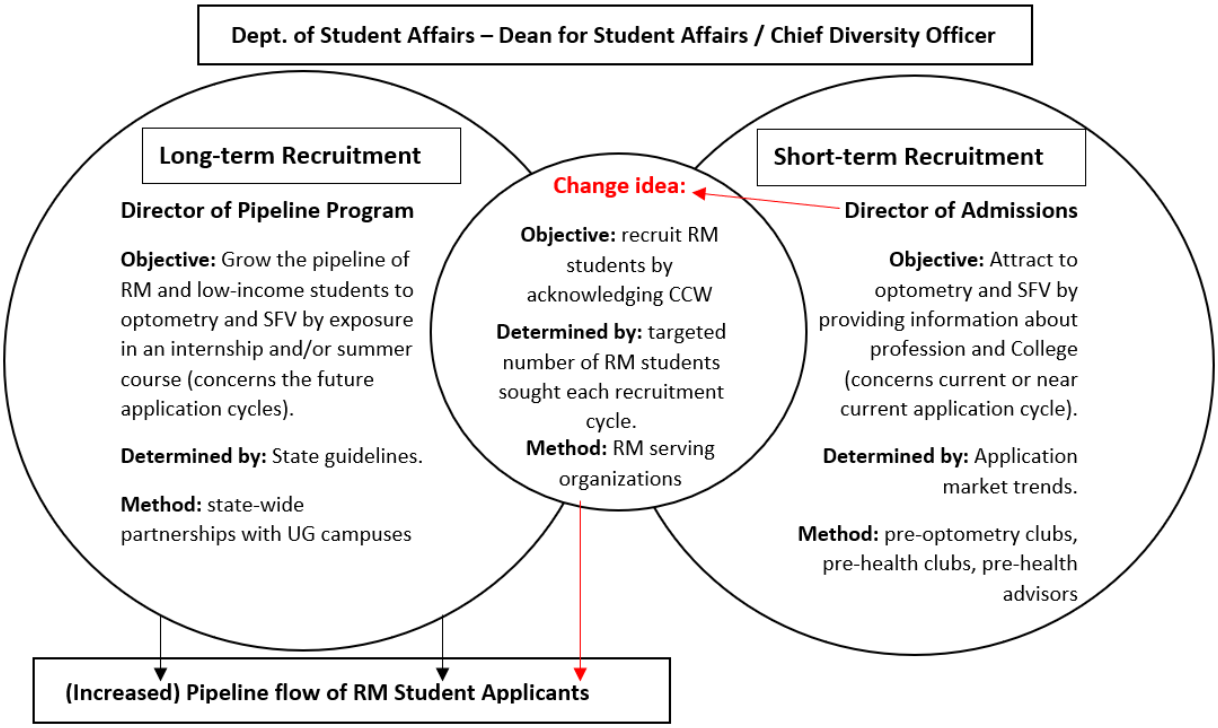


Figure 4 Venn Diagram of Simplified Recruitment Strategy at SFV

1.4 Stakeholders

The following stakeholders are connected to the problem of practice and my corresponding change idea. I describe the extent of their connection to the problem and their relationship to the admissions department. These factors were considered in the change idea.

1.4.1 Faculty on Admissions Committee

The faculty on the Admissions Committee make decisions on which applicants to admit and are therefore central to enrolling a more diversified class, though not directly connected to

recruitment. Currently, the Admissions Committee does not include any member who identifies as racially minoritized. Faculty's admissions responsibilities consume 10% of their overall work. Their primary responsibility on the Admissions Committee is admitting applicants deemed likely to succeed based primarily around holistic and standardized metrics around academic aptitude. This includes undergraduate GPA, standardized exam scores, professional experience, extracurricular involvement, and leadership potential. The Admissions Committee has a close working relationship with the Admissions Office and holds a significant stake in enrolling a diversified class of students; therefore, it should be considered in devising successful recruitment strategies.

1.4.2 Alumni/Practicing Optometrists

Alumni and practicing optometrists are deemed the most influential stakeholders for generating interest in the profession and SFV's OD program. Based on a national, annual matriculation survey, 80% of matriculants ranked optometrists as most influential in pursuing the profession, and 30% ranked optometrists (alumni specifically) as most influential in deciding which organization to apply to and attend. These percentages are the highest for each category. While they are influencing the next generation of optometrists, it is not clear how exactly they are doing this or the rate in which they are interacting with RM students. Alumni and practicing optometrist are loosely connected to the Office of Admissions as they are mostly connected to the Alumni department at SFV. Their influence is merited and should be considered in the development of recruitment strategies for RM students.

1.4.3 Currently Enrolled and Prospective Students

Currently enrolled and prospective students are connected to this problem of practice as they are the stakeholders directly impacted. Enrolled students have the potential to influence prospective students and connections are often made between the two groups. For SFV's RM students, the lack of representation may ensue the burden of being "the only one," which has been well researched and documented (Garces & Jayakumar, 2014). Current students are involved in various forms of recruitment, including programs for growing the RM student long-term pipeline, and should therefore continue to be considered.

1.4.4 Pre-Health/Undergraduate Advisors

Pre-health and undergraduate advisors assist students in navigating graduate and professional career paths. Data collected on the nationwide matriculation survey reveal over 70% of students report their pre-health advisor as "somewhat" to "very little" on a helpful scale in pursuing optometry. Conversely, pre-health advisors are ranked third most important in navigating the admissions process after practicing optometrists and admissions representatives. These data point to a gap in disseminating knowledge about the profession and SFV's program to prospective students through their advisors. Pre-health and undergraduate advisors are most connected to prospective students they work with and admissions representatives at schools where a relationship has been formed. Therefore, pre-health advisors are connected to the problem of practice concerning RM student recruitment.

1.4.5 RM Patients

RM patients make up 66.1% of the SFV clinic's annual patients, leading to SFV serving one of the most diverse patient populations in the nation. Patients interact directly with clinical faculty and enrolled students acquiring their clinical skills and training. Therefore, enrolling a diverse student body, or lack thereof, not only has direct impact on the RM patient experience but also contributes to the limited access and inequitable care RM patients experience in this urban setting and across the nation. RM patients, primarily the youth, may become interested in the profession and SFV's OD program by virtue of being exposed to the profession and SFV's clinic. For these reasons, RM patients are also connected to recruitment strategies.

In reviewing all the stakeholders connected to the problem of practice, admissions representatives, faculty on the Admissions Committee, pre-health advisors, current students, and prospective students are most influential over the stated problem of practice and corresponding change idea and thus included in this inquiry. Alumni, practicing optometrists, and RM patients, while important, were not directly involved to keep the scale and scope of this inquiry manageable.

1.5 Conclusion

Increased enrollment of RM students in health professions programs has positive implications for healthcare outcomes in the United States particularly among RM communities (Betancourt et al., 2003; Marshall, 2018). RM physicians are more likely to serve underserved communities with a reported 25% of RM patients being treated by RM physicians despite their less than 10% share of the total physician pool (Betancourt et al., 2003). Health professions

programs, therefore, are integrally positioned to assist in this effort by diversifying their student bodies. An intentional and thorough consideration of how to change the composition of health professions students is warranted. As Director of Admissions at SFV, an organization directly confronted with this problem, I declared my problem of practice as the absence of measurable and reliable recruitment strategies for attracting RM students. Thus, my inquiry aims to understand how a recruitment session that acknowledges RM students' CCW may influence their habitus, aspiration, and application for optometry school and, further, how it may influence SFV's ability to attract RM students. The new recruitment program I developed, informed by Yosso's (2005) CCW theory, is titled "Applying Your Cultural Wealth Toward Your Health Professions Goals."

2.0 Review of Supporting Knowledge

This inquiry was informed and grounded in literature surrounding my problem of practice. I begin this review of scholarly and professional knowledge with English and Umbach's (2016) theoretical framework known as Graduate School Choice, describing individuals who aspire to, apply for, and enroll in graduate education. The theoretical framework is important for understanding what personal and institutional factors lead to graduate enrollment and can be used to understand the graduate school choice of RM students pursuing health professions programs. I merge this theory with Community Cultural Wealth, a critical race theory used to understand and learn from the cultural knowledges, skills, resources, and networks inherent among RM communities (Yosso, 2005). Then, I focus on identifying elements contributing to the metaphorical leak in the RM student pipeline to health professions programs. The pipeline is defined as the rate in which individuals enter and advance through the educational pipeline to the workforce (Allen-Ramdial & Campell, 2014; McGee et al., 2012) and is central to understanding why the extant enrollment disparities may exist. Finally, I consider effective recruitment strategies for increasing pipeline flow of RM students into health professions programs. Recruitment practices are vital in growing both the aspiration and application to graduate programs, which are both needed to impact enrollment.

2.1 Graduate School Choice

Before understanding the metaphorical leaky pipeline to health professions programs for RM students, there must first be a consideration of factors that influence the decision to pursue graduate education. This area of research has been coined "graduate school choice" and refers to the decision to pursue any post-baccalaureate degree program at the master's, doctoral-research, or doctoral-professional practice level (English & Umbach, 2016; Perna, 2004). While theoretically based scholarly research on the concept lags considerably behind that of undergraduate school choice, graduate school choice has been determined to consist of three phases: initial aspiration, submission of application(s), and enrollment into a graduate program (English & Umbach, 2016). Both individual and institutional characteristics influence all three phases of the process (English & Umbach, 2016; Perna, 2006; Zhang, 2005).

At both the individual and institutional levels, extant research explains who is most likely to aspire to, apply for, and enroll in graduate education. Across all studies, undergraduate Grade Point Average (GPA) has been determined to be the strongest predictor for all three phases of the graduate school choice process (Millet, 2003; Zhang, 2005), and the higher the GPA the stronger the correlation with each subsequent phase of the process (English & Umbach, 2016). In addition to GPA, an individual's undergraduate major is correlated with all three phases of the graduate school choice. Students majoring in pure fields (e.g., biology) are more likely to pursue graduate education than are students majoring in applied fields (e.g., business) (English & Umbach, 2016). Together, an undergraduate student majoring in a pure field with a 4.0 GPA can therefore be predicted as most likely to pursue a graduate degree.

When controlling for all factors other than race/ethnicity, RM populations are not less likely to aspire to graduate school, yet they are still underrepresented in graduate programs. African

American students are statistically more likely to aspire to, apply for, and enroll in graduate education compared to their White counterparts (English & Umbach, 2016; Millet, 2003; Perna, 2004); Latino/a/x students are more likely to aspire to and apply for graduate education compared to their White counterparts but not enroll in a graduate program (English & Umbach, 2016; Perna, 2004). No such comparative analyses exist for American Indian students. Despite these findings in 2008, African Americans earned 6.6% and Latino/a/xs earned 5.7% of all doctorates, whereas White Americans earned 75.4% and Asian Americans earned 8.3%, respectively (National Science Foundation, 2009). Furthermore, the Council of Graduate Schools reports that White students make up 62.4% of the overall graduate student population, an equal representation of the total U.S. population, whereas Black students make up 11.3% and Latino/a/x students 9.6%, an underrepresentation of their total U.S. population (Allum & Okahana, 2015). Therefore, a disparity among RM students enrolled in graduate education, including health professions programs, persists and a further investigation is warranted.

Contrary to race and ethnicity, college generational status influences the graduate choice process; first-generation students are statistically disadvantaged at all phases of the process. Individuals whose parents completed a baccalaureate degree are statistically more likely to apply for graduate education, and individuals whose parents completed a master's degree are statistically more likely to enroll in graduate education (English & Umbach, 2016). While more dated studies have focused specifically on the education level of the father (Zhang, 2005), more recent studies are unclear as to whether the predictive power relies on either parent or both.

Undergraduate institutional selectivity has often been a proxy for predicting graduate school choice (Millet, 2003; Zhang, 2005), though it has been excluded from more recent studies considering that college rankings have been challenged as a proxy for academic quality (English

& Umbach, 2016). Instead, students graduating from research universities, both public and private, have been found to be statistically most likely to pursue graduate education, whereas students who attend specialized institutions and baccalaureate colleges are less likely (English & Umbach, 2016; Perna, 2004). While undergraduate debt, as incurred by institution type, has not correlated with any phases of graduate school choice (English & Umbach, 2016), RM students are indeed more likely to make cost-sensitive enrollment decisions such as staying closer to home or enrolling at less prestigious institutions for affordability (Ramirez, 2013).

The individual and institutional characteristics determining entry into graduate programs have most predictive power when examined through Perna's (2006) educational choice framework. While the original model was designed to study undergraduate education, English's and Umbach's (2016) model adapted the framework to examine graduate education. Perna's (2006) framework posits that the school choice process is situated within a four-layer context of macro, meso, and micro influences. The fourth layer is the social, economic, and policy context. The third layer is the higher education context. The second layer is the school and community context, and first layer is the habitus, one's internal set of beliefs about the world inclusive of their place within it. In their adaptation of the framework for graduate education, English and Umbach (2016) modified the third layer to focus on graduate school context and the second layer to focus on undergraduate institution context. Both the first and fourth layers remain the same (see Appendix B).

It is important to note that each layer of the school choice framework is expected to influence the proceeding or preceding layer and ultimately impact the school choice process. In other words, the socio-economic-political context influences the graduate school context, which influences the undergraduate institution context, which in turn influences the individual/habitus

context. It can also be interpreted in the other direction, beginning with the individual context and ending in the socio-economic-political context. To this end, considering RM students specifically, it has been noted that layer 2, the institution context, also has habitus and that organizational habitus may be just as, if not more, influential in the school choice process than the individual habitus (Nunez & Bowers, 2011). Furthermore, regarding the school choice process, RM students may not funnel through the phases in a linear order the way English and Umbach's (2016) model posits (Acevedo-Gil, 2017).

Focusing on layer 1, individual/habitus, research has overwhelmingly been informed by Human Capital Theory (HCT) (Paulsen & Toutkashian, 2008). HCT is an economic theory that assumes an individual's ability to produce economic value relies on their knowledge, skills, and abilities (Becker, 1962), which encompass undergraduate GPA and major in this context (i.e., the 4.0 student majoring in a "pure" field). Perna (2006) converted HCT into an individual's habitus, influenced by personal demographics and operationalized by human and social capital. While habitus is unique to individuals, it is influenced by the environment in which one exists (Perna, 2006).

Cultural capital refers to the broad set of cultural knowledge that an individual acquires from a parent, grandparents, or caregiver, which influences one's ability to navigate the educational choice process that inherently values cultural norms perpetuated by the system or institution (Perna, 2006). Social capital refers to the network of connections and resources an individual has access to, which in the educational choice context, may influence insights into the admissions processes and pursuit of financial aid (Perna, 2006).

2.1.1 Community Cultural Wealth

While these definitions of cultural and social capital are broadly used, it is important to also consider capital that are specific to RM students and their communities (Yosso, 2005). Community Cultural Wealth, or CCW, is a collective capital developed from a critical race theoretical framework challenging white normativity that is valued and perpetuated across all sectors of American society. Specifically, aspirational capital refers to the ability to maintain hopes and dreams for the future despite real or perceived barriers; navigational capital refers to the historic ability to navigate spaces that were not created with RMs in mind; linguistic capital refers to the intellectual and social skills attained through communication experiences in more than one language or style; familial capital refers to cultural knowledge nurtured among immediate and/or extended kin where the importance of maintaining a healthy connection to one's community and its resources is learned; and resistant capital refers to knowledges and skills acquired through oppositional behavior that challenge inequality (Yosso, 2005).

CCW is furthermore important to consider in the context of Graduate School Choice as it has been linked with supporting access to graduate school for Chicana/o Americans (Espino, 2014), nurturing graduate STEM interest among African American males (Burt & Johnson, 2018), and higher education access for RM students broadly (Means et al., 2019). Familial, aspirational, and navigational capital are most referenced by RM students, often stating their aspiration for graduate education stems from their parents' or legal guardians' support and encouragement, despite potentially not having the financial resources or an insider's knowledge on accessing graduate education (Espino, 2014; Burt & Johnson, 2018). All factors considered, it becomes clear how both cultural and social capital are directly influenced by race and may impact both individual and institutional characteristics in the graduate school choice model.

While research may provide statistical correlations about who aspires to, applies for, and enrolls in graduate education, known as the graduate school choice process, it comes with gaps in understanding the leaky pipeline for RM students in health professions programs. Although English and Umbach's (2016) findings reveal that race is not a deterministic factor in the graduate school choice process, it is evident through enrollment disparities in graduate education, particularly in health professions programs, that RM students continue to be disadvantaged. Therefore, a better understanding of what contributes to the leaky pipeline of RM students pursuing health professions is warranted. Upon understanding the leaky pipeline, effective recruitment practices may be considered to increase the critical mass of RM students in health professions programs.

2.2 Leaky RM Student Pipeline to Health Professions Programs

Despite numerous initiatives and efforts to increase the racial and ethnic diversity of health professions programs over the past half-century, the racial and ethnic composition of the health professions programs has not changed substantially over the past 30 years. The Association of American Medical Colleges (AAMC) reported that racially minoritized students accounted for approximately 12% of U.S. medical school enrollees in 1991 and merely 13.5% of the total medical school enrollment in 2019, highlighting a stagnation in recruitment and enrollment of RM students (AAMC, 2019; Freeman et al., 2016). Simultaneously, RM students are most likely to exit the STEM pipeline, which encompasses health professions and post-undergraduate programs (Allen-Ramdial & Campbell, 2014). These data uncover the leak in the pipeline that impacts RM student enrollment at health professions schools.

While the exact cause for the leak in the RM student STEM pipeline continues to be explored, past research attributes it to a combination of sociohistorical, institutional, and psychological elements exacerbated by systemic racism, which aligns with all four layers of the Graduate School Choice framework (Allen-Ramdial & Campbell, 2014; English & Umbach, 2016; Freeman et al., 2016; Thompson-Rogers et al., 2018). More specifically, sociohistorical elements can be found in layer 4, institutional elements can be found in layers 2 and 3, and psychological elements can be found in layer 1.

At the sociohistorical level, layer 4, a history of racial discrimination and segregation continues to plague the U.S. higher education system. Between 1995 and 2009, more than eight in 10 new white students attended the 468 most selective colleges in the United States in contrast to the more than 7 in 10 of new African American and Latino/a/x students who attended the 3,250 open-access, two, and four-year colleges (Carnevale & Strohl, 2013). This is important to consider in the STEM pipeline because selective colleges in the United States spend anywhere between two to five times as much on instruction and resources compared to open access colleges (Carnevale & Strohl, 2013). Increased access to resources contributes to higher graduation rates and greater access to graduate and professional schools including health professions programs (Freeman et al., 2016). Furthermore, students from public or private research universities are most likely to pursue graduate education (English & Umbach, 2016), which does not include the two and four-year open access colleges where RM students are overly represented. These data reveal the direct impact the sociohistorical context may have on the leak of RM students in the health professions programs pipeline.

At the institutional level, layers 2 and 3, racially and culturally deficient climates in higher education also hinder RM students' progression through higher education including the health

professions pipeline (Alfaro et al., 2014). Many undergraduate institutions in the United States have historical legacies of excluding RM students (Garces & Jayakumar, 2014) and, therefore, may have cultural molds that do not consider the whole student from a racially minoritized background. Cultural disconnects between RM students and their undergraduate institutions negatively impact STEM persistence as students may not feel a sense of belonging and may not develop a science-related identity (Alfaro et al., 2014). This ultimately influences their habitus in pursuing STEM related fields.

On the contrary, cultural environments that employ a holistic approach contribute to the educational success of RM students moving through the health professions pipeline (Thompson-Rogers et al., 2018). For example, nurturing, supportive, and family-like atmospheres enhance the academic and personal growth of minoritized students. Historically Black Colleges and Universities (HBCUs) have cultivated this kind of environment through mentorship, intrusive advising, RM faculty representation, and embracing African American culture (Thompson-Rogers et al., 2018). As a result, HBCUs have emerged as leaders in graduating African American students and funneling them into the health professions pipeline (Kendricks, 2013). Furthermore, organizations that provide RM students with supplemental instruction for difficult "weeder" science requirements are more likely to produce RM students into the STEM and health professions pipeline (Figueroa et al., 2015). These findings support the notion that an organizational habitus toward serving RM students culturally and socially at the undergraduate level is an integral component of their STEM persistence including that of the health professions programs pipeline.

The psychological level, layer 1, is concerned with students' mental and emotional state and how it influences their individual habitus. The sociohistorical and undergraduate institutional

elements previously discussed have resulted in feelings of exclusion that derail RMs from persisting in STEM and the health professions (Freeman et al., 2016). Racially minoritized students in these environments reported feelings of tokenization that question their sense of belonging, primarily in science courses where their representation is often scarce (Garces & Jayakumar, 2014). This isolation and lack of representation erode the cognitive processes that may be enhanced by diversity (Garces & Jayakumar, 2014), which can lead to a heightened habitus and persistence through the graduate school choice model, in this case health professions programs.

It has been established that sociohistorical, institutional, and psychological elements contribute to the leak of RM students in the health professions programs pipeline. Specifically, segregated enrollment patterns resulting in a lack of RM student enrollment at selective research universities, higher education climates that do not support RM students holistically in their STEM progression or identity development, and feelings of isolation and exclusion among RM students in STEM-related fields are examples across the four layers of the Graduate School Choice framework that contribute to the leak in RM students in health professions programs. Understanding these elements help explain aspects not yet explored in English and Umbach's (2016) Graduate School Choice framework. Further investigation is warranted to understand their direct impact on graduate school aspiration, application, and enrollment. Graduate school aspiration and application are deterministic factors that influence enrollment and fall under the responsibilities of recruitment professionals. Therefore, effective recruitment strategies for students of color in the health professions programs pipeline should be considered.

2.3 Recruiting RM Students for Health Professions Programs

Student recruitment for health professions programs, specifically RM student enrollment, most commonly takes the form of long or short-term strategies. Long-term recruitment strategies typically take the form of pipeline programs that begin at early stages of K-12 education and are used to expose and attract RM students during a formative period of their career exploration (Andersen et al., 2009). While advantageous for this reason, the duration of long-term recruitment strategies makes it difficult to track and study for effectiveness in growing the RM student pipeline into health professions programs (Andersen et al., 2009). Conversely, short-term recruitment strategies target post-secondary RM students, mostly undergraduate and sometimes graduate, and create a viable applicant pool of RM students who may or may not already be interested in the health professions (Andersen et al., 2009). Short-term recruitment strategies are easier to study for effectiveness, and one study found that a consortium of efforts from dental programs with short-term pipeline programs across the nation grew RM applicants by 77% between the years 2003 and 2007 (Andersen et al., 2009). For this reason, short-term recruitment strategies will be further considered in their contribution to graduate education aspiration and application in English and Umbach's (2016) Graduate School Choice framework.

The extant literature on short-term recruitment strategies shares a common theme around forming and maintaining relationships between graduate programs and RM students. The most cited recruitment strategies toward achieving this goal are involving faculty in recruitment, establishing partnerships between graduate programs and undergraduate institutions, summer enrichment programs, research or opportunity programs, pre-application campus visit programs, and informational presentations (Andersen et al., 2009; Griffin & Muniz, 2011; Molina & Rogers, 2006). Beyond the relational aspect of short-term recruitment strategies, offering compelling

financial aid packages and insight on how to navigate the financial aid process are also cited in the literature as effective in recruiting RM students to graduate education (Griffin & Muniz, 2011; Molina & Rogers, 2006). These elements of recruitment contribute to both the social and cultural capital of RM applicants, which influences their habitus and all phases of the graduate school choice process.

Faculty are identified as key stakeholders in the graduate admissions process as they often serve on admissions committees and have significant influence over the selection of students into a graduate program (Andersen et al., 2009; Griffin & Muniz, 2011; Molina & Rogers, 2006; Posselt, 2016). Several strategies may be implemented to enlist faculty in increasing representation of RM students in graduate programs including (a) involving them in recruitment, which is effective in attracting RM students to graduate programs, especially when the faculty member is also from a racially minoritized group (Molina & Rogers, 2006), (b) serving as mentors and providing insights to the application process (Andersen et al., 2009), and (c) fostering more knowledge about prospective applicants and their institutions among faculty admissions committees, which may in turn lead to more advocating during the application process (Griffin & Muniz, 2011). With this information in mind, it is sensible to draw connections between faculty and the social capital they may offer applicants, particularly in increasing the network of connections and resources a prospective student has access to. In fact, faculty involvement in recruitment has led to a 25% increase of graduate RM students in some cases (Griffin & Muniz, 2011) and, therefore, should be considered when recruiting RM students to health professions programs.

In addition to using faculty in the recruitment of RM students, establishing relationships between graduate programs and undergraduate institutions, specifically those who serve RM

students at HBCUs or Hispanic Serving Institutions (HSIs, institutions that enroll 25% or more Latino/a/x students), has been documented as effective in growing the pipeline of RMs into graduate education programs (Griffin & Muniz, 2011). The relationships may take the form of bi-annual or annual visits to the undergraduate HBCUs or HSIs and are revolved around establishing rapport with faculty and advisors who work with RM students. This consistent relationship, which may lead to an increase in graduate applications and enrollees, helps the undergraduate organization build trust in the graduate program to support their students through their educational pursuits (Griffin & Muniz, 2011; Molina & Rogers, 2006). Graduate programs report creating a steady applicant pipeline of RM students from minority serving undergraduate organizations after establishing these relationships (Griffin & Muniz, 2011). From these findings, one may draw connections between social and cultural capital development in establishing institutional relationships.

The remaining strategies employed, summer enrichment programs, research or opportunity programs, pre-application campus visit programs, and informational sessions all share the common purpose of allowing prospective applicants the opportunity to explore the graduate program, campus, or profession further (Andersen et al., 2009; Griffin & Muniz, 2011; Molina & Rogers, 2006). Perna's (2006) school choice model reveals that the final stage of the process, enrollment, is significantly impacted by the applicants' socio-emotional considerations such as feelings of connection or inclusion, which makes these elements an integral consideration of recruitment. The feelings of connection or inclusion are most actualized with continuous engagement between the prospective applicant and the graduate program (Andersen et al., 2009; Griffin & Muniz, 2011), which further contributes to their social and cultural capital necessary to encourage pursuit of graduate education and influences their habitus and all stages of the choice process.

While short-term recruitment strategies have been effectively employed in recruiting RM students to graduate education (Griffin & Muniz, 2011; Molina & Rogers, 2006), including health professions programs (Anderson et al., 2009), it is important to consider the cultural and social capital elements they offer that contribute to the RM student increase in graduate school aspiration, application, and enrollment. Rios-Aguilar et al. (2011) posited that, when recruiting RM students to graduate education, it is important to recognize that the students already have access to social and cultural capital that are resourceful to their navigation of the process. Being mindful of the various ways in which students can activate their social and cultural capital is important (Rios-Aguilar et al., 2011) and can take the form of students relying on their communities for help with financial, emotional, and physical support throughout graduate school. These findings align with Yosso's (2005) Community Cultural Wealth theory which asserts RM communities possess the skills and resources necessary to survive in environments and systems created without them in mind. With a 77% increase in RM students applying to dental programs (Andersen et al., 2009) and a 25% increase in applications to other science graduate programs (Griffin & Muniz, 2011), employing effective recruitment strategies is a viable way to grow the RM student pipeline to health professions programs.

2.4 Conclusion

Health professions programs in the United States lack student bodies reflective of the diverse nation they are part of (American Dental Association, 2016; Lacy et al., 2012; Marshall, 2018) and, as such, fail to actualize the educational benefits associated with a diverse student body (Garces & Jayakumar, 2014) or minimize the extant health disparities plaguing our nation (Lacy

et al., 2012). The lack of representation is especially apparent for RM students (e.g., African American, Latino/a/x, and American Indian students) (American Dental Association, 2017). English and Umbach's (2016) Graduate School Choice theoretical framework posits RM students are not inherently disadvantaged for graduate education, though their disparate representation in health professions programs confirms there are structural issues in the U.S. higher education system that derail RM students from persisting in the STEM pipeline. While the Graduate School Choice model explains the role of habitus as influenced by social and cultural capital, it fails to acknowledge the CCW inherent among RM communities (Yosso, 2005) and is difficult to adequately address why RM representation is lacking in graduate education. The factors contributing to this lack of representation become even more apparent when examining the leaky pipeline of RM students in health professions programs (Allen-Ramdial & Campbell, 2014). Sociohistorical, institutional, and psychological elements, exacerbated by systemic racism and encompassing all four layers of the Graduate School Choice framework, challenge RM students' persistence through the pipeline. Culturally responsive short-term recruitment strategies are effective for growing the aspiration, application, and enrollment of RM students in graduate education including health professions programs (Andersen et al., 2009; Griffin & Muniz, 2011). The most commonly cited recruitment strategies involve: cultivating relationships with prospective RM students and their undergraduate organizations, involving faculty in the recruitment processes, and exposing RM students to the program's campus and accompanying career options (Andersen et al., 2009; Griffin & Muniz, 2011; Molina & Rogers, 2006). Therefore, whenever possible, intentional short-term recruitment strategies targeted for RM students should be employed to grow their pipeline into health professions programs, a necessary step before their enrollment is to increase.

3.0 Methodology

Considering the problem of practice at SFV and review of supporting knowledge, I aim to increase the percentage of RM applicants by 4% (from 12% to 16%) by March 1, 2025 by improving SFV's recruitment process. In this effort, I developed a recruitment program that acknowledged RM students' CCW and integrated it into the existing strategy, which did not previously center on RM students. I developed the recruitment program by merging English and Umbach's (2016) Graduate School Choice model with Yosso's (2005) CCW theory. Specifically, I modified the definition of habitus used in the Graduate School Choice model from one's perception of self and place within society as influenced by traditional notions of cultural and social capital to RM students' perception of self and place within a health professions context as influenced by their CCW. Accordingly, by acknowledging CCW in recruitment and describing how it can apply to RM students' health professions goals, I expected to influence their habitus and aspiration and application for pursuing optometry, thus contributing to an increase in their application rates.

The following questions guided this inquiry.

3.1 Inquiry Questions

1) How does a recruitment program that acknowledges RM students' Community Cultural Wealth influence their habitus, aspiration, and application for optometry school?

2) How does a recruitment program that acknowledges RM students' Community Cultural Wealth influence SFV's ability to attract them to the organization?

3.2 Inquiry Approach

This inquiry followed an improvement science approach centered on problem-solving by continuous inquiry and learning (Byrk et al., 2015). Improvement science is often used in educational and healthcare settings and prompts incremental tests of change for efficient and useful feedback that inform systems on whether a change is an improvement (Byrk et al., 2015). The iterative cycles are known as the plan, do, study, and act (PDSA). In this context, the “plan” was the gathering of the data involved in my development of the theory of improvement, the “do” was the execution of the change idea and subsequent data collection, the “study” was the analysis of the data and its implicative findings, and the “act” is the integration, scaling, rejection, or adjustment of the change idea for future practice.

Improvement science furthermore relies on six core principles: making the work problem-specific and user-centered, understanding variation in performance is the core problem to address, seeing the system that produces the current outcomes, improvement at scale cannot be achieved without measurement, anchoring practice improvement in disciplined inquiry, and accelerating improvements through networked communities (Byrk et al., 2015). These principles also guided the design and approach of this inquiry.

3.3 Inquiry Setting

SFV is a public, non-profit organization located in the Northeastern United States and housed in a large, urban city where 54% of the population identifies as RM (U.S. Census Bureau, 2019). With a total enrollment of over 400 students, SFV awards the professional degrees of Doctor of Optometry (O.D.), Doctor of Philosophy in Vision Science (Ph.D.), and Master of Science in Vision Science (M.S.). The mission of the organization is to "advance visual health and patient care through leadership in education, research and service" (SFV, 2018, n.p.). SFV is immediately governed by its college president who is overseen by the Board of Directors and Chancellor of the state-wide public university system.

SFV has an extensive history of working toward increasing the diversity of its student population. Originating half a century ago with a class of all white men, the first act of diversity included the enrollment of a white woman who entered in the fifth class. While the number of woman and non-white students continued to increase after that, African American and Latino/a/x students remain underrepresented. To mediate the problem, SFV implemented affiliation programs with HBCUs dating back to the 1980s and 1990s. The agreements, however, did not improve RM student enrollments as their representation remained scarce, and the programs were discontinued. Furthermore, during the 1980s-2000s, SFV had a summer enrichment program for students who did not meet the admissions requirements, mostly related to the Optometry Admissions Test (OAT). Most of the students enrolled into the enrichment program were RM students, and it served as a remedial program to help prepare students for the rigors of optometry school. According to anecdotal evidence at the organization, RM students continued to experience attrition upon enrolling in the program. The enrichment program consequently ended, and SFV strengthened its position on academic aptitude and preparation as explicit criteria for admission.

This value on meritocracy ignited a polarity across the organization's culture and functions. Berger and Johnston (2015) define polarities as:

Whenever you think about a pendulum swinging from one side and then overcorrecting to the other side, you have a polarity. Each side of the polarity mutually creates the other, so they are interdependent; they need each other to exist. (p. 96)

Berger and Johnston further explained that polarities are insolvable but can be managed. The polarity within SFV concerns whether the institution bears the responsibility to help its students succeed or whether students bear the responsibility themselves. Swaying too far into either belief system neglects the other one and creates an environment where either the organization is solely responsible or the students are rather than accepting both factors as mutually important in progressing the organization towards its goal.

Increasing the racial diversity of the student body is part of my responsibility as the Director of Admissions. SFV is affiliated with a larger statewide public university system, which has a policy on diversity, equity, and inclusion that has further motivated the organization's enrollment goals (SFV Public University System, 2015). A 2016 'Diversity and Inclusion Plan' and 2020 'Task Force on Race and Equity Report' have produced strategies for how the organization will achieve its goals for becoming more diverse, equitable, and inclusive. An examination of these and other documentation and artifacts at the organization (i.e., admissions policy, articulation agreements, strategic plan) convey that a primary factor which may be prohibiting change toward the goal is that, while the problem is connected to all areas of the college, only the Office of Student Services, which oversees Admissions, bears the responsibility for achieving the goal.

3.4 Population

I set a goal of recruiting 40 RM students for the program to contribute to the potential impact in growing their application aspirations. This prompted a new approach in my outreach. Historically, recruitment sessions have been targeted for pre-optometry clubs across the nation and have not been specific to RM student groups, with a few exceptions. They have been offered to 80-100 undergraduate institutions per year. The institutions visited have been determined by application and market trends with those producing most applicants receiving priority. While several Minority Serving Institutions (MSIs) are included in the process, most of the institutions are predominantly white institutions (PWIs).

Instead of the common approach, I worked directly with pre-health advisors who are known to serve RM students, targeted undergraduate student or professional organizations that serve RM students (for example, Area Health Education Centers and Black Eyecare Perspective), and involved currently enrolled RM students in reaching their own networks. Examples of the networks sought by currently enrolled RM students are included in Table 2. I furthermore worked with SFPP programs across the state which enroll RM students who are not regular recruitment targets of SFV's former outreach process. In addition to SFPP undergraduate students, those involved in the Minority Association of Pre-medical Students (M.A.P.S.) were ideal and sought after as part of this outreach strategy, because they are RM students who already have an inclination toward STEM or health-related careers. All parties were sent a formal invitation to the session, describing the format, purpose, and expected outcomes (see Appendix D). A flyer accompanied the invitation (Appendix D) and was promoted via SFV's social media platforms. In total, at least 30 contacts were involved in the outreach.

Table 2 List of Outreach Contacts Sought by Current RM Students

RM Students	Contact(s)
Alexa	Pre-health department, Caribbean Student Union, and Haitian Student Union at former UG institution
Pearson	Neuroscience advising team and Pre-health advisors at former UG institution, RM alum of SFV and Mentor (optometrists)
Tyson	Pre-optometry club, RM student mentees, and mentor at former UG institution
Rocio	Latino Medical Student Association (LMSA) at UG institution
Neil	National Optometric Association Chair of Pre-optometry recruitment
Loryn	Alpha Kappa Alpha national sorority list-serv, Kappa Alpha Psi national fraternity list-serv (via a friend), and Pre-optometry club at UG institution

Note: Names are pseudonyms

Special consideration was given to undergraduate institutions that SFV has an existing strong relationship with the advisors, consideration of their research university classification, and their location coinciding in the same state as SFV. This approach was informed by the review of supporting knowledge, which revealed that these elements are most effective for growing the RM student pipeline in health professions programs: fostering relationships between graduate programs and undergraduate campuses (Griffin & Muniz, 2011), research universities and their connection to producing graduate applicants (English & Umbach, 2016), and the strong influence of remaining close to home in RM students' enrollment decisions (Ramirez, 2013).

Sixty-four students registered for the sessions, surpassing my goal of 40, although demographic data were not collected on the registrants, so I am unable to confirm the number of registrants that identified as RM (my intended goal of 40). Thirty-seven of the registrants signed up for the session held on November 18th and 27 for the session held on November 23rd. Most registrants were from the state SFV is in (n=48), followed by a neighboring Northeastern state (n=9), and states located in Southern U.S. (n=5). Two registrants did not report their state. The

first session had a turnout rate of 41% (n=11) and the second session a turnout rate of 65% (n=24). Overall, the participation rates exceeded the average of previous general recruitment sessions (n=10). The sessions were held virtually via Zoom amid the COVID-19 global pandemic.

3.5 Recruitment Session Intervention

The recruitment sessions centered RM students' CCW to assess whether there would be an influence on their habitus for aspiring and applying to optometry school, and their attraction to SFV. The objective was to engage and learn with RM students through their wealth inherited by their aspirational, familial, navigational, resistant, linguistic, social, and cultural capital—a contrast from the deficit lens RM students are commonly perceived through in white dominant culture. I sought participation from faculty on the Diversity Outreach Subcommittee by incorporating the idea for the updated recruitment session into our regularly scheduled fall meeting. I sought participation from enrolled RM students by emailing all students who identified as RM and sharing the objective of increasing our RM student pipeline by acknowledging their inherent strengths in a newly developed recruitment session. In preparation, I shared Yosso's CCW theory with four faculty members from the Diversity Outreach subcommittee of the Admissions Committee at SFV and six currently enrolled RM students who volunteered to participate in the sessions. Both groups were asked to read and become familiar with the theory before determining how it may be applied to the proposed recruitment session. Upon meeting, we decided our goal for the sessions would be achieved by describing CCW and its various forms of capital, providing insights as to how participants can access their own, and by doing so, achieve their health

professions goals (both short- and long-term). We then developed an agenda to guide the sessions (see Appendix G). Both sessions followed the proceeding structure.

I introduced the session and CCW theory by presenting data depicting how quickly Google could answer, "What is the pathway to becoming a doctor" or "Optometrist." Within a split second, Google showed the course requirements, standardized exams, and outside the classroom experiences required to gain admission and continue the pathway to becoming a doctor. Furthermore, however, students must enroll in and complete the respective health professions' didactic coursework, clinical practicum, and, in some cases, be required to spend time in a specialized area of practice known as the residency. Thus, I intended to shift any potential short-term thinking around gaining admission to long-term thinking around all that becoming a health care provider involves. In other words, a shift from grades and standardized exams, to qualities, characteristics, and life experiences that offer currency for achieving health professions goals, all of which can be highlighted by their CCW. I concluded the introduction by comparing personal and professional development to finances. Immediate cash (short term) does not reflect the extent of one's full wealth, rather assets and resources that accumulate interest over time (long term). Similarly, CCW is an accumulation of currency and assets that can be applied toward (or "spent" on) their health professions goals.

The session then moved into a CCW bingo exercise that was prepared by currently enrolled RM students to further introduce CCW and generate conversation around it (see Appendix H). A CCW statement such as "I attended public school growing up" or "I live(d) with my extended family," were read and participants were asked to share their thoughts, if comfortable, answering "How has this experience helped you get to where you are today?" or "How might it help you achieve your long-term health professions goals?" The conversation that followed was rich,

informative, unscripted, and authentic, thus, varying in each iteration of the session. In one example, a participant, Brea (a pseudonym), shared how attending public schools allowed her to learn in a classroom with students from various racial, ethnic, linguistic, and socioeconomic backgrounds. This encouraged her to become President of her undergraduate Caribbean Student Association, where she promoted her Caribbean heritage on a campus where it lacked. Another participant, Josué (a pseudonym), shared how living with his extended family allowed him to learn how to negotiate, consider others' needs, and work as a team to achieve a larger goal. He brought these qualities with him to his shadowing experiences, where he discovered his knack for being patient and cooperative in working with patients of different ages and linguistic backgrounds. This exercise continued for twenty minutes, fully centered on the lived experiences of RM students by acknowledging their CCW. The recurring messages reframed experiences perceived as setbacks in mainstream society into useful currency for achieving their short- and long-term health professions goal.

A clinical faculty member from the Diversity Outreach subcommittee, Dr. June (a pseudonym), then continued the conversation by presenting on "Healthcare as a means for Serving and Uplifting Communities" and weaving in the experiences of RM students wherever fit. The presentation topic was carefully selected with consideration of ample data suggesting that RM pre-health students are more likely to be motivated by serving their communities than non-RM students (Anderson et al., 2009). Who optometrists are, what they do, and who they serve were each explained with an emphasis on patients. Data were presented about RM patients' likelihood in reporting satisfaction with care offered by racially concordant doctors (Betancourt et al., 2003) and related to their CCW. For example, Spanish-speaking Latino/a/x patients are more likely to report satisfaction with doctors who speak their language and African American patients are more

likely to report satisfaction with doctors who listen to them (Betancourt et al., 2003). Thus, an important driver in nurturing strong patient-doctor relationships are qualities that are strongly influenced by RM students' linguistic and social capital, which refers to the intellectual and social skills attained through communication experiences in more than one language and/or style (Yosso, 2005). Dr. June further emphasized that while the research may refer to RM patient outcomes specifically, it is evident that the lived experiences of RM care providers will play an instrumental role in nurturing their overall competence and compassion. This was highlighted by their personal experiences such as those shared by Brea and Josué. The recurring messages of this section acknowledged how the CCW acquired by RM students' lived experiences will serve them toward becoming optometrists, or health care providers generally, and add value to their chosen profession.

Next, three currently enrolled RM students shared their journeys by storytelling. Each student focused on one area of the application process and related it to their own CCW: the academic component, the professional component, and the personal component. For an example of the academic component, Pearson (a pseudonym) explained their experience as a refugee fleeing their native country in eastern Africa, relocating to a Caribbean nation, and starting university in the U.S. They explained the challenges that came through these experiences, alongside the resiliency they acquired from adapting to new customs and curriculum and defying the odds to meet the application requirements. These experiences garnered navigational capital; the skills acquired through maneuvering through social institutions not created with communities of color in mind (Yosso, 2005). They connected this experience to their motivation to persist through the challenging prerequisite science courses, despite often being the only RM student in the class. For an example of the professional component, Tyson (a pseudonym) emphasized the value in

participating in exposure programs such as the SFPP program offered at SFV. Through his previous experience in this program, he acquired exposure to the profession that not only solidified his interest in it but further introduced him to current students and faculty and the Director of the program at SFV. He referenced these connections as part of his social capital, the networks which support students practically and emotionally (Yosso, 2005). And for an example of the personal component, Rocio (a pseudonym) highlighted her unique identity, interests, and strengths that are results of her CCW. Specifically, she mentioned her passion for giving back to her community and thinking creatively, both of which stem from her experiences in often needing to create spaces that work and are comfortable for her. This relates to resistant capital which refers to the knowledge and skills fostered through challenging inequality (Yosso, 2005). She used these experiences to create a pre-optometry club at her undergraduate campus, and, as President, she was responsible for recruiting and mentoring RM students who followed in her footsteps. The recurring messages of this section framed RM students' challenges as formative experiences for achieving their health professions goals.

Finally, the session concluded with revisiting Yosso's (2005) CCW and summarizing how they can apply their CCW toward their health professions goals given the insights and first-hand experiences offered throughout the session. This was followed by providing participants resources for how to further engage, encouraging them all to apply to our upcoming SFPP program, attend SFV's upcoming Open House, reach out to optometrists through the Black Eyecare Perspective, contact any member of the session (current RM students, faculty, or myself) for future support, and resources for scholarships and standardized exam preparation (see Appendix I). An open dialogue followed to allow students time for reflection, and for question-taking and comments from the participants.

3.6 Methods

To measure the effectiveness of the change idea, I utilized a quantitative approach through pre-, immediate post-, and delayed post-surveys for RM student participants, including several open-ended questions for qualitative insights. The surveys were administered via Qualtrics XM. An invitation to participate in the surveys was sent following registration for the session. The invitation clarified that the data being collected would be used for a study being conducted at the University of Pittsburgh and inform future recruitment sessions developed for RM students at SFV (see Appendix E). It furthermore stated that participation in the survey was voluntary, and participants could opt out at any time. The quantitative data were used to inform whether the intervention had an impact on RM students' CCW (habitus), aspiration, and application to optometry school, and the qualitative data helped to clarify their experiences and inform future iterations of the intervention. Overall, this methodological approach offered a holistic assessment of the recruitment session's effectiveness toward achieving the AIM of increasing RM student applications to the Doctor of Optometry program by 4% by March 1, 2025. The inquiry was approved for exemption by the Institutional Review Board (Appendix J).

3.6.1 Quantitative Data

All participants were sent the survey (see Appendix F) prior to the recruitment session, immediately after, and two months after, thus, creating a pre-, immediate post-, and delayed post-test. The same survey was used in all three administrations and collected demographic information such as class year, major, GPA, race/ethnicity and a self-rated assessment of the following measures: a) their own habitus informed by CCW, b) access to resources in pursuing or applying

to optometry (as related to habitus), c) aspirations for further exploring the profession and applying to optometry school, d) engagement with the OD program at SFV (as related to aspirations), and, e) influences that support or hinder their health professions goals (for further context).

Completion of the surveys was strongly encouraged prior to participating in the session. The pre-test was sent prior to the session and introduced again in the first 10 minutes of the live sessions. The immediate post-survey was sent within 24-hours following the session and the delayed post-survey was sent two months after the session. Two reminders were sent for the pre-survey, with the third reminder being the integration in the recruitment sessions. Three reminders were sent within ten days of the initial email for both the immediate post-survey and delayed post-survey. Six-point likert and four-point likert scales were used in several sections of the data analysis related to the participants' self-assessed CCW and aspirations. Likert-scales allow researchers to measure means, medians, and standard deviations to note variations between groups, including same group analyses pre and post an intervention (Boone & Boone, 2012).

The pre-, immediate post-, and delayed post-survey administrations further allowed for reliability in the data analysis. Reliability refers to the consistency of a measure and is achieved via test-retest reliability (Drost, 2011). The survey questions were informed by Yosso's (2005) Community Cultural Wealth theory and professional knowledge on habitus, aspiration, and application to optometry school. They were reviewed for clarity and understanding and subsequently approved by my dissertation committee comprised of experts in the field of higher education. These steps ensured validity of the assessment. Validity refers to the extent to which a measure represents the variable it intends to capture (Drost, 2011). Thus, since the survey intended to measure self-assessed habitus informed by CCW, aspiration, and application to the OD program, the survey questions were developed to validly target these variables.

3.6.2 Qualitative Data

Qualitative data on RM student experiences and primary influences in support or hindrance of their health professions goals were sought via open-ended questions on the pre-, immediate post-, and delayed post-surveys. Participants were asked “what does community cultural wealth mean to you?”, “if there were to be one thing holding you back from applying to a health professions program, what would it be?”, and “if you have so far applied, or will apply, to a health professions program, what was/is most influential in the process?”. I was interested in learning more about how the different elements of Yosso’s (2005) CCW might influence their perspectives and lived-in experiences as RM students pursuing health careers. More specifically, I was interested in having context for understanding how acknowledging CCW in recruitment may have influenced their habitus and aspiration for applying to health professions programs.

3.6.3 Trustworthiness

I conducted a trustworthy audit trail of the techniques utilized throughout the improvement inquiry including interactions with, and behaviors of participants and new outreach strategies employed in recruiting RM students. These elements are otherwise not direct measurements of the inquiry questions under consideration. Rather, the audit trail concerned my own professional journaling to serve as further context for the qualitative data. In other words, the data journaled via the audit trails further situated participants’ responses to the change idea and bolstered trustworthiness (Rose & Johnson, 2020).

3.6.4 Limitations

The methodology of this inquiry involved several limitations. For both the quantitative and qualitative data, a limited sample size prohibited me from drawing definitive conclusions from the analysis. To compensate, I highly encouraged the RM students to participate in all iterations of the survey and reminded them the goal of the session was to improve SFV's recruitment initiatives for RM students. Participants were furthermore sent several reminders to complete each iteration of the survey. I also aimed to recruit an expansive group of prospective RM students to increase my chances of a representative sample size. By the time of the delayed post-test survey, I experienced a 43% dropout rate in my survey participation, falling within range of the up to 80% dropout rate documented for web-based surveys, though surpassing the average of 30% (Galesic, 2006). This dropout rate can be an indication of waned interest in the program by RM student participants, or it may also be explained by potential negative effects on virtual student participation ensued by the COVID-19 global pandemic which have not yet been examined. While definitive conclusions are not able to be drawn from the data analysis, the trends observed in the data are relevant and implicative for practice and important to consider in relation to the inquiry questions. The data may also inform the PDSA cycle.

Furthermore, as Director of Admissions, candidates may not have felt comfortable being truthful in their survey responses as they may have felt compelled to report what they believed I may have wanted to hear. To minimize this effect, I made an effort to establish trust and rapport throughout the recruitment sessions by being clear on my primary goal to serve and support them through their health professions journeys. I was transparent in sharing that as Director of Admissions, I do not make admissions decisions and instead advocate on their behalf. Thus, the

more familiar I become with their individual stories, the better positioned I am to support their applications.

Finally, I did not execute a pilot iteration of the administered surveys. Instead, I relied on preview options offered by Qualtrics XM and tested them on multiple electronic devices (i.e., laptop and cell phone). I furthermore disqualified incomplete surveys from the data analysis to eliminate any potential technological errors.

3.7 Analysis

The analyses of the quantitative data involved descriptive statistics including *n* (whole percentages), median (inter-quartile range), and confidence intervals to describe demographic and outcome variables of RM student participants. Changes over time (pre vs. post intervention) in outcomes (responses to the surveys) were first assessed using descriptive statistics and a repeated measure non-parametric one-way ANOVA, the Friedman test. The Friedman test disaggregates non-parametric data into inter-quartile ranges and calculates the median, which minimizes the degree of error and bolsters the confidence interval of observable changes (Altman & Bland, 2009). Non-parametric assessments, therefore, are appropriate when analyzing data that do meet normal distribution requirements such as comparing groups of different sample sizes or ranked data derived from Likert-scales (Altman & Bland, 2009). This was necessary in this analysis as these data classified as non-normative, deriving from a combination of Likert scales, and having a different *n* across three groups: pre-test (n=23), immediate post-test (n=14), and delayed post-test (n=13).

Where statistical significance was found in the Friedman test, further analysis of Pairwise comparisons was conducted to understand relationships among the data, as recommended for validity in non-parametric analyses (Altman & Bland, 2009). Linear-mixed effect modeling (LMEM) was used as it concerns variable and covariates in data that are grouped according to one or more classification factors such as repeated measures data (Pinheiro & Bates, 2000; Norman, 2010). LMEM analyzed the relationships between the median outcomes in the baseline (pre-) and follow-up periods (immediate- and delayed-post) to determine where the significance was occurring. Two-sided p-values <0.05 were considered statistically significant. All quantitative statistical analysis were conducted in R-statistical package version 3.0.3.

Qualitative data extracted from the open-ended survey underwent descriptive coding and frequencies. “A code is most often 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). I achieved this by interpreting the data and grouping together passages that exemplified the same idea, and named, or coded, the text with what it represented. I furthermore quantified the descriptive codes to observe frequencies across each.

In the pre-test survey, I predicted prospective RM students’ self-rated habitus (determined by CCW) would rank within the lower three quartiles (<=41/54). This prediction was based off the assumption that students do not acknowledge their own CCW. I furthermore predicted that their aspirations for pursuing or applying to optometry school would score in the lower half (<=2/4). In the immediate post-test survey, I predicted their self-rated habitus (determined by CCW) would increase to the top quartile (>=42/54) and remain so in the delayed post-survey. I also predicted their aspirations for pursuing the profession would increase in the immediate post-survey (>=3/4), while their likelihood of applying would not increase due to the limited time of this inquiry. In the

delayed post-survey, I predicted students would report further engagement with the profession and/or SFV, as connected to their increased aspirations for pursuing optometry.

Concerning the open-ended questions, I predicted students would report lack of knowledge or access to information about pursuing optometry or the health professions as a primary hindrance in addition to a lack of role models and dispositions that reflect internalized oppression. Finally, I predicted students would have limited understanding of their own CCW in the pre-survey, which would evolve to a new lens for which to pursue their goals in both the immediate post- and delayed post-surveys.

3.8 Epistemology and Reflexivity

While conducting this inquiry, I brought a postpositivist approach with a constructivist leaning, along with my cultural intuition. Postpositivism is a familiar paradigm in health professions education which posits:

> [Postpositivism] maintains a dependence on observation and measurement to develop strong causal understandings of the world. Postpositivism retains the assumption that there is an objective truth but concedes that (just like the Holy Grail) we are unlikely ever to find it; instead, we build our understanding of the world within the limitations of our times, techniques, and currently available knowledge. This stance recognizes that scientists (as humans) are fallible and subject to a multitude of influences, and bias (while undesirable) is inevitable. (Young & Ryan, 2020, p. 695)

The nature of this inquiry involved both observation and measurements to determine if existing knowledge in the Graduate School Choice model can be confirmed, measured, or

challenged in relation to increasing RM student applications at SFV. Considering I furthermore sought to explain the experiences of RM students in this context, I brought a constructivist leaning to my approach. Mertens (2010) asserts that constructivism posits "knowledge is socially constructed by people active in the research process, and [researchers] should attempt to understand the complex world of lived experiences from the point of view of those who live it" (p. 16).

As a postpositivist with a constructivist leaning, I believe research cannot be completely void of bias. I am an intersectional first-generation American of Latinx descent who is the first in his family to obtain a degree of higher education, hailing from a humble upbringing. The experiences I have lived with these minoritized identities shape my perception of the world and my place in it, which inevitably informed how I approached this study. As the Director of Admissions with direct influence over recruitment, my values, beliefs, and my minoritized identities shape my practice even though I have not experienced health professions schools' admissions processes firsthand. In the context of this inquiry, my understanding, recognition, and appreciation of the cultural and social capital RM communities possess strengthened the work. This positionality enabled me to acknowledge CCW in recruitment and lead participants in understanding how to pull from their inherent currencies that will serve them in the health professions application processes and future careers. Furthermore, I was able to connect more deeply with participants because of this cultural congruence.

3.9 Conclusion

Following an improvement science approach, I utilized mostly quantitative methods to determine whether RM students' self-assessed habitus (CWW), aspiration, and application for optometry school were influenced by a session that acknowledges their CCW. I furthermore sought to understand how the improved recruitment session influences SFV's, a public, non-profit optometry school located in the Northeastern US, ability to attract RM students. I intervened by working with four faculty from Diversity Outreach Subcommittee and six currently enrolled RM students to develop an updated recruitment session titled "Applying Your Cultural Wealth Toward Your Health Professions Goals." Data collected via a pre-, immediate post-, and delayed post-survey were administered via Qualtrics XM. The analyses involved the Friedman test (a non-parametric, one-way ANOVA), linear mixed-effect modeling, and descriptive coding and frequencies. As a first-generation American of Latino descent and intersectional minoritized identities, I approached this inquiry through a postpositivist lens with a constructivist leaning and reliance on my cultural intuition.

4.0 Results

This inquiry explored the ways RM students' habitus and aspirations for optometry school may be influenced by a recruitment session that centers and acknowledges their CCW in relation to their health professions goals, the intervention. It furthermore sought to understand how the organization's ability to attract RM students to its optometry program may be influenced by the recruitment session. A pre-, immediate post-, and delayed post-survey were administered assessing RM students' perceptions of their CCW (habitus) and corresponding aspirations for pursuing and applying to optometry school. A combination of Likert-scales, select all that apply, and open-ended questions were included on the survey. Quantitative data were analyzed using descriptive statistics, a non-parametric, one-way ANOVA (the Friedman test), and a linear mixed-effect regression for further validity and understanding of the changes over time. Qualitative data were coded and counted utilizing descriptive frequencies. The results of the analyses are explained in this chapter.

4.1 Survey Participants

In total, 49 participants completed the pre-survey (all 35 attendees and additional registrants who did not attend the sessions), 24 participants completed the immediate post-survey, and 22 participants completed the delayed post-survey. Given the focus of this inquiry, I only counted survey participants who identified as RM for all analyses, resulting in a total of 23 participants completing the pre-survey, 14 participants completing the immediate post-survey, and

13 participants completing the delayed post-survey. Demographics for RM participants who completed the pre-survey are presented in Table 3. Only participants who completed the pre-survey were invited to complete the post-surveys, so I will only present the demographics for the pre-survey, which was also the largest sample size. Contingent with my expectations and review of scholarly knowledge, most of the RM students who participated in the sessions majored in the sciences, had cumulative GPAs 3.0 or above, and were first generation college students.

Table 3 Description of RM Participants Who Completed Pre-Survey

Category	*n*	*%*
Total	23	100%
Race		
African American / Black	10	43.5%
Hispanic / Latino/a/x	13	56.5%
Gender Identity		
Woman	18	78.3%
Man	5	21.7%
First Generation College Student		
Yes	15	65.2%
No	8	34.8%
Major		
Biology, Chemistry, or Other STEM	16	69.6%
Social Science	6	26.1%
Unknown	1	4.3%
Cumulative GPA		
2.5 – 2.9	1	4.3%
3.0 – 3.4	10	43.5%

3.5 – 3.9	8	34.8%
Unknown	4	17.4%

4.2 Results Relating to IQ #1: How Does a Recruitment Program That Acknowledges RM Students' Community Cultural Wealth Influence Their Habitus, Aspiration, and Application for Optometry School?

4.2.1 Self-Rated CCW (Habitus)

This section of the survey asked participants to self-rate their CCW (habitus) by asking nine different questions on a 6-point likert scale, with 6 being "Strongly Agree" and 1 being "Strongly Disagree" for a cumulative maximum of 54 total points on their habitus scale. The questions were developed by relating Yosso's (2005) CCW theory to the experiences of RM pre-health or pre-optometry students and informed by professional experience and the review of supporting literature. This section measured whether any changes in their self-rated CCW (habitus) occurred post session. Considering habitus is influenced by social and cultural environments (English & Umbach, 2016), an increase in the CCW median score, then, may be indicative of an increase in participants' habitus. Table 4 shows the results. The overall median increased from a CCW total of 42.00 in the pre-test, to 47.00 in the immediate post-test, to 45.00 in the delayed post-test. Statistical significance was found in this change over time ($p < 0.01$).

Table 4 Friedman Test of CCW (Habitus) in Pre-, Immediate Post-, and Delayed Post-Tests

Question	Pre-Test (n=23)		Immediate Post-Test (n=14)		Delayed Post-Test (n=13)		*P*-value
	Median	IQ Range	Median	IQ Range	Median	IQ Range	
My race/ethnicity is an asset toward becoming a future health care professional.	5.00	2	6.00	0	6.00	1	0.008
My language (other than English) is an asset toward becoming a future health care professional.	6.00	2	6.00	0	6.00	1	0.061
My style of language (English) is an asset toward becoming a future health care professional.	5.00	2	6.00	0	6.00	1	0.050
Health professions schools value my racial/ethnic background in the application process.	4.00	2	5.00	2	5.00	1	0.024
Health professions schools need more students who are of the same racial/ethnic background as me.	6.00	1	6.00	0	6.00	0	0.026
My social networks are a resource for becoming a future health care professional.	5.00	1	6.00	1	6.00	1	0.006

I have access to family and friends who can help me successfully apply to health professions schools.	4.00	2.5	4.00	0.75	5.00	2	0.111
I have access to professionals and mentors who can help me successfully apply to health professions schools.	5.00	0.5	5.00	2	5.00	2	0.864
I have been exposed to health professionals who are of the same racial/ethnic background as me.	4.00	2.5	4.00	2.5	2.00	4	0.716
CCW Total	42.00	6.4	47.00	3.5	45.00	7	0.008

A LMEM regression was conducted to understand the relationship between the data outcomes pre- and post-intervention determined by the Friedman test. Of particular interest were: “My race/ethnicity is an asset toward becoming a future health care provider” and CCW total as these had the greatest change over time, and the statement best embodies the spirit of CCW and the message I intended to convey. However, “My style of English is an asset toward becoming a future health care professional”, “Health professions schools’ value my race/ethnicity in the application process”, “Health professions schools need more students who are of the same racial/ethnic background as me”, and “My social networks are a resource for becoming a future health care professional” also increased following this intervention. This is sensible considering these points were all conveyed throughout the recruitment sessions and refer to linguistic, cultural, and social capital.

Regarding their race/ethnicity as an asset, the most significant change occurred between the pre-test and the immediate post-test (see Table 5). While there was also an increase from the pre-test to the delayed post-test, it was not as strong and not deemed statistically significant. Regarding the self-rated CCW total (habitus), significant change occurred between the pre-test and the two post-tests (see Table 6). This confirms the recruitment session positively influenced their self-rated CCW, potentially implying an increase in habitus. However, slight decreases in the data in the delayed post-test for both variables may be an indication of a lack in retaining the effect over time.

Table 5 Linear Mixed-Effect Model on "My Race/Ethnicity is an Asset Toward Becoming a Future Health Care Provider"

Group	Coefficient	Standard error	P-Value
Pre-test	Reference		
Immediate Post-test	1.141	0.402	0.004
Delayed Post-test	0.588	0.412	0.153

Table 6 Linear Mixed-Effect Model on CCW Total (Habitus)

Group	Coefficient	Standard error	P-Value
Pre-test	Reference		
Immediate Post-test	4.590	1.348	0.001
Delayed Post-test	3.064	1.386	0.027

I predicted that participants' self-rated CCW (habitus) would increase from a baseline of 41/54 or lower pre-intervention, to 42/54 or higher after the intervention. My prediction was correct in that RM student participants' CCW was above 42 in the immediate post- and delayed-post surveys. Although their baseline exceeded my initial prediction, this does not discount the improvement or increase. Furthermore, while not directly observed in the open-ended responses,

this improvement aligns with my prediction that RM students' perception of CCW would expand over time. Participants' sense of "My race/ethnicity is an asset toward becoming a future health care provider" increased from the pre-test median of 5.00 or "Agree", to 6.00 or "Strongly Agree" in the immediate post- and delayed post-test, which further supports the improvement resulting from acknowledging RM students' CCW in health professions recruitment. In contrast, "I have access to family and friends that can successfully help me apply to health professions schools" and "I have been exposed to healthcare providers of who are of the same racial/ethnic background as me" consistently ranked among the lowest elements of CCW at "Slightly Agree," which both refer to social capital. I suspect these factors were not impacted by the recruitment sessions because they predominantly focused on SFV and the larger optometry community as social resources, an effort made in connection to the aim of increasing applications from this population by March 1, 2025. Considering these are fundamental elements of CCW, future iterations of the sessions should thus include stronger emphases on the social wealth and resourcefulness already abundant in RM communities. Overall, these findings reveal that the intervention was effective at increasing RM students' perception of their CCW total, which may be an indication of an increased habitus. Considering habitus is the most influential characteristic in generating aspiration and application to graduate education, this may have a positive influence on increasing RM student applications to optometry school or health professions programs broadly.

4.2.2 Resources for Pursuing/Applying to Optometry School

This section of the survey asked participants to select all the resources they have access to in pursuing or applying to optometry school. Resources were referred to social networks and spanned across the graduate school, undergraduate school, professional, familial, and community

contexts. It was important to do so considering these resources may be connected to habitus for aspiring and applying to graduate education by offering insight into the nuances of the graduate application and admissions processes. The survey question included pre-health advisor(s), opportunity program advisor(s), faculty at UG campus, faculty at health professions program(s), practicing health care professionals, admissions representatives from health professions program(s), friends from local (home) community, friends from UG campus, family members, current students in health professions programs, students from professional/affiliated organization, and/or mentor. The access to resources participants reported in total increased from a median 3.00 out of 12.00 in the pre-test to a median of 4.00 in the immediate post-test and delayed post-test. This is a positive trend as the session intended to provide participants with access to professionals in the field and peers who can support them in their pathways to the health professions. As shown in Table 7, descriptive statistics revealed pre-health advisors (n=12), support program advisors (n=10), faculty from UG campus (n=8), and friends from UG campus (n=8) were most likely to be identified as resources in the delayed post-survey. And, controlling for the dropout rate in survey participation, most resources were selected in an upward direction over time. These results demonstrate the intervention may be effective at connecting RM students with resources that may help them in the application, an important component of the graduate school choice process, though further analysis is needed to understand their significance.

Table 7 Descriptive Statistics of RM Students' Resources Over Time

Influences	Pre-test		Immediate Post-test		Delayed Post-test	
	n	%	*n*	%	*n*	%
Pre-health Advisor	11	47.8%	10	71.4%	12	92.3%
Support Program Advisor	11	47.8%	10	71.4%	10	76.9%

Faculty at UG campus	11	47.8%	7	50.0%	8	61.5%
Faculty at GRAD program	4	17.4%	6	42.9%	5	38.5%
Practicing Healthcare Provider	6	26.1%	6	42.9%	7	53.8%
Admissions Rep at GRAD program	2	8.7%	4	28.6%	4	30.8%
Friends from local (home) community	3	13.0%	4	28.6%	5	38.5%
Friends from UG campus	5	21.7%	6	42.9%	8	61.5%
Family	6	26.1%	5	35.7%	7	53.8%
Current GRAD students	8	34.8%	7	50.0%	7	53.8%
Peers from professional organization	3	13.0%	5	35.7%	7	53.8%
Mentor	5	21.7%	5	35.7%	6	46.2%

4.2.3 Aspirations for Pursuing Optometry and Applying to Optometry School

This section of the survey asked participants to rate their aspiration for pursuing optometry and applying to optometry school on a 4-point likert scale, with 4 being “I will pursue/apply” and 1 being “I will not pursue/apply.” Participants’ aspiration for pursuing the profession of optometry remained at a consistent median of 4.00, which corresponds with the statement, “I know optometry is the right career for me”. This did not align with my prediction, as I predicted aspiration for

pursuing the profession would increase. This reveals that the group had a predisposed interest in the profession which offers an opportunity for future exploration of RM students who may not have that predisposition. Participants' aspiration for applying to optometry school also remained at a consistent median of 4.00, which corresponds with the statement, "I will apply to optometry school." I predicted the recruitment session would not be substantive enough to change application aspiration after one time. Despite not seeing changes in these areas, increases in their self-rated CCW (habitus) may be a positive implication in relation to aspirations and applications being influenced by this session.

4.3 Results Relating to IQ #2: How Does a Recruitment Program That Acknowledges RM Students' Community Cultural Wealth Influence SFV's Ability to Attract Them to the Organization?

4.3.1 RM Student Engagement with Optometry Program

This section of the survey asked participants to select all forms of engagement they have had with SFV's optometry program and/or the profession, with a total thirteen different options. The reported engagement total with the College or profession steadily increased over time from a median of 3.00 in the pre-test to 7.00 in the immediate post-test and delayed post-test. This aligned with my prediction that engagement would increase over time and may be explained by the additional resources to further engage participants offered in the session and the several communications that were sent promoting SFV's SFPP Internship Program and Open House in the two-month interim leading to the delayed post-test. While these programs are regularly

promoted to SFV's prospective applicant inquiry pool, they are not regularly promoted to a targeted group of RM students. A larger sample size will be needed to determine whether the change is statistically significant, although the trends move in the right direction. As shown in Table 8, descriptive statistics revealed participation in SFV's Open House (n=11), shadowing in the profession (n=11), and SFPP's internship program (n=10) were most likely to be identified as engagements in the delayed post-survey. Furthermore, most engagement opportunities move in an upward direction over time when controlling for survey participation. These results are important to consider as engagement is positively correlated with aspirations and applications and a continuation in engagement was an important objective of the recruitment session. Thus, the identified increases may be a positive indication of SFV's ability to engage and attract RM students by acknowledging their CCW in recruitment.

Table 8 Descriptive Statistics of RM Students' Engagement Over Time

Influences	Pre-test		Immediate Post-test		Delayed Post-test	
	n	%	*n*	%	*n*	%
Registered for Open House	9	39.1%	10	71.4%	11	84.6%
Attended Open House	9	39.1%	9	64.3%	11	84.6%
Applied for SFPP Internship	10	43.5%	9	64.3%	10	76.9%
Participated in SFPP Internship	10	43.5%	9	64.3%	10	76.9%
Inquired about campus tour	5	21.7%	5	35.7%	6	46.2%
Attended a campus tour	4	17.4%	5	35.7%	6	46.2%
Contacted an optometrist	9	39.1%	12	85.7%	11	84.6%

Shadowed an optometrist	9	39.1%	11	78.6%	11	84.6%
Contacted SFV Admissions Rep	5	21.7%	7	50.0%	7	53.8%
Contacted SFV Faculty	7	30.4%	7	50.0%	8	61.5%
Contacted SFV Student	6	26.1%	8	57.1%	8	61.5%
Initiated App to SFV	7	30.4%	7	50.0%	7	53.8%
Submitted App to SFV	3	13.0%	3	21.4%	4	30.8%

4.3.2 Open Ended Responses

Descriptive frequencies on a series of open-ended questions revealed the intervention may have prompted a shift in the participants' perception of the primary influence in applying for a health professions program. Specifically, participants were asked, "If you have so far applied, or will apply, to a health professions program, what was/is most influential in the process?" In the pre-survey, most participants mentioned exposure to the profession (n=5) as most influential, whereas in the delayed post-survey most participants mentioned belonging by way of diversity, equity, and inclusion in the program (n=4) as most influential (see Table 9). This finding may indicate that RM students feel a sense belonging at SFV by this intervention, thus, enabling SFV's ability to attract RM students.

Table 9 Descriptive Frequencies of RM Students' Responses to Primary Influences

Influences	Pre-test		Immediate Post-test		Delayed Post-test	
	n	%	*n*	%	*n*	%
Affordability	0	0.0%	1	7.1%	1	7.1%
Participation in opportunity program	3	13.0%	3	21.4%	2	15.4%
Belonging in the program	3	13.0%	1	7.1%	4	30.8%
Exposure to the profession	5	21.7%	3	21.4%	2	15.4%
Mentorship	3	13.%	2	14.3%	1	7.7%

However, further descriptive frequencies revealed the session may not have been effective in shifting participants' perception on their primary barriers in applying for a health professions program. Specifically, participants were asked, "If there were to be one thing holding you back from applying to a health professions program, what would it be?" In the pre-survey, most participants mentioned total costs (n=4) and standardized tests (n=4) as their primary barrier in applying, which allude to structural deterrents of their goals. In the delayed post-survey, most participants mentioned total costs (n=5) and standardized tests (n=3) again (see Table 10). While the session addressed both these factors under navigational capital, the session was not enough to shift their perception of these barriers. RM students may be more likely to shape enrollment decisions around these structural barriers (Carnevale & Strohl, 2013), so it is an important consideration in relation to SFV's ability to attract RM students, implying the organization's ability to do so may be deterred. It is furthermore important to consider in relation to the personal barriers identified, including a lack of confidence, discipline, or interest. While these barriers are

to be expected of pre-health students pursuing a rigorous endeavor that is not guaranteed, they do not align with my predictions that personal hindrances would be structurally influenced, involving a lack of knowledge, role models, or dispositions of internalized oppression. I suspect these results may have been influenced by the strengths-based narratives conveyed throughout the recruitment sessions, which may also be a positive indication for SFV's ability to attract RM students by acknowledging their CCW. However, the structural barriers identified may overrule this effect, as indicated by their frequencies, and thus need to be further considered.

Table 10 Descriptive Frequencies of RM Students' Responses to Primary Hinderances

Influences	Pre-test		Immediate Post-test		Delayed Post-test	
	n	%	*n*	%	*n*	%
Personal (lack of discipline, confidence, or interest)	4	17.4%	2	14.2%	3	23.1%
Total Costs	4	17.4%	4	28.6%	5	38.5%
Standardized Exams	4	17.4%	3	21.4%	3	23.1%

4.4 Conclusion

The findings in this chapter aimed to answer the inquiry questions under consideration. Statistical trends demonstrated that participants' self-rated CCW (habitus) increased through this intervention. Their access to resources in applying to health professions programs also increased, which is another component relating to habitus as it concerns the information and social networks RM participants have access to. Similarly, RM students' engagement with the profession of

optometry and SFV increased after the intervention, resulting in a positive implication in SFV's ability to attract RM students. While not enough evidence was found to understand its direct impact on aspiration and application to optometry, these results are positive indications that the intervention is likely to influence these factors as engagement can be interpreted as a form of aspiration. Furthermore, a strong statistical significance ($p < 0.01$) was found in participants' sense of, "My race/ethnicity is an asset toward becoming a future health care provider," which embodies the spirit of CCW and intended message of this session. As evidenced by the open-ended responses, RM students' feelings of belonging to the health professions program of their choice increased post-intervention, which may have further implications on SFV's ability to attract this population, albeit structural barriers persist that may serve as deterrents.

5.0 Learning and Action

I theorized that by creating a recruitment session that acknowledges RM students' CCW, I may be able to improve SFV's recruitment strategy for increasing applications from this population by 4% (from 12% to 16%) by March 1, 2025. The effort seeks to advance the organization's ability in meeting its goal of enrolling a diverse and representative student body composed of 12% RM students or more. While numerous initiatives were previously in place and incremental improvements have been documented, SFV has not yet reached its goal. Results of the data collected via pre-, immediate post-, and delayed post-surveys, therefore, uncover important insights for this inquiry. Three key findings emerged from the results. This chapter explains the key findings, their implications for practice, and next steps.

5.1 Key Findings

The key findings emerged from this inquiry can be related to layers 1 and 3 of English's and Umbach's (2016) Graduate School Choice model, individual characteristics, and graduate school context (see Appendix B). Regarding layer 1, the individual level, RM students' habitus was observed to increase with this intervention. Habitus was defined by participants' self-rated CCW and access to resources, an extension of the definition used in the Graduate School Choice model. It is an important consideration as habitus is most influential in generating aspiration, application, and enrollment in graduate education. While not enough data were collected to confirm this intervention's influence on aspirations and application specifically, the increase in

habitus may imply a positive correlation with these variables, a conclusion of English and Umbach's (2016) findings. Furthermore, RM students' engagement with SFV increased post-intervention, and they reported a sense of belonging at the optometry program as most influential in applying, which may further support aspiration and application. These results also relate to the Graduate School Choice model's layer 3, graduate school context, which concerns characteristics of a graduate program that may generate school choice processes (aspiration, application, and enrollment) as they imply SFV may be better able to do so by acknowledging CCW in recruitment. Nevertheless, structural barriers persist and may contribute to the deterrence of RM students' aspirations and application to optometry school or to health professions programs more broadly. Thus, future efforts towards short-term recruitment of RM students must also consider the implications of these structural barriers and explore mediators to adequately retain RM student enrollment interest.

5.1.1 Key Finding #1: Acknowledging CCW in Recruitment May Increase RM students' Habitus and Have Positive Implications for Aspirations and Application to Optometry School.

The session, "Applying Your Cultural Wealth Toward Your Health Professions Goals," increased RM students' habitus as evidenced by their increased rate of CCW and access to resources in pursuing or applying to optometry school (or health professions programs broadly). While their overall sense of CCW is important to note, as it encompasses their perceptions of self and place as influenced by their social and cultural environments within a health professions context, I am particularly interested in their increased belief that their race/ethnicity is an asset toward becoming future health care providers. My interest in this aspect of CCW is twofold. First,

I believe this statement most embodies the spirit of CCW and the messaging I intended to convey in the recruitment session. Second, it affirms that acknowledging CCW in practice is a positive alternative to reliance on traditional perceptions of cultural and social capital, which undermine the value of RM students (Yosso, 2005) and potentially discourages them from developing a STEM identity (Alfaro et al., 2014). Although RM students did "agree" with this statement pre-intervention, they "strongly agreed" with the statement post-intervention. This may prompt future research to explore the various rates of CCW and their implications on habitus. For example, it may be discovered that this statement is more influential in overall habitus than mentorship or vice versa.

Furthermore, RM students' self-reported access to resources also increased post-intervention, although more information will need to be collected for understanding the significance of this criteria and highlighting the specific resources that are most impactful in this pursuit. This inquiry strictly referred to resources as social networks, although they spanned across the graduate school, undergraduate school, professional, familial, and community contexts. This was supported by extant research that posits RM students may lack access to valuable social networks that offer insights into the nuances of graduate admissions and application processes (Perna, 2006), and Yosso's (2005) CCW theory that highlights the importance of interwoven relationship webs found among RM communities. Therefore, an increase in RM students' access to resources may indicate that this recruitment session guided students in better understanding how SFV and the optometry community may serve as a resource, potentially supporting a positive indication on habitus. However, further implementation is needed to help students better understand how their communities may serve as a resource.

5.1.2 Key Finding #2: Developing a Recruitment Program Centered on RM Students' CCW May Improve SFV's Ability to Attract RMs.

Layer 3 of the Graduate School Choice model concerns the graduate school context (English & Umbach, 2016). This refers to graduate schools' characteristics that may influence the three phases of the school choice process, including aspiration, application, and enrollment. From this perspective, the recruitment session acknowledging RM students' CCW may positively impact SFV's ability in attracting RM students. This finding is first evidenced by RM students' increased rate of engagement reported over time. While the statistics were not deemed significant, it increased from a median of 3.00 in the pre-test to 7.00 in both post-tests offering a positive implication of the practice. One interpretation of these results may be that students already engaged with SFV were also more likely to remain engaged in the survey participation. However, engagement is positively linked with aspirations and application to our program, so continued investigation is warranted.

This finding is further supported by RM students' shift in their reported factors that most influence their application to optometry school (either presently or in the future). Prior to the session, most participants (n=5) reported exposure to the profession as most influential, derived from statements such as, "the most influential process will be learning more about the health profession through exposure" and "my experience working in the field." Two months after the session, most participants (n=4) reported belonging to the institution as the most influential, derived from statements such as, "the most influential factor is knowing that I would be going to a comfortable environment where I feel included," and "having a support system at the school such as faculty, mentors, and friends that help me know I belong." While their statements do not refer to SFV specifically, a connection to the organization may be drawn considering the survey tracked

their development over time in relation to the recruitment session offered by SFV. Since cultural climates may impact STEM persistence (Alfaro et al., 2011) and socio-emotional elements influence the school choice process (Perna, 2006), these findings are positive implications for SFV's ability to attract RM students through this recruitment session.

5.1.3 Key Finding #3: Structural Barriers to Health Professions Programs Persist, Which May Deter RM Students From Pursuing Optometry School and Should Therefore be Further Considered in Recruitment.

Despite notable increases in RM students' habitus as determined by their CCW and a potential improvement in SFV's ability to attract RM students, structural barriers continue to persist and should not be disregarded in the recruitment process. This finding is evidenced by most RM students' reporting of total costs and standardized exams as the primary hindrances in applying to optometry school across all iterations of the survey. Thus, despite the session's objective to connect students to resources that may assist in these efforts, such as scholarship opportunities and standardized exam preparations, the intervention was not effective in minimizing these perceived and real barriers. These data uncover an urgency for further consideration of these barriers in institutional decision-making processes regarding admissions criteria and total costs, while also exploring different approaches for navigating these realities with RM students in recruitment.

By displaying institutional actions toward minimizing structural barriers that may result from factoring them in policy decisions, an organization may be better positioned to serve RM students and further attract them to the organization. In this effort, however, it is equally important to be mindful of one's approach in integrating this component in recruitment programs. A revert to deficit thinking and approaches may have deleterious effects on the positive implications of

recruiting RM students by acknowledging their CCW. In concordance with Rios-Aguilar et al.'s (2011) recommendation, RM students should be guided toward understanding how their communities can also be relied on for financial and emotional support through graduate education in addition to the actions being taken by the organization. This may take the form of RM students networking with and gaining inspiration from members of their communities who may have overcome the burdens of debt or those who may have navigated difficult exams. For example, this may involve an immigrant passing the citizenship exam or taking a leap of faith in migrating to a new country with minimal finances to their name.

5.2 Implications for Practice and Future Research

The key findings emerged from this inquiry inform several implications for practice related to increasing RM student applications to optometry school. At SFV specifically, the aim is to increase this population's application rates by 4% by March 1, 2025 (from 12% to 16%). While these implications are most relevant for optometry schools with similar problems of practice, they may also be extended to apply to health professions programs or graduate schools more broadly. Accordingly, the first implication for practice is that institutional or systemic goals related to diversifying student enrollments should be informed by and centered on the constituents it intends to serve. Extant programs, services, and initiatives exist to grow the RM student pipeline to health professions programs; however, they have historically been informed by an institution's needs or understanding of the problem. By failing to appropriately involve its constituents, the organization may miss out on valuable insight afforded by those living directly through the problem and fail to reach diversity targets on the way to their goals, thus perpetuating the problem. This problem is

heightened by the U.S. higher education climate toward muddled, race-neutral practices. On the contrary, this recruitment session intended to incorporate constituents in mutually learning about their needs, with a special consideration to the influence of race. It examined SFV as an organization, its strengths, and gaps toward achieving the goal, the supporting literature, and centered RM students as part of the improvement. Consequently, we may have positively influenced their senses of self and place within the optometry school context, as determined by their CCW. This may have positive implications on their aspirations, application, and overall attraction to SFV, which may advance us toward our aim.

The second implication for practice is that complex problems require complex solutions. Although improvements have been documented over time, SFV continues to enroll a student body underrepresented of RM students. It is only sensible, then, that considerable time, thought, planning, practicing, and redoing should be invested in the improvement. This includes strategic and critical thinking and dispositions supported by the science of improvement. Accordingly, this inquiry shifted SFV's practical approaches for recruiting RM students, theorizing an increase in applications may lead to an increase in enrollment. I did so by updating the criteria that inform my short-term recruitment programming as Director of Admissions. Whereas previous criterion relied almost explicitly on application trends, current criteria rely explicitly on organizations, groups, and networks known to serve RM students. While two sessions were offered, and previous short-term recruitment programs still operated per usual, this is an increase in the focus and attention to RM applicants under my purview from previously. I furthermore involved various stakeholders not previously orchestrated in this goal such as faculty from the admissions committee, current RM students, and pre-health advisors. Finally, I expanded my outreach efforts by strategically involving RM students in the process and collecting RM serving contacts from across the nation.

As a result, I recruited a minimum of 23 RM students over the two sessions (this number is expected to be larger as I was only able to collect race/ethnicity of those who participated in the surveys), which is an increase from previous practices.

Further findings emerged from this inquiry imply an organization's diversity, equity, inclusion, and belonging (DEIB) goals for prospective students begin with recruitment practices (or admissions practices more broadly). While this intervention uncovered positive implications toward RM students' habitus (CCW) and their potential aspiration, application, and attraction to SFV, it ignites conversation and exploration into whether our campus climate matches what is being promoted in recruitment. This connects to the first implication for practice concerning truly serving the constituents we intend to, an important consideration given our overarching goal of increasing RM student enrollment. A climate alignment, thus, may further assist in recruitment practices by allowing us to show tangible representations of how RM students will continue to be supported throughout their career path. Furthermore, this highlights the importance of guiding RM students not only through the application process but further through their enrollment and persistence through a rigorous academic program in optometry school and achievement of their health professions goals.

Future research on the topic should draw more data to develop representative conclusions regarding RM student habitus in the context of health professions programs. It should furthermore consider layer 3 of the Graduate School Choice model, the graduate school context, to continue exploring institutional characteristics that may influence aspirations, applications, and enrollment. This inquiry provides implications that may inspire and inform further discovery. For example, it may be sensible to understand the age or stage in life when habitus formation is most relevant to the Graduate School Choice process. Furthermore, it may be helpful to further understand how

CCW informs habitus overall beyond the context of optometry school as this inquiry sought to explain. This is especially important to consider as CCW as a theory may evolve and discover additional forms of capital not yet explored, which may further impact its relation to habitus.

5.3 Next Steps

Given the key findings and implications for practice, next steps toward increasing RM student applications at SFV by 4% by March 1, 2025 may first involve remaining committed to serving RM students by continuing to center them in recruitment. This is especially important considering CCW (habitus) levels decreased in the delayed post-test (two months after the sessions), indicating a potential lack in RM students' retention of the messaging and interest over time that is critical to enrollment. Accordingly, I plan to continue monitoring and engaging with RM student participants to track their Graduate School Choice developments with a shift in focus to applications and enrollment. I furthermore plan to continue offering the "Applying Your Cultural Wealth Toward Your Health Professions Goals" session twice a year (or more) as new information and data develops. Finally, I plan to continue nurturing relationships among all current and future RM student participants and the contacts collected that are known to serve or involve RM students.

Furthermore, next steps may involve further investigation into SFV's characteristics for influencing the Graduate School Choice process (layer 3 of the model). Specifically, since acknowledgement of CCW in recruitment has positive implications on habitus, aspiration, and application for RM students, investigation into potential implications for enrollment is warranted. I plan to do this by working with faculty on the admissions committee to better assess their values,

knowledge, and understanding around CCW. This may inform and help us improve our review and decision-making processes for selecting candidates to the optometry program, especially when standardized criteria are not met (exam performance, for example). Furthermore, considering total costs are a structural barrier that may deter SFV from its goal, conversations and analysis around minimizing this barrier is warranted with the appropriate departments such as the financial aid office and/or the business department.

Finally, next steps may involve further operationalizing CCW beyond acknowledging it in recruitment. This may be achieved by integrating CCW with existing long-term recruitment strategies and support programs for enrolled RM students. SFV's long-term recruitment strategies are sensible to consider as they reach students earlier in the pipeline and allow for more creativity in reaching and serving the population. For example, we may reach RM students by reaching out to community churches' Sunday school programs (or their equivalents across different religions). This may help us sustain our efforts toward increasing RM student applications in the long term, whereas the short-term recruitment programs may assist in the immediate (the aim of this inquiry). SFV's support programs for enrolled students are also valuable to consider since they serve the primary constituents in relation to the aim, RM students, who may assist in advancing us toward our aim.

5.4 Conclusion

Acknowledging CCW in recruitment has positive implications toward increasing RM students' habitus, which may influence their aspiration and application to optometry school. Furthermore, it may improve an organization's ability to attract RM students. Despite the progress

accomplished through this study, structural barriers persist that demand to be considered alongside CCW. This inquiry highlighted the significance of centering and learning with the primary constituents involved in the problem, bringing complex solutions to complex problems, and leading authentically, which are all key implications for a practice connected to growing RM student applications to optometry school or health professions programs more broadly. Furthermore, this inquiry may lead to future research on CCW's influences on habitus more conclusively and layer 3 of the Graduate School Choice model. Next steps should involve scaling knowledge around CCW by continuing to work with RM student participants, assessing the organizational value of CCW in practices related to enrollment, and integrating with long-term recruitment initiatives and support programs, which may further assist the organization toward its aim of increasing RM student applications.

6.0 Reflection

Improvement science prompts rapid tests of change for efficient and useful feedback that inform systems on whether a change is an improvement (Byrk et al., 2015). Having completed the first iteration of the plan, do, study, act (PDSA) with this inquiry, I will reflect on whether this change was an improvement toward increasing RM student applications by 4% by March 1, 2025, the aim of this project. The reflection will be guided by the six core principles relied upon in improvement science.

6.1 Core Principle 1

This improvement inquiry was both problem-specific and user-centered. It addressed a problem that needed improvement, lack of RM student enrollment, and was centered on the user, RM students. Recruitment strategies at SFV were previously devised around previous application and enrollment trends with some degree of consideration given to RM student application data (e.g., institutions where RM students most apply from). However, recruitment programs and their content did not previously center on the direct experiences of RM students. This improvement project, therefore, while too early to determine its effectiveness in increasing RM student applications (the problem), offers a new framework to seek, recruit, and engage RM students (the users). I learned that by doing so, at a minimum, we can increase RM students' sense of habitus by way of their CCW and belonging in the profession of optometry and the College. I expect this

is a positive implication for increasing RM student applications in the long term and confirm it may strengthen the College's diversity, equity, inclusion, and belonging efforts in the short term.

6.2 Core Principle 2

Variation in improvement science concerns what works for an individual and under what set of conditions (Byrk et al., 2015). This improvement inquiry worked for me, Director of Admissions, because I am a racially minoritized professional who has a personal connection, understanding, and investment in the problem. My personal experiences therefore helped me make sense of the concept and ideate how to operationalize it. This may not be the same for other professionals who may not have the same understanding of racially minoritized experiences firsthand, which illuminates the importance of proper training. Considering the users of this problem are RM students, it proved furthermore helpful to involve current RM students in the process, who enriched the session and its overall impact by offering their insights on how their CCW helped them in their health professions journeys. This practice should work reliably across all contexts.

6.3 Core Principle 3

This improvement inquiry was rooted in an examination of the system that produces undesirable outcomes in terms of adequately reaching RM students. It considered an organizational analysis of the problem, my sphere of influence as Director of Admissions, and the stakeholders

connected to the problem. It furthermore considered what has been done in the past surrounding the problem and institutional data on their success and failures. I was able to successfully change processes within the organization, and, as a result, our strategy for recruiting RM students and driving applications from this population is now updated. I was able to bring this change immediately, and it was connected to the problem identified by the College's goals, mission, and strategic initiatives. Finally, this improvement project spanned across several stakeholders and brought together the Director of Admissions, faculty on the Admissions Committee, pre-health advisors, current RM students, and prospective RM students. The admissions department has always had access to various stakeholders, though this improvement project allowed me to orchestrate all stakeholders to be involved and part of the solution. There is the opportunity to scale this out broader in future iterations.

6.4 Core Principle 4

This improvement inquiry was driven by quantitative measurement. It was informed by previous measurements in the field, such as Graduate School Choice, which explained the most influential factors in understanding who aspires to, applies to, and enrolls in graduate education (English & Umbach, 2016). It merged this theory with Yosso's (2005) to make the improvement centered on the experiences of the population we aimed to reach, RM students. It measured whether the improvement, the recruitment session, influenced RM students' aspiration and application to optometry school. While it is too early in the improvement process to determine whether these variables were influenced by the session, I can conclude that their overall sense of CCW was improved. There may be connections with this and their habitus, which is most

influential in determining who will aspire and apply for graduate education. The measurement of this study positions the organization well for future iterations of the study, specifically in reaching RM student populations who were not already aspiring for a career in optometry and scaling out to other areas of the application process.

6.5 Core Principle 5

This improvement inquiry was the first iteration of a continuous Plan, Do, Study, Act cycle. My understanding of the problem by analyzing the organization informed the ‘plan’, consideration of the supporting literature informed the ‘do’, the quantitative analysis of the survey data informed the ‘study’, and the implications for practice informed the ‘act’. Although it is too soon to determine whether the improvement will lead to the aim of increasing RM student applications by 4% by March 1, 2025, there are positive implications that cause me to believe so. I learned that in the future, I can be more strategic about reaching populations not interested in the profession to potentially grow the interest pool and pipeline, work more intentionally with the faculty on the admissions committee to determine how we may consider CCW in the selection process, gather more data on CCW from currently enrolled RM students, and ultimately use the information to potentially impact RM student enrollments.

6.6 Core Principle 6

Given this improvement has not completed its full run of disciplined inquiry, I am not yet ready to accelerate the improvement through networked communities. Among the stakeholders involved, there was collaboration between the faculty, pre-health advisors, and current RM students. In the future, I may present the inquiry in conferences concerning graduate student enrollment such as the National Association of Graduate Admissions Professionals (NAGAP) or the National Association of Medical Minority Educators (NAMME). In fact, this may be considered in a future iteration of the PDSA to learn from colleagues in the field and incorporate adjustments to the process accordingly.

6.7 Conclusion

As the Director of Admissions at an optometry program in Northeastern United States, my thinking, understanding, and experience around the lack of RM student enrollment in the program expanded through this disciplined, improvement science inquiry. I understand that effective solutions require a thorough investigation involving practitioner knowledge, understanding of the system, and review of scholarly and supporting knowledge. Furthermore, I recognize the importance of not setting out for change alone. Actual improvement requires a shift in the system and involvement of stakeholders. While I work within a system, I, as a leader scholar practitioner, am also a system within myself. I am a higher education professional with a Latino/a/x identity and strong passion for bringing inclusive and equitable practices to the field. Consequently, I brought my lived experiences and authentic self to this improvement inquiry, an element that I

believe contributed to my own professional and personal development, but also that of the organization as we aim for a more diverse, equitable, and inclusive student body. As aligned with one of the significant results of this inquiry for RM students, I am moving onto next steps believing "my race/ethnicity is an asset" toward achieving our aim.

Appendix A Permissions

This is a License Agreement between Christian Alberto ("User") and Copyright Clearance Center, Inc. ("CCC") on behalf of the Rightsholder identified in the order details below. The license consists of the order details, the CCC Terms and Conditions below, and any Rightsholder Terms and Conditions which are included below.

All payments must be made in full to CCC in accordance with the CCC Terms and Conditions below.

Order Date	08-Jul-2021	Type of Use	Republish in a thesis/dissertation
Order License ID	1131680-1		
ISSN	0162-5748	Publisher	THE/JOHNS HOPKINS UNIVERSITY PRESS
		Portion	Chart/graph/table/figure

LICENSED CONTENT

Publication Title	Review of higher education	Country	United States of America
		Rightsholder	Johns Hopkins University Press - Journals
Author/Editor	ASSOCIATION FOR THE STUDY OF HIGHER EDUCATION.	Publication Type	Journal
Date	01/01/1978		
Language	English		

REQUEST DETAILS

Portion Type	Chart/graph/table/figure	Distribution	United States
Number of charts / graphs / tables / figures requested	1	Translation	Original language of publication
		Copies for the disabled?	No
Format (select all that apply)	Electronic	Minor editing privileges?	No
Who will republish the content?	Academic institution	Incidental promotional use?	No
Duration of Use	Life of current edition	Currency	USD
Lifetime Unit Quantity	Up to 499		
Rights Requested	Main product		

NEW WORK DETAILS

Title	My race/ethnicity is an asset: Recruiting racially minoritized students to optometry school by acknowledging their community cultural wealth.	Institution name	University of Pittsburgh
		Expected presentation date	2021-07-30
Instructor name	Gina Garcia		

ADDITIONAL DETAILS

Order reference number	N/A	The requesting person / organization to appear on the license	Christian Alberto

REUSE CONTENT DETAILS

Title, description or numeric reference of the portion(s)	Graduate School Choice theoretical model	Title of the article/chapter the portion is from	Graduate School Choice: An Examination of Individual and Institutional Effects
Editor of portion(s)	n/a	Author of portion(s)	ASSOCIATION FOR THE STUDY OF HIGHER EDUCATION.
Volume of serial or monograph	n/a	Issue, if republishing an article from a serial	N/A
Page or page range of portion	181	Publication date of portion	1978-01-01

RIGHTSHOLDER TERMS AND CONDITIONS

The licensee may use no more than two full articles from any one issue of a journal in the new work/product. The licensee may make minor edits (not changing more than 10% of the licensed work portion) as long as such edits do not alter the message or intent of the original material.

SPECIAL RIGHTSHOLDER TERMS AND CONDITIONS

1. A credit line must appear on the copyright page, on the page on which the selection begins, in standard academic citations or in your customary acknowledgment section, as follows: English, David and Paul D. Umbach. "Graduate School Choice:An Examination of Individual and Institutional Effects." The Review of Higher Education 39:2 (2016), 181, Fig. 1. © 2016 Association for the Study of Higher Education. Reprinted with permission of Johns Hopkins University Press. 2. Permission does not apply to any part of the selection (text or graphic material) that is independently copyrighted or bears a separate source notation. The responsibility for determining the source of the material rests with the prospective publisher of the reprinted material. 3. This agreement includes permission to reproduce the material in Braille, large type, audio cassette, or other forms solely for free distribution to persons with visual or physical disabilities. 4. This non-exclusive agreement covers English language world rights for this edition only. 5. This agreement does not allow the use of our material in any other edition or by any additional means of reproduction including, but not limited to, television and motion picture productions, sound tapes and other audio recordings; and electronic formats, including but not limited to, web site use and CD-ROMs; nor does this permission include book clubs, translations, abridgments, or selections of the publication. EXCEPTION: Permission is granted for e-book use.

CCC Terms and Conditions

1. Description of Service; Defined Terms. This Republication License enables the User to obtain licenses for republication of one or more copyrighted works as described in detail on the relevant Order Confirmation (the "Work(s)"). Copyright Clearance Center, Inc. ("CCC") grants licenses through the Service on behalf of the rightsholder identified on the Order Confirmation (the "Rightsholder"). "Republication", as used herein, generally means the inclusion of a Work, in whole or in part, in a new work or works, also as described on the Order Confirmation. "User", as used herein, means the person or entity making such republication.

2. The terms set forth in the relevant Order Confirmation, and any terms set by the Rightsholder with respect to a particular Work, govern the terms of use of Works in connection with the Service. By using the Service, the person transacting for a republication license on behalf of the User represents and warrants that he/she/it (a) has been duly authorized by the User to accept, and hereby does accept, all such terms and conditions on behalf of User, and (b) shall inform User of all such terms and conditions. In the event such person is a "freelancer" or other third party independent of User and CCC, such party shall be deemed jointly a "User" for purposes of these terms and

conditions. In any event, User shall be deemed to have accepted and agreed to all such terms and conditions if User republishes the Work in any fashion.

3. Scope of License; Limitations and Obligations.

3.1. All Works and all rights therein, including copyright rights, remain the sole and exclusive property of the Rightsholder. The license created by the exchange of an Order Confirmation (and/or any invoice) and payment by User of the full amount set forth on that document includes only those rights expressly set forth in the Order Confirmation and in these terms and conditions, and conveys no other rights in the Work(s) to User. All rights not expressly granted are hereby reserved.

3.2. General Payment Terms: You may pay by credit card or through an account with us payable at the end of the month. If you and we agree that you may establish a standing account with CCC, then the following terms apply: Remit Payment to: Copyright Clearance Center, 29118 Network Place, Chicago, IL 60673-1291. Payments Due: Invoices are payable upon their delivery to you (or upon our notice to you that they are available to you for downloading). After 30 days, outstanding amounts will be subject to a service charge of 1-1/2% per month or, if less, the maximum rate allowed by applicable law. Unless otherwise specifically set forth in the Order Confirmation or in a separate written agreement signed by CCC, invoices are due and payable on "net 30" terms. While User may exercise the rights licensed immediately upon issuance of the Order Confirmation, the license is automatically revoked and is null and void, as if it had never been issued, if complete payment for the license is not received on a timely basis either from User directly or through a payment agent, such as a credit card company.

3.3. Unless otherwise provided in the Order Confirmation, any grant of rights to User (i) is "one-time" (including the editions and product family specified in the license), (ii) is non-exclusive and non-transferable and (iii) is subject to any and all limitations and restrictions (such as, but not limited to, limitations on duration of use or circulation) included in the Order Confirmation or invoice and/or in these terms and conditions. Upon completion of the licensed use, User shall either secure a new permission for further use of the Work(s) or immediately cease any new use of the Work(s) and shall render inaccessible (such as by deleting or by removing or severing links or other locators) any further copies of the Work (except for copies printed on paper in accordance with this license and still in User's stock at the end of such period).

3.4. In the event that the material for which a republication license is sought includes third party materials (such as photographs, illustrations, graphs, inserts and similar materials) which are identified in such material as having been used by permission, User is responsible for identifying, and seeking separate licenses (under this Service or otherwise) for, any of such third party materials; without a separate license, such third party materials may not be used.

3.5. Use of proper copyright notice for a Work is required as a condition of any license granted under the Service. Unless otherwise provided in the Order Confirmation, a proper copyright notice will read substantially as follows: "Republished with permission of [Rightsholder's name], from [Work's title, author, volume, edition number and year of copyright]; permission conveyed through Copyright Clearance Center, Inc. " Such notice must be provided in a reasonably legible font size and must be placed either immediately adjacent to the Work as used (for example, as part of a by-line or footnote but not as a separate electronic link) or in the place where substantially all other credits or notices for the new work containing the republished Work are located. Failure to include the required notice results in loss to the Rightsholder and CCC, and the User shall be liable to pay liquidated damages for each such failure equal to twice the use fee specified in the Order Confirmation, in addition to the use fee itself and any other fees and charges specified.

3.6. User may only make alterations to the Work if and as expressly set forth in the Order Confirmation. No Work may be used in any way that is defamatory, violates the rights of third parties (including such third parties' rights of copyright, privacy, publicity, or other tangible or intangible property), or is otherwise illegal, sexually explicit or obscene. In addition, User may not conjoin a Work with any other material that may result in damage to the reputation of the Rightsholder. User agrees to inform CCC if it becomes aware of any infringement of any rights in a Work and to cooperate with any reasonable request of CCC or the Rightsholder in connection therewith.

4. Indemnity. User hereby indemnifies and agrees to defend the Rightsholder and CCC, and their respective employees and directors, against all claims, liability, damages, costs and expenses, including legal fees and expenses, arising out of any use of a Work beyond the scope of the rights granted herein, or any use of a Work which has been altered in any unauthorized way by User, including claims of defamation or infringement of rights of copyright, publicity, privacy or other tangible or intangible property.

5. Limitation of Liability. UNDER NO CIRCUMSTANCES WILL CCC OR THE RIGHTSHOLDER BE LIABLE FOR ANY DIRECT, INDIRECT, CONSEQUENTIAL OR INCIDENTAL DAMAGES (INCLUDING WITHOUT LIMITATION DAMAGES FOR LOSS OF BUSINESS PROFITS OR INFORMATION, OR FOR BUSINESS INTERRUPTION) ARISING OUT OF THE USE OR INABILITY TO USE A WORK, EVEN IF ONE OF THEM HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. In any event, the total liability of the Rightsholder and CCC (including their respective employees and directors) shall not exceed the total amount actually paid by User for this license. User assumes full liability for the actions and omissions of its principals, employees, agents, affiliates, successors and assigns.

6. Limited Warranties. THE WORK(S) AND RIGHT(S) ARE PROVIDED "AS IS". CCC HAS THE RIGHT TO GRANT TO USER THE RIGHTS GRANTED IN THE ORDER CONFIRMATION DOCUMENT. CCC AND THE RIGHTSHOLDER DISCLAIM ALL OTHER WARRANTIES RELATING TO THE WORK(S) AND RIGHT(S), EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ADDITIONAL RIGHTS MAY BE REQUIRED TO USE ILLUSTRATIONS, GRAPHS, PHOTOGRAPHS, ABSTRACTS, INSERTS OR OTHER PORTIONS OF THE WORK (AS OPPOSED TO THE ENTIRE WORK) IN A MANNER CONTEMPLATED BY USER; USER UNDERSTANDS AND AGREES THAT NEITHER CCC NOR THE RIGHTSHOLDER MAY HAVE SUCH ADDITIONAL RIGHTS TO GRANT.

7. Effect of Breach. Any failure by User to pay any amount when due, or any use by User of a Work beyond the scope of the license set forth in the Order Confirmation and/or these terms and conditions, shall be a material breach of the license created by the Order Confirmation and these terms and conditions. Any breach not cured within 30 days of written notice thereof shall result in immediate termination of such license without further notice. Any unauthorized (but licensable) use of a Work that is terminated immediately upon notice thereof may be liquidated by payment of the Rightsholder's ordinary license price therefor; any unauthorized (and unlicensable) use that is not terminated immediately for any reason (including, for example, because materials containing the Work cannot reasonably be recalled) will be subject to all remedies available at law or in equity, but in no event to a payment of less than three times the Rightsholder's ordinary license price for the most closely analogous licensable use plus Rightsholder's and/or CCC's costs and expenses incurred in collecting such payment.

8. Miscellaneous.

   8.1. User acknowledges that CCC may, from time to time, make changes or additions to the Service or to these terms and conditions, and CCC reserves the right to send notice to the User by electronic mail or otherwise for the purposes of notifying User of such changes or additions; provided that any such changes or additions shall not apply to permissions already secured and paid for.

   8.2. Use of User-related information collected through the Service is governed by CCC's privacy policy, available online here:https://marketplace.copyright.com/rs-ui-web/mp/privacy-policy

   8.3. The licensing transaction described in the Order Confirmation is personal to User. Therefore, User may not assign or transfer to any other person (whether a natural person or an organization of any kind) the license created by the Order Confirmation and these terms and conditions or any rights granted hereunder; provided, however, that User may assign such license in its entirety on written notice to CCC in the event of a transfer of all or substantially all of User's rights in the new material which includes the Work(s) licensed under this Service.

   8.4. No amendment or waiver of any terms is binding unless set forth in writing and signed by the parties. The Rightsholder and CCC hereby object to any terms contained in any writing prepared by the User or its principals, employees, agents or affiliates and purporting to govern or otherwise relate to the licensing

transaction described in the Order Confirmation, which terms are in any way inconsistent with any terms set forth in the Order Confirmation and/or in these terms and conditions or CCC's standard operating procedures, whether such writing is prepared prior to, simultaneously with or subsequent to the Order Confirmation, and whether such writing appears on a copy of the Order Confirmation or in a separate instrument.

8.5. The licensing transaction described in the Order Confirmation document shall be governed by and construed under the law of the State of New York, USA, without regard to the principles thereof of conflicts of law. Any case, controversy, suit, action, or proceeding arising out of, in connection with, or related to such licensing transaction shall be brought, at CCC's sole discretion, in any federal or state court located in the County of New York, State of New York, USA, or in any federal or state court whose geographical jurisdiction covers the location of the Rightsholder set forth in the Order Confirmation. The parties expressly submit to the personal jurisdiction and venue of each such federal or state court.If you have any comments or questions about the Service or Copyright Clearance Center, please contact us at 978-750-8400 or send an e-mail to support@copyright.com.

v 1.1

Whose culture has capital? A critical race theory discussion of community cultural wealth

Author: Tara J. Yosso *
Publication: Race Ethnicity and Education
Publisher: Taylor & Francis
Date: Mar 1, 2005

Rights managed by Taylor & Francis

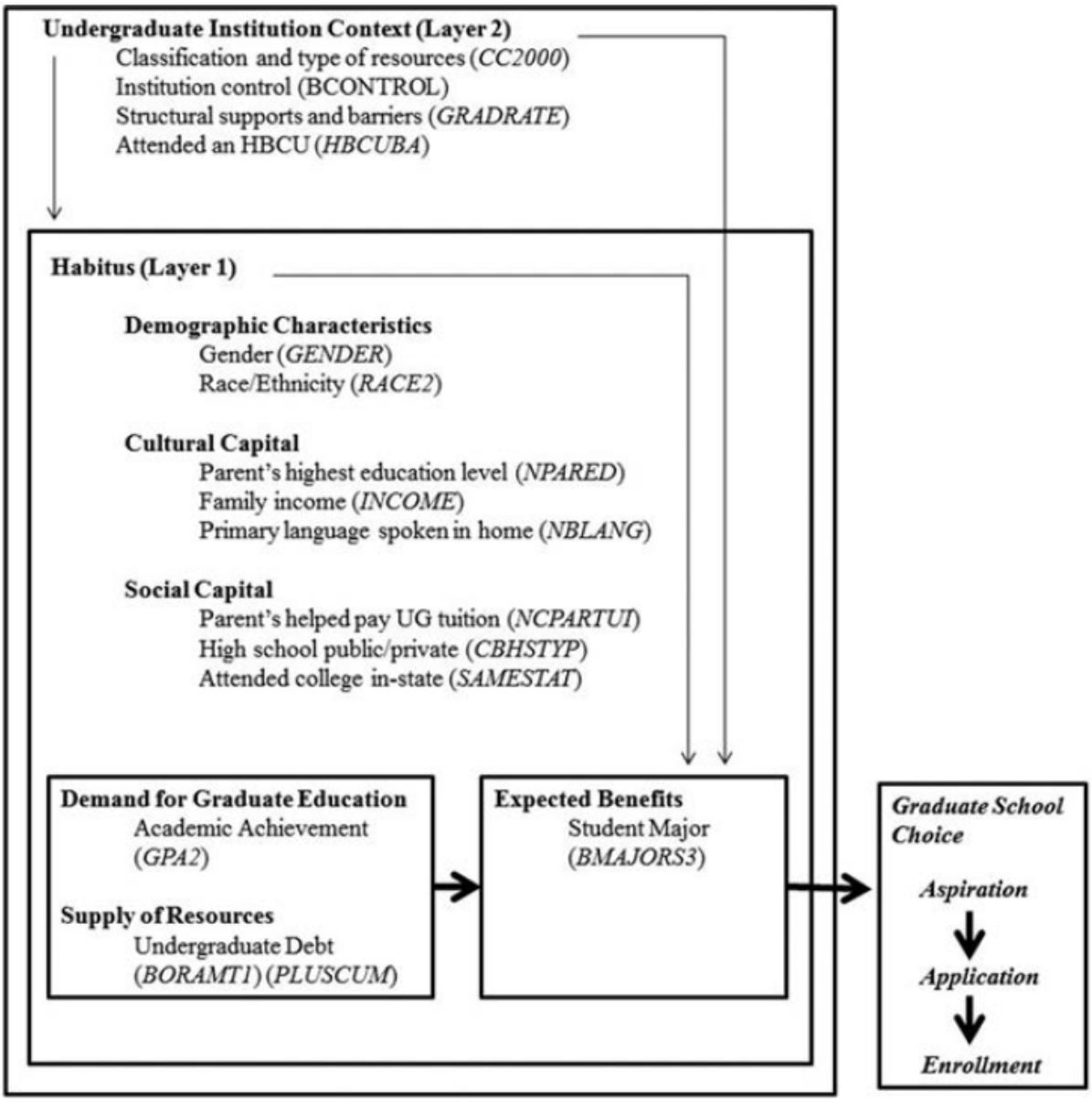
Thesis/Dissertation Reuse Request

Taylor & Francis is pleased to offer reuses of its content for a thesis or dissertation free of charge contingent on resubmission of permission request if work is published.

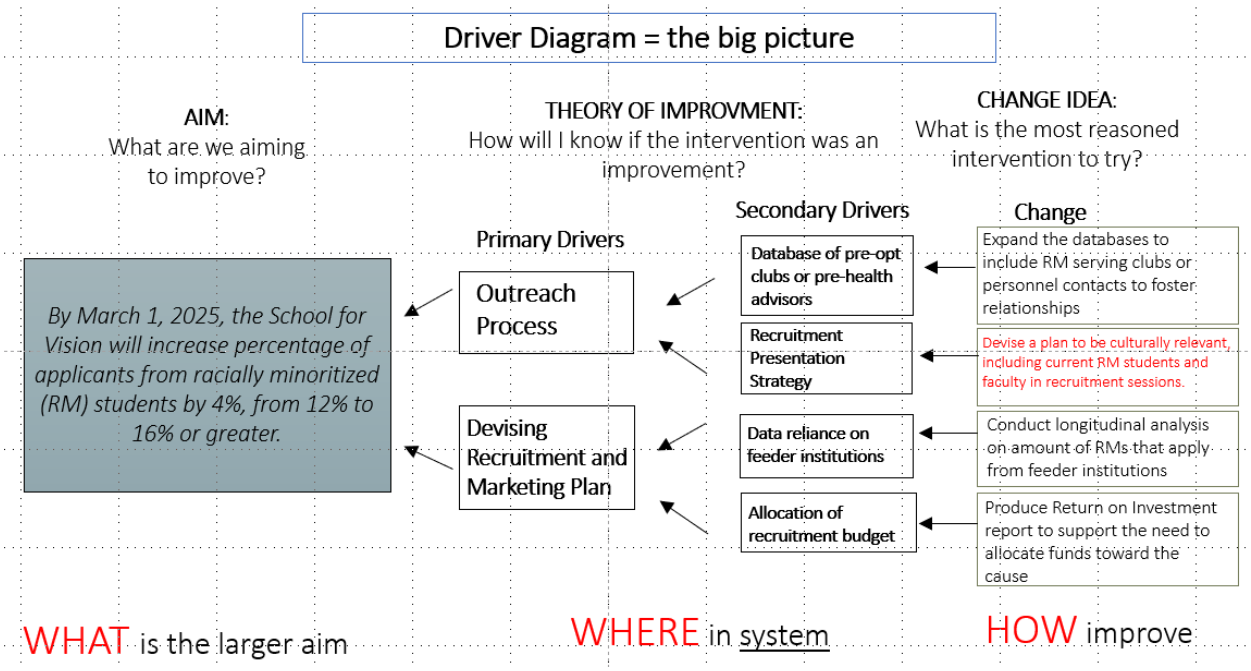
BACK CLOSE

© 2021 Copyright - All Rights Reserved | Copyright Clearance Center, Inc. | Privacy statement | Terms and Conditions
Comments? We would like to hear from you. E-mail us at customercare@copyright.com

Appendix B English's and Umbach's (2016) Graduate School Choice Framework



Appendix C Driver Diagram for Improvement Inquiry AIM



Appendix D Invitation to Participate in the School for Vision's Improved Recruitment Session

Hello colleagues and friends,

I hope this message finds you all well and in good health. For those of you who do not know me, my name is Christian Alberto, and I am the Director of Admissions at the School for Vision. We have worked with many of your SFPP programs in the past and always appreciate supporting your students through their UG journeys. Accordingly, the purpose of my email is to invite your students to a new recruitment session titled "Applying Your Cultural Wealth Toward Your Health
Professions Goals."

Goal of Session

Over the course of a 90-minute ZOOM session, two purposes will unfold; to expose/attract racially minoritized students (RM – Black or African American, Latino/a/x, or American Indian) to the profession of optometry and acknowledge the community cultural wealth that will serve them as future health professions applicants, students, and health care providers. While optometry will be the focus/example used, insights from the sessions can be applied to any health profession. The session will include a current faculty clinician and an enrolled RM student(s), all of whom may serve as resources for participants' future goals.

Participating in Session

While all students are invited to participate, the session is targeted for students who identify with an RM background detailed above. Participating in the session will not impact future admissions decisions, rather, offer participants' support in navigating and being successful future applicants to health professions programs.

- RSVP Here (link)

Please help share the attached invitation with your students, especially RM students. ***If you have access to RM students in other support programs such as EOP or SEEK, or organizations such as M.A.P.S., please feel free to extend this invitation to those students as well.*** Important to note:

- Students do not need to have an interest in optometry to participate, rather health professions or STEM more broadly.
- There will be an optional survey participants can choose to complete during the session. The survey will be introduced at the start of the session.

I'm very hopeful about the opportunity to celebrate and support your students in achieving their goals. Thank you in advance for your support,

Christian Alberto, MSEd

Appendix E Invitation to Participate in Survey on Racially Minoritized Students' CCW (Habitus), Aspiration, and Application to Optometry School

Hello Undergraduate Students,

Thank you for RSVP'ing to attend *"Applying Your Cultural Wealth Toward Your Health Professions Goals"* session. As mentioned, this session is meant to support RM students' by sharing insights on how cultural wealth can be applied to health professions admissions processes and future career goals.

Prior to attending the session, we kindly seek your participation in a **25-question survey** around your experiences as undergraduate pre-health students, specifically your cultural wealth and aspiration to optometry school/health professions**. The survey will be introduced again at the start and end of the session.** The survey is intended for a research study being conducted at the University of Pittsburgh and the information collected will be used to inform future recruitment sessions developed for RM students at SFV.

Important to note:

Your survey participation is voluntary, and you can opt out of survey participation at any time. Completing the survey is not a requirement to participate in the session. Participating in the survey or not will not have any impact on your relationship with SFV, instead offer more informed and potentially improved recruitment programs for you in the future. This is the benefit of participating in the survey.

While your preferred email address will be collected in the survey, it will be used to send future iterations of the survey as **we will also seek your participation in a survey immediately after the session and 2-months after the session.** Your email address will be coded with a unique ID which will be used to connect your survey responses. Your information will be accessible to the Director of Admissions and research group at the University of Pittsburgh.

All data will be stored securely in the Qualtrics system, and your identifying information will be stored separately from survey responses. This will minimize the risks associated with a potential but unlikely breach of confidentiality.

- Link to survey here

Thanks in advance. We look forward to learning more about your experiences and supporting you throughout to your health professions journeys.

With gratitude,

Christian Alberto, MSEd

Appendix F Survey on Racially Minoritized Students' CCW (Habitus), Aspiration, and Application to Optometry School

Page 1 – "By checking this box, I agree to complete this survey for SFV assessment purposes solely." **(Required question)**

Demographic Information

1. Class Year:
2. Institution:
3. Major:
4. GPA:
5. Race/ethnicity:
6. Gender:
7. First-generation college student? Y/N

Habitus (Community Cultural Wealth)

Please rate your level of agreement with the following statements on questions #9 - 17 (4 – Agree, 3 – Somewhat agree, 2 – Somewhat disagree, 1 – Disagree):

8. My race/ethnicity is an asset toward becoming a future health care professional.
9. My language (other than English) is an asset toward becoming a future health care professional.
10. My style of language (English) is an asset toward becoming a future health care professional.
11. Health professions schools' value my racial/ethnic background in the application process.
12. Health professions schools need more students who are of the same racial/ethnic background as me.
13. My social networks are a resource for becoming a future health care professional.
14. I have access to family and friends who can help me successfully apply to health professions schools.

15. I have access to professionals and mentors who can help me successfully apply to health professions schools.
16. I have been exposed to health professionals who are of the same racial/ethnic background as me.

17. Which of the following resources do you have access to for support through health professions programs' application process (select all that apply):
    a. Pre-health Advisor
    b. Opportunity program advisor (e.g., SFPP, EOP, etc.)
    c. Faculty at my UG campus
    d. Faculty at health professions program(s)
    e. Practicing health professional
    f. Admissions representative from health professions program(s)
    g. Friends from my local (home) community
    h. Friends from my undergraduate campus
    i. Family members
    j. Current students in health professions programs
    k. Students from professional/affiliated organization (e.g., Greek organizations, student clubs, etc.)
    l. Mentor

18. Rate your confidence level in applying to a health professions program:
    4. I am confident about applying to a health professions program.
    3. I am somewhat confident about applying to a health professions program.
    2. I am less confident about applying to a health professions program.
    1. I am not confident about applying to a health professions program.

Aspiration for Optometry

19. Which of the following statements accurately describes your aspiration for pursuing a career in optometry:
    4. I know optometry is the right career for me.

3. I am leaning toward a career in optometry.
2. I am unlikely to pursue a career in optometry.
1. I know optometry is not the right career for me

20. Which of the following statements accurately describes your aspiration for applying to optometry school:
    4. I will apply to optometry school.
    3. I am leaning toward applying to optometry school.
    2. I am unlikely to apply to optometry school.
    1. I will not apply to optometry school.

Participation/Exploration in Optometry

21. Have you participated in any of the following SFV recruitment/exploration programs? (Select all that apply)
    a. Registered for SFV's Open House
    b. Attended SFV's Open House
    c. Applied for SFV's SFPP Internship Program
    d. Participated in SFV's SFPP Internship Program
    e. Inquired about a SFV Campus Tour
    f. Attended a SFV Campus Tour
    g. Contacted an optometrist to shadow
    h. Shadowed an optometrist
    i. Contacted a SFV admissions representative
    j. Contacted a SFV faculty member
    k. Contacted a SFV student
    l. Initiated an application to SFV
    m. Applied to SFV

Open-ended Questions

22. What information is most helpful to learn about during health professions recruitment/information sessions?

23. If there were to be one thing holding you back from applying to a health professions program, what would it be?

24. If you have so far applied, or will apply, to a health professions program, what was/is most influential in the process?

Appendix G Recruitment Session Agenda

Applying Your Cultural Wealth Toward Your Health Professions Goals Session

Wednesday, November 18th and Monday, November 23rd; 7:00 - 8:30 PM EST

- 7:00 - 7:10 PM - Welcome, Introductions, Pre-survey completion
- 7:10 - 7:30 PM - Cultural Wealth Bingo Conversation
- 7:30 - 7:35 PM - Yosso's Cultural Wealth Overview
- 7:35 - 7:50 PM - Healthcare as a Means for Serving and Uplifting Communities, Faculty
- 7:50 - 8:20 PM - Success Storytelling by Current RM Students
- 8:20 - 8:30 PM - Additional resources and Staying connected
- 8:30 PM - Optional Q&A "stay a while"

Appendix H Community Cultural Wealth Bingo / SFV Enrolled RM Student Involvement

I) **Start session with**: Game of Life/Bingo prompts

Sentence to keep in the back of our minds to keep things tied in:

"How have I pulled from my cultural wealth to meet the demands of a career in optometry?"

1. I am the only English speaker in the family.
2. I will be the first college graduate in my family.
3. I worked a part time job during high school or college to help support my family.
4. I help(ed) care for my siblings and/or have responsibilities in the home.
5. I navigated the college application process on my own.
6. I speak another language.
7. I help(ed) my siblings through school.
8. I come from a low-income family.
9. Teachers told me I would not graduate college (or pass a course).
10. I take part in religious practices and worship.
11. I was born outside of the US.
12. I have never traveled outside the US.
13. I have been the only person of my race in a room.
14. My family owns a business.
15. I grew up in an urban area.
16. I attended public school.
17. I took public transportation to school.
18. I live(d) with my extended family.

<u>Transitional question into the introduction of community cultural wealth</u> "How has your culture helped you get to where you are today? How will your culture help you in the future?"

II) **Questions following bingo to better understand participants:**

- What exposures have you had to optometry thus far?
- Are you exploring other fields of health care? And what pros do you see about pursuing a career in optometry...especially as a minority? (Guide conversation towards the impacts that can be made on the growth and development of communities through eyecare: such as increased productivity, children being able to excel at school, etc.).
- What makes you want a career in the health field? (Is their cultural wealth a motivation?)

IV) **Split the undergraduate / application processes in three parts and each volunteer will share their story on one of the parts**

Personal Stories- How has your cultural wealth helped you navigate:

1. **Academic**
    a. The OAT
        i. What test preps were used, what test preps would you recommend?
        ii. What programs give discounts?
            - DAT bootcamp (has a new package w/ physics instead of percept ability)
        iii. Free, self-study tools (ex: YouTube sources)
    b. Prerequisites

2. **Professional**
    a. Shadowing
    b. Research experience
    c. Building relationships with mentors/Recommenders
    d. Internships
    e. Scholarships
        i. Crack the OAT scholarship

ii. Hispanic Scholarship Fund

iii. Congressional Black Caucus Scholarship

iv. United Health Louis Stoke Scholarship

3. Personal

a. Personal Statement/Supplement Essays

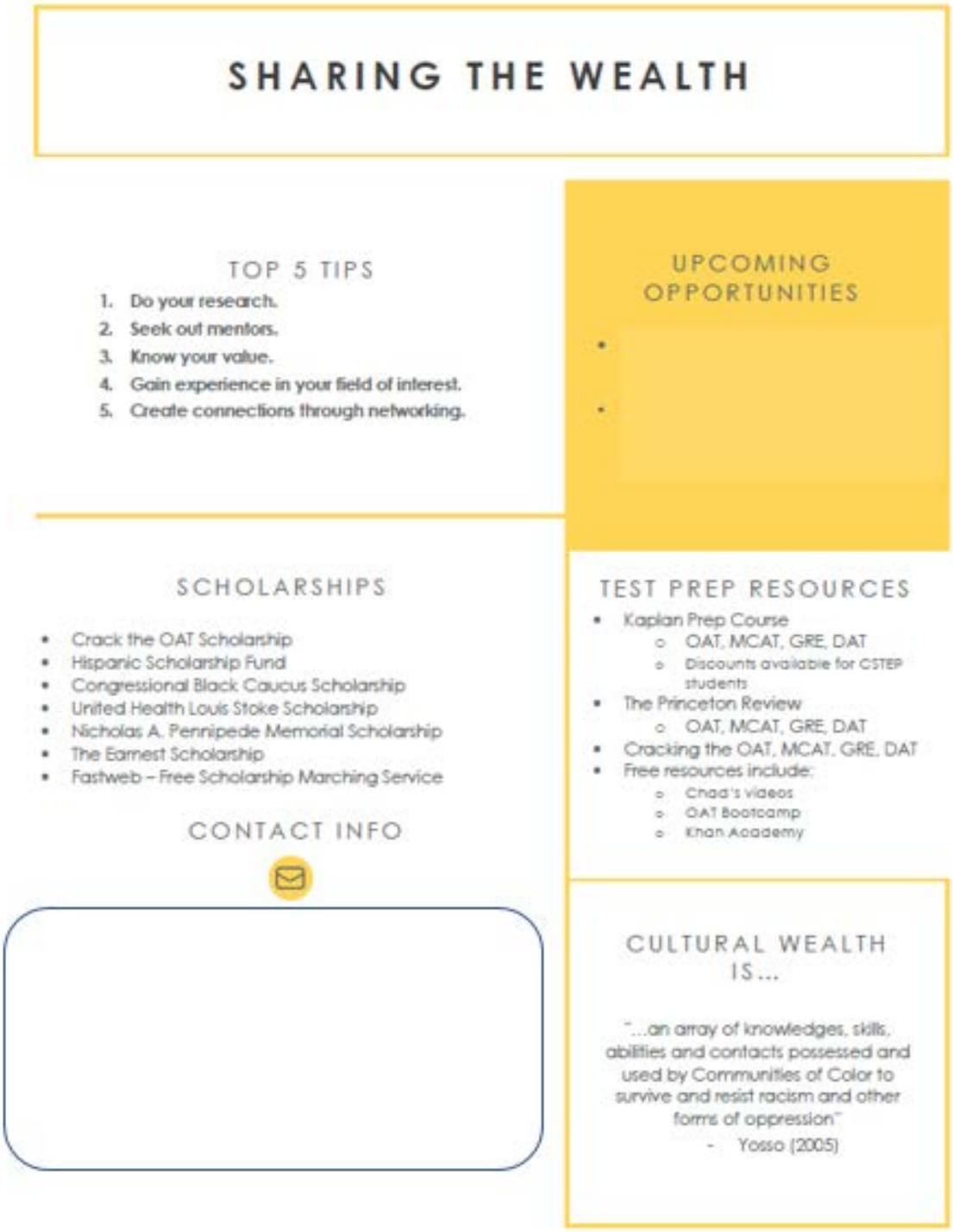
- DAT bootcamp essay review service
- College campus writing center

b. Hobbies & interests and how they stem from cultural background and how optometry-- being such a diverse field-- will enable you to find a way to apply whatever it is that interests you.

V) **Providing participants with resources to further explore their interests and passions, connecting them to SFV and optometry**

- Black Eye Care Perspective-- mentorship & guidance geared towards minorities (focus on creating a pipeline for black students into optometry)
- Affordable access to OAT prep resources—e.g., discount to Kaplan through pre-health clubs (via Kaplan campus ambassadors)

Appendix I Sharing the Wealth Resource Guide (Post-Session)



Appendix J Institutional Review Board (IRB) Exemption Approval

University of Pittsburgh | Institutional Review Board
Office of Research Protections

EXEMPT DETERMINATION

Date:	November 11, 2020
IRB:	STUDY20080155
PI:	Christian Alberto
Title:	Updating the Optometry School Application and Admissions Processes: Acknowledging Racially Minoritized Students' Cultural Wealth in Recruitment
Funding:	None

The Institutional Review Board reviewed and determined the above referenced study meets the regulatory requirements for exempt research under 45 CFR 46.104.

Determination Documentation

Determination Date:	11/11/2020
Exempt Category:	(2)(ii) Tests, surveys, interviews, or observation (low risk), (2)(iii) Tests, surveys, interviews, or observation (identifiable); and for which limited IRB review was conducted via expedited review

Approved Documents:	• Appendix E - Survey Script_Updated.docx • Appendix F - Letter to Advisors.docx • Appendix G - Invitation to Students.docx • Appendix H - Invitation to Survey Script.docx • CA_Exempt Application • CA_IRB Permission Letter.docx

Bibliography

Acevedo-Gil, N. (2017). College-conocimiento: Toward an interdisciplinary college choice framework for latinx students. *Race Ethnicity and Education, 20*(6), 829-850. https://doi10.1080/13613324.2017.1343294

Alfaro, D. D., O'Reilly-Diaz, K., & Lopez, G. R. (2014). Interrogating the nuances of Latino parent involvement. *Multicultural Education, 21*(2-3), 11-16.

Allen-Ramdial, S. A., & Campbell, A. G. (2014). Reimagining the pipeline: Advancing stem diversity, persistence, and success. *BioScience, 64*(7), 612-618.

Altman, D. G., & Bland, J. M. (2009). Parametric v non-parametric methods for data analysis. *The BMJ*, https://doi.org/10.1136/bmj.a3167

American Dental Association. (2020). Survey of dental education – Report 1. https://www.ada.org/~/media/ADA/Science%20and%20Research/HPI/Files/SDE1_2019-20.xlsx?la=en

Andersen, R. M., Friedman, J., Carreon, D. C., Bai, J., Nakazono, T. A., Afifi, A., & Gutierrez, J. J. (2009). Recruitment and retention of underrepresented minority and low-income dental students: Effects of the pipeline program. *Journal of Dental Education, 73*(2), 238-258. https://doi.org/10.1002/j.0022-0337.2009.73.2_suppl.tb04686.x

Association of American Medical Colleges. (2019). Diversity in medicine: Facts and figures 2019. Figure 8. Percentage of matriculants to U.S. medical schools by race/ethnicity (alone), academic year 2018-2019. https://www.aamc.org/data-reports/workforce/interactive-data/figure-8-percentage-matriculants-us-medical-schools-race/ethnicity-alone-academic-year-2018-2019

Association of Schools and Colleges of Optometry. (2021). Applicant/student profile and prerequisites. https://optometriceducation.org/future-students/resources/applicant-student-profile-and-prerequisites/

Becker, G. S. (1962). Investment in human capital: A theoretical analysis. *The Journal of Political Economy, 70*(5), 9–49.

Bernhardt, V. (2004). *Data analysis for continuous school improvement* (2nd ed.) Routledge.

Betancourt, J. R., Green, A. R., Carrillo, J. E., & Ananeh-Firempong, O. (2003). Defining cultural competence: A practical framework for addressing racial/ethnic disparities in health and health care. *Public Health Reports, 118*(4), 293-302. https://doi.org/10.1016/S0033-3549(04)50253-4

Boone, H. N., & Boone, D. A. (2012). Analyzing likert data. *Journal of Extension, 50*(2).

Buchmueller, T. C., & Levy, H. G. (2020). The ACA's impact on racial and ethnic disparities in health insurance coverage and access to care. *Health Affairs 2020, 39*(3), 395-402. https://doi.org/10.1377/hlthaff.2019.01394

Burt, B. A., Johnson, J. T. (2018). Origins of early STEM interest for Black male graduate students in engineering: A community cultural wealth perspective. *School Science and Mathematics 2018, 118,* 257-270. https://doi.org/10.1111/ssm.12294

Byrk, A. S., Gomez, L., Grunow, A., LaMahieu, P. (2015). *Learning to improve: How America's schools can get better at getting better.* Harvard Education Publishing.

Carnevale, A. P., & Strohl, J. (2013). *Separate and unequal: How higher education reinforces the intergenerational reproduction of white racial privilege.* Georgetown University.

Drost, E. A. (2011). Validity and reliability in social science research. *Education Research and Perspectives, 38*(1). 105-123.

Dumais, S. A. (2002). Cultural capital, gender, and school success: The role of habitus. *Sociology of Education, 75*(1), 44–68. https://doi.org/10.2307/3090253

Dunning, H., Williams, A., Abonyi, S., & Crooks, V. (2008). A mixed method approach to quality of life research: A case study approach. *Social Indicators Research, 85*(1), 145-158. https://doi.org/10.1007/s11205-007-9131-5

English, D., & Umbach P. D. (2016). Graduate school choice: An examination of individual and institutional effects. *The Review of Higher Education, 39*(2), 173-211. https://doi.org/10.1353/rhe.2016.0001

Espino, M. M. (2014). Exploring the role of community cultural wealth in graduate school access and persistence for Mexican American PhDs. *American Journal of Education, 120*(4), 545-574. https://doi.org/10.1086/676911

Figueroa, T., Hurtado, S., Wilkins, A. (2015). *Black stem students and the opportunity structure.* Association for Institutional Research. https://heri.ucla.edu/nih/downloads/AIR2015-Black-STEM-Students-and-the-Opportunity-Structure.pdf

Freeman, B. K., Landry, A., Trevino, R., Grande, D., & Shea, J. (2016). Understanding the leaky pipeline: Perceived barriers to pursuing a career in medicine or dentistry among underrepresented-in-medicine undergraduate students. *Academic Medicine, 91*(7), 987-993.

Galesic, M. (2006). Dropouts on the web: Effects of interest and burden experienced during an online survey. *Journal of Official Statistics, 22*(2), 313-328. https://doi.org/10.1097/ACM.0000000000001020

Garces, L. M., & Jayakumar, U. M. (2014). Toward a contextual understanding of critical mass. *Educational Researcher, 43*(3), 115-124. https://doi.org/10.3102/0013189X14529814

Garvey Berger, J. & Johnston, K. (2015). *Simple habits for complex times: Powerful practices for leaders*. Stanford Business Books.

Gibbs, G. R. (2007). *Analyzing qualitative data.* SAGE. https://dx.doi.org/10.4135/9781849208574

Gotian, R., Raymore, J. C., Rhooms, S., Liberman, L., & Anderson, O. S. (2017). Gateways to the laboratory: How an MD-PhD program increased the number of minority physician-scientists. *Academic Medicine, 92(5),* 628-634. https://doi.org/10.1097/ACM.0000000000001478

Griffin, K. A., Muniz, M. M. (2011). The strategies and struggles of graduate diversity officers in the recruitment of doctoral students of color. *Equity & Excellence in Education, 44*(1), 57-76. https://doi.org/10.1080/10665684.2011.540961

Hall, W. J., Chapman, M. V., Lee, K. M., Merino, Y. M., Thomas, T. W., Payne, B. K., … Coyne-Beasley, T. (2015). Implicit racial/ethnic bias among health care professionals and its influence on health care outcomes: A systematic review. *American Journal of Public Health, 105*(12), 60-76. https://doi.org/10.2105/AJPH.2015.302903a

Kendricks, K., Nedunuri, K. V., & Anthony, A. R. (2013). Minority student perceptions of the impact of mentoring to enhance academic performance in stem disciplines. *Journal of STEM Education, 14*(2), 38-46.

Lacy, E. S., McCann, A. L., Miller, B. H., Solomon, E., & Reuben, J. S. (2012). Achieving student diversity in dental schools: A model that works. *Journal of Dental Education,76*(5), 523-533. https://doi.org/10.1002/j.0022-0337.2012.76.5.tb05285.x

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry.* SAGE.

Loeb, S., Dynarski, S., McFarland, D., Morris, P., Reardon, S., & Reber, S. (2017). *Descriptive analysis in education: A guide for researchers.* National Center for Education Evaluation and Regional Assistance.

Means, D. R., Hudson, T. R., & Tish, E. (2019). A snapshot of college access and inequity: Using photography to illuminate pathways to higher education for underserved youth. *The High School Journal, 102*(2), 139-158. https://doi.org/10.1353/hsj.2019.0003

McGee, R., Saran, S., & Krulwich, T. (2012). Diversity in the biomedical research workforce: Developing talent. *Mount Sinai Journal of Medicine, 79*(3), 397-411. https://doi.org/10.1002/msj.21310

Millet, C. M. (2003). How undergraduate loan debt affects application and enrollment in graduate or first professional school. *The Journal of Higher Education, 74*(4). 386-427. https://doi.org/10.1353/jhe.2003.0030

National Optometric Association (n.d.). *History of the national optometric association*. https://nationaloptometricassociation.com/about-us/our-history/

National Science Foundation. (2009). *Doctorate recipients from U.S. universities: Summary report 2007–08*. http://www.nsf.gov/statistics/nsf10309/

Norman, G. (2010). Likert scales, levels of measurement and the "laws" of statistics. *Advances in Health Sciences Education, 15*(5), 625–632. https://doi.org/10.1007/s10459-010-9222-y

Nunez, A., & Bowers, A. (2011). Exploring what leads high school students to enroll in Hispanic-serving institutions: A multilevel analysis. *American Education Research Journal, 48*(6), 1286-1313. https://doi.org/10.3102/0002831211408061

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health and Mental Health Services Research, 42*(5), 533–544. https://doi.org/10.1007/s10488-013-0528-y

Paulsen, M. B. & Toutkoushian, R. K. (2008). Economic models and policy analysis in higher education: A diagrammatic exposition. In J. C. Smart (Ed.), *Higher education: Handbook of theory and research* (pp. 1–48). Springer. https://doi.org/10.1007/978-1-4020-6959-8_1

Perna, L. W. (2004). Understanding the decision to enroll in graduate school: Sex and racial/ethnic group differences. *The Journal of Higher Education, 75*(5), 487-527.

Perna, L. W. (2006). Studying college access and choice: A proposed conceptual model. In J. C. Smart (Ed.), *Higher education: Handbook of theory and research* (pp. 99-157). Springer. https://doi.org/10.1007/1-4020-4512-3_3

Posselt, J. (2016). *Inside graduate admissions: Merit, diversity, and faculty gatekeeping.* Harvard University Press.

Ramirez, E. (2013). Examining Latinos/as graduate school choice process: An intersectionality perspective. *Journal of Hispanic Higher Education, 12*(1), 23-36. https://doi.org/10.1177/1538192712452147

Rios-Aguilar, C., Marquez Kiyama, J., Gravitt, M., Moll, L. C. (2011). Funds of knowledge for the poor and forms of capital for the rich? A capital approach to examining funds of knowledge. *Theory and Research in Education, 92*(2), 163-184. https://doi.org/10.1177/1477878511409776

Rogers, M. M., Molina, L. E. (2006). Exemplary efforts in psychology to recruit and retain graduate students of color. *American Psychologist, 61*(2), 143-156. https://doi.org/10.1037/0003-066X.61.2.143

Pinheiro, J. C., & Bates, D. M. (2000). *Mixed-effects models in S and S-PLUS.* Springer. https://doi.org/10.1007/0-387-22747-4_1

Saha, S., Arbelaez, J. J., & Cooper, L. A. (2003). Patient-physician relationships and racial disparities in the quality of health care. *American Journal of Public Health, 93*(10), 1713-1719. https://doi.org/10.2105/AJPH.93.10.1713

Saldaña, J. (2016). *The coding manual for qualitative researchers* (3rd ed.). SAGE.

School for Vision. (2018). *2018-2023 strategic plan.*

School for Vision's State University System. (2015). *Diversity, equity, and inclusion policy.*

State-funded Pipeline Program. (2019). *Purpose and mission of program.*

Statista. (2021). *Undergraduate enrollment numbers, by ethnicity, U.S. 1976-2019.* https://www.statista.com/statistics/236489/undergraduate-enrollment-by-ethnicity-in-the-us/#statisticContainer

Stephens, L. M. (2018). *Stories and lessons of students from underrepresented populations who gained admission to health professions graduate programs*. [Doctoral dissertation, Northeastern University]. ProQuest Dissertations Publishing.

Thompson-Rogers, K., Davis, D. J., Davis-Maye, D., & Turner, C. (2018). Historically Black colleges and universities' mentorship of health profession students: A content analysis exploring the North Carolina health careers access program. *Journal of Education, 6*(2), 17-32. https://doi.org/10.22492/ije.6.2.02

United States Census Bureau. (2019). *Quick facts: United States.* Retrieved from: https://www.census.gov/quickfacts/fact/table/US/PST045219

United States Census Bureau. (2020). *Demographic turning points for the United States: Population projections for 2020 to 2060.* Retrieved from: https://www.census.gov/content/dam/Census/library/publications/2020/demo/p25-1144.pdf

Yosso, T. J. (2005). Whose culture has capital? A critical race theory discussion of community cultural capital. *Race Ethnicity and Education, 8*(1), 69-91. https://doi.org/10.1080/1361332052000341006

Zhang, L. (2005). Advance to graduate education: The effect of college quality and undergraduate majors. *Review of Higher Education, 28*(3), 313-338. https://doi.org/10.1353/rhe.2005.0030