8-12-2020

The Impact of a Holistic Admissions Review Process in a Doctor of Physical Therapy Program

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The Impact of a Holistic Admissions Review Process in a Doctor of Physical Therapy Program

by

Carrie Clark Hawkins

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy Education in Leadership in Higher Education

Chair: Dr. Michael Vetter

Dr. Grant Smith

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Abstract

Holistic admissions processes in doctor of physical therapy (DPT) education programs are perceived as a means to increasing the diversity of the profession. While previous research has correlated the Graduate Record Examination (GRE) to success on the National Physical Therapy Examination (NPTE) and the grade point average (GPA) to success in the program coursework, the impact of a holistic admissions process on the academic factors or on the demographics of the applicants offered admission has not been extensively studied for DPT education programs. This study was conducted to determine if the addition of a holistic application review process rubric to the admissions process would result in a significant change in the demographics and admission credentials of applicants offered admission in a DPT education program. Chi-square analyses and analyses of variances revealed that the addition of the HARP rubric in the admission process significantly impacted demographics with a change in the composite racial and ethnic identities and the age of applicants offered admission. Academic measures were also impacted, with a significant difference in in the prerequisite and cumulative undergraduate GPAs of the post-HARP sample, but no significant change in Quantitative or Verbal GRE scores. While further research needs to be conducted on graduation and NPTE success and other factors, the results could be reviewed for guidance in developing a holistic application review process at other programs.

Keywords: underrepresented minority, holistic application review process, doctor of physical therapy education, academic factors, nonacademic factors
Dedication

This dissertation is dedicated to my family. To my parents, Iona and David Clark, who always encouraged our learning and believed that we could achieve anything. My siblings, Kimberly Grissom, Jenny Bynum, and Phillip Clark who provided constant, nonjudgmental encouragement along the way. Thank you will never be enough.

Most of all I dedicate this to my husband, Greg, who has been with me for every degree, every struggle, every triumph, every tear, every laugh, every beginning, and every ending. I would not have wanted anyone else beside me for this journey, nor do I want anyone else beside me for the next. I will love you forever.
I did not complete this journey alone. Many people contributed to my success, through encouragement, by being a resource, or by being an inspiration. The faculty, staff, administrators and classmates at Bellarmine are the reason I applied and completed the PhD program at Bellarmine. Many thanks are owed to everyone.

I would first like to thank Dr. Fred Rhodes and Dr. Tony Brosky, who encouraged me to apply for the program, as well as encouraged me when I struggled. To all of the faculty who taught courses in the PhD program on subjects I did not know I would need to learn, or did not know I would find interesting, thank you. To Mr. Tim Sturgeon and the Admissions Department, thank you for welcoming me “across the street” to complete my internship that was so valuable. Thank you to all of the faculty and staff in the Doctor of Physical Therapy program at Bellarmine University, my coworkers, who collaborated, encouraged, inquired, and listened to me these last four years. Dr. Beth Ennis, you provided much guidance, answers, resources, and leadership during this time, and all of your super powers were revealed during this pandemic. Dr. Gina Pariser, you are a true inspiration, and always had the right words to say at the right time. Dr. Jordan Wiehebrink and Mrs. Betsy O’Neill, thank you for providing quick answers in the last few weeks that so I could provide accurate details (and appendices!). Dr. Beth Quinn and Mrs. Piper Clark, our triad was the best – your support, encouragement, understanding and friendship have meant more than I can ever express. You have all set the bar high for my future working relationships!

To my Trash Pandas, my PhD cohort, my PhD family who taught me so much, about the power of language, the need for better diversity, how to lead by example, and how to overcome and persist. OJ Oleka, Lindsey Gilmore, Elizabeth Todd, Benny Harris, Jeffrey Cross and Phyllis
Clark, you are each an inspiration in your own right. I hope that I will have the opportunity to continue to learn from each of you for the rest of my life.

A great thank you to my dissertation committee. Dr. Michael Vetter, thank you for your guidance during this process. Dr. Grant Smith, thank you for teaching me so much about statistics along the way with so much enthusiasm, and for meeting with me several times as my methodologist. Dr. Mark Wiegand, thank you for listening to my ideas and giving honest feedback, and critiquing my writing to help me improve.

Finally, the greatest thank you to God above, who embraced my mess, provided perseverance and guidance, and is always beside me in my journeys. I am blessed.
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The Impact of a Holistic Admissions Review Process in a Doctor of Physical Therapy

Chapter 1

Introduction

Overview & Statement of the Problem

Admissions processes for graduate healthcare programs vary discipline to discipline and institution to institution. Traditionally these admissions processes focus on academic measures, primarily undergraduate grade point averages (GPA) and standardized test results such as the Graduate Record Exam (GRE), as these measures are correlated to success in a graduate program and on licensure exams (Mitchell, Ellison, & Gleeson, 2019) but still lack procedural consistency (Wilson, Odem, Walters, DePass, & Bean, 2019). Traditional admissions processes have also resulted in limited enrollment of students who are members of underrepresented minority (URM) populations, primarily due to variability of outcomes on standardized tests by underrepresented minorities (Bleske-Rechek & Browne, 2014; Cahn, 2015). Underrepresented minority can be defined by race and ethnicity, gender, rural origin, or any factor that is not a majority in the general population, or not present in the identified population. A holistic admissions review process would continue to use the desired academic qualifications while incorporating non-academic qualities that are mission-centric or associated with long-term success, potentially increasing opportunities for applicants from URM populations (Kent & McCarthy, 2016). Both academic and non-academic qualities could be assessed systematically and objectively through the use of an application review tool that includes multiple factors tied to success both in the classroom and in the field. However, the impact of using multiple factors in a holistic application
review process for doctor of physical therapy education programs, specifically the use of a rubric, has not been reported in the literature.

**Background**

**Physical therapy.** The American Physical Therapy Association (APTA) defines physical therapists as healthcare professionals who diagnose and treat individuals of all ages with medical problems or health-related conditions that limit their ability to move and function in their daily lives (2018). Today, those wishing to become a physical therapist in the U.S. must complete a doctor of physical therapy (DPT) degree at an education program accredited by the Commission on Accreditation in Physical Therapy Education (CAPTE) and pass the National Physical Therapy Exam (NPTE) (American Physical Therapy Association [APTA], 2019b). The APTA Physical Therapy Centralized Application Service (PTCAS) reported that of the 11,329 accepted applicants in the 2017-18 application cycle, approximately 71% identified as White (of non-Hispanic origin), 11% as Asian, 8% as Hispanic, 4% as Black (of non-Hispanic origin), and less than 1% each as Native American or Pacific Islander (2019a). Furthermore, the demographics of the APTA professional membership is similar and has undergone minimal change over the past years, (Wise, Dominguez, Kapasi, Williams-York, Moerchen, Brooks & Ross, 2017). This lack of diversity in the students and the profession has become a concern in the APTA. In her Presidential Address to the APTA House of Delegates (House) in June of 2019, Sharon L. Dunn, PT, PhD, called on members of the House and of the profession to tackle one of the “strategic plan objectives: making APTA an inclusive organization that reflects the diversity of the society the profession serves.” Dunn continued to report that the lack of diversity of the association leadership was connected to the barriers of obtaining a doctor of physical therapy degree with limited role models or mentors for URM students. The members of the House agreed, and
adopted a motion charging the APTA and stakeholders with increasing diversity, equity and inclusion of the profession through best-practice strategies in clinical, educational, and research environments (APTA, 2019d). While primarily addressing the cost of education and the lack of diversity in leadership, the underlying problem is the lack of diversity in those admitted into doctor of physical therapy education (DPT) programs, as reported in APTA PTCAS. Without measures to address admissions practices in DPT programs, the profession cannot achieve demographics representative of the population in the United States.

**Admissions.** Admissions practices for graduate programs vary by institution across the United States. Traditionally, standardized tests and grade metrics have been the primary means of evaluating applicants for potential success in graduate programs, including health professions fields, with some institutions performing interviews or reviewing letters of recommendation (Cahn, 2015). This practice for graduate health professions programs has been traditionally based on proven undergraduate academic success, to improve prediction of success in coursework and on licensure exams (Jones, Simpkins, & Hocking, 2014). Multiple recent studies demonstrate that admissions data predicting entry into DPT programs include key perquisite science and math GPA (pGPA), cumulative undergraduate grade point average (uGPA), Graduate Record Examination (GRE) scores, and letters of recommendation (Nuciforo, Litvinsky & Rheault, 2014). The average uGPA of the applicants in PTCAS in 2017-2018 was 3.41, while accepted into programs averaged 3.57; the pGPA average was 3.20 for the applicants, and 3.42 for those admitted (APTA, 2019a). These averages indicate that academic factors are a large component of admissions practices in DPT programs in the United States, as programs seek means of predicting success in the didactic work.
Successful completion of the didactic coursework should prepare students for the licensure examination. Meiners and Rush (2017) studied three cohorts of students in one program for predictors of success on the National Physical Therapy Examination (NPTE), and reported that of the admissions data, undergraduate cumulative GPA, GRE scores, and first year PT program GPA were significant predictors of matriculation through the program and success on the licensure exams, but age and gender were not. This use of admission data to predict NPTE pass rate reinforces the use of undergraduate academic records for admissions, but does not identify applicants with the non-academic qualities associated with being good healthcare providers (Roberts, Walton, Rothnie, Crossley, Lyon, Kumar & Tiller, 2008).

These traditional admissions criteria are founded on the belief that standardized scores and undergraduate grade point averages (GPA) predict success in graduate coursework, and ultimately success on licensure exams (Mitchell, Ellison, & Gleeson, 2019). Admissions processes in DPT programs across the U.S. primarily consider uGPA, pGPA, qualitative Graduate Record Examination (GRE) scores, and verbal GRE scores for admission offers to applicants (Mitchell, Ellison, & Gleeson, 2019). Currently, the use of standardized tests for program acceptance is being questioned, as the standardized test is perceived as a barrier for URM populations seeking graduate health professions degrees (Cahn, 2015). Not only are the current numbers of graduating health professionals not meeting healthcare demands, but the diversity of the graduates is not meeting the population demographics, contributing to the health inequities that already exist (Urban Universities for HEALTH, 2014). The introduction of holistic admissions review processes (HARP) in the health career programs has been perceived as a means of increasing the graduates from URM populations to the levels in the general
population and who can succeed in their careers and meet the healthcare needs of a diverse population (Urban Universities for HEALTH, 2014).

**Holistic admissions.** Changes in admissions processes is one method of increasing the diversity of students admitted, thereby increasing diversity of providers to potentially improve access to healthcare (Urban Universities for HEALTH, 2014). But these admissions processes need to be mission driven and strategic (Price & Grant-Mills, 2010). A holistic admissions process, as one mission-driven strategy, has been embraced by many medical and dental schools since the 2000s, with the Association of American Medical Colleges (AAMC) and the American Dental Education Association (ADEA) providing workshops on HARP best practices (Urban Universities for HEALTH, 2014). These workshops are offered for institutions to not only increase the diversity of their student population, but also to support program excellence, explore unconscious bias, and navigate legal issues (American Dental Education Association, 2019). Implementing holistic admissions review processes after these workshops, in conjunction with other pipeline activities such as education of middle-schoolers and mission-driven recruitment strategies, may result in increased diversity of applicant pools to eventually increase the diversity of the profession (Price & Grant-Mills, 2010). In 2013, the AAMC defined holistic admissions as a “mission-aligned admissions or selection processes that considers a broad range of factors – experiences, attributes, and academic metrics – when reviewing applications. Holistic review allows admissions committees to consider the ‘whole’ applicant, rather than disproportionately focusing on any one factor” (2019). Identifying these potentially successful URM applicants may also address the health inequities in the U.S. (Urban Universities for HEALTH, 2014).

Identifying applicants with the potential for success in coursework and clinical work requires a strategic approach, as evidenced by the ADEA and the AAMC championing of
holistic admissions review processes. Intentional holistic processes use university or program mission statements and strategic plans for guidance in developing review procedures, and this process should include an evaluation tool, or rubric, to quantify academic and nonacademic metrics for consistent evaluation of all applicants by admission committee members (Kreiter, 2013). This rubric can contain the criteria deemed important to the program or institution, and assigned weighted scores to application data (Lopez, Self & Karnitz, 2009). The application data assessed can include the academic factors of GPA and standardized exam scores, and nonacademic factors, such as extracurricular involvement, employment, research experience, or personal statements, for a systematic process of choosing students for the program (Lopez, Self & Karnitz, 2009). A self-designed tool also requires validation, to ensure that all members of a committee would evaluate an application and assign the same score to that applicant (Kreiter, 2013). In this way, the tool, or HARP rubric, would allow a validated, systematic procedure for a holistic admissions process to be successfully implemented.

Strategic holistic admissions processes in other disciplines has been shown to increase the number of students from underserved backgrounds who enter health career programs and then return to serve their home community, or another underserved community (Zerwic, Scott, McCreary & Corte, 2018). Black, Native American and Hispanic physicians are more likely to practice in communities with a federal designation of a Primary Care Health Professional Shortage Area (Xierali & Nivet, 2018). Furthermore, when a cohort of students has diverse identities, and the issues of diversity and access are deliberately included in the institution’s endeavors, an increased number of students graduate with an interest in working with the underserved (Urban Universities for HEALTH, 2014). The Association of American Medical Colleges (AAMC) (2004) defined underrepresented minority (URM) in health professions as
racial and ethnic populations that are not represented in the profession to the same degree as members of the general population, and primarily consists of Blacks, Indigenous Peoples (or Native Americans), Mexican-Americans, and Puerto Ricans, but could be expanded to Hispanics and Latino. With the recognized need to increase the accessibility and the diversity of the physical therapy profession, the American Council of Academic Physical Therapy (ACAPT) reviewed the AAMC definition, and charged a Diversity Task Force in 2013 to define diversity as it was related to the physical therapy profession, and to understand why DPT graduates do not mirror the general population (Wise et al., 2017). This task force defined underrepresented in physical therapy as “those racial and ethnic populations that are underrepresented in the physical therapy profession relative to their numbers in the general population, as well as individuals from geographically underrepresented areas, lower economic strata, and educationally disadvantaged backgrounds” (Wise et al., 2017). While undergraduate grade point average and results on standardized exams are correlated to a DPT student’s success in the program and ability to successfully pass the National Physical Therapy Exam (Ruscingno, Zipp & Olson, 2010), DPT programs have mission statements to graduate professionals who are more than just academically prepared, but also professionally prepared and exhibit the Core Values of the APTA (APTA, 2019e). Therefore, holistic reviews processes may assist applicants from these underrepresented populations to gain admissions into DPT programs by using a variety of criteria to identify applicants who will not only be academically successful, but also professionally successful.

Purpose

While holistic admissions processes in health care profession programs are perceived as a means to increase the diversity of the profession, the outcomes on the academic admissions factors or population representation has not been extensively studied, including on the physical
therapy profession (Jones, Simpkins & Hocking, 2014). Much research has been completed on the correlation of the GRE and the NPTE pass rate (Meiners & Rush, 2017) and the benefit of interviews on the admissions process for DPT education programs (Roberts et al., 2008). The impact of HARP in DPT education programs on the academic markers that predict future success has not been reported. The impact of HARP in DPT education programs on the increase of URM population representation in the program has also not been reported. Therefore, the purpose of this study was to determine if the addition of an intentional holistic admissions review process, with the inclusion of an application evaluation rubric, resulted in a significant change in the demographics and admission credentials of the admitted DPT students in the two years the rubric was used, compared to the two years prior without the rubric use.

**Research Questions**

With the addition of the holistic admissions review process rubric in the admissions procedures:

1. Did the population demographics of the applicants offered admission in the program vary significantly between the two years prior to HARP and two years of HARP:
   a. As measured by gender;
   b. As measured by age;
   c. As measured by racial and ethnic identity;
   d. As measured by the community origin type of rural or urban?

2. Is there a significant difference in the pre-admission academic factors of applicants after the implementation of the HARP rubric as compared to prior to implementation:
   a. As measured by Quantitative GRE scores;
   b. As measured by Verbal GRE scores;
   c. As measured by pGPA;
d. As measured by uGPA?

3. Is there a significant difference in interview scores of applicants offered admission the two years that did not implement the HARP rubric as compared to the two years that implemented the HARP rubric?

4. Does a significant correlation between the HARP ratings and faculty recommendations of all interviewed applicants exist?

Hypotheses

The HARP rubric was initially developed based on the research by Sedlacek (2004) on noncognitive factors for success in URM students in higher education. Other research shows GRE scores vary by gender, race and ethnicity, and citizenship status, with those in URM populations scoring lower than their White counterparts (Wilson, Odem, Walters, DePass & Bean, 2019). Not only GRE scores vary, but GPA also varies by race and ethnicity (Fischer, 2007). Students who perform poorly initially but persevere and apply to graduate programs often repeat courses to increase GPAs, therefore delaying graduation or time of acceptance, and may result in an older student. The rural population is also older and less diverse than the urban population, based on the U.S. Department of Agriculture report on demographics of rural inhabitants (Cromartie, 2018). As a result, the hypotheses regarding demographics are as follows:

1. The addition of the rubric to the admissions process would result in a significant change in gender demographics, with an increase in female applicants offered admission in the post-HARP sample.
2. The addition of the rubric to the admissions process would result in a significant increase in the mean age of the applicants offered admission in the post-HARP sample.

3. The addition of the rubric to the admissions process would result in a significant increase in applicants offered admission who identify in the racial and ethnic URM populations in the post-HARP sample.

4. The addition of the rubric to the admissions process would result in a significant difference in the community of origin, with an increase in applicants from an urban community in the post-HARP sample.

Based on the same research, if the demographics of post-HARP sample vary significantly from the pre-HARP sample, then less emphasis on academic variables for admission and more emphasis on non-academic qualities would result in a significant change in the academic variables. Therefore, the hypotheses regarding academic factors are as follows:

5. The addition of the HARP rubric to the admissions process with decreased emphasis on GRE scores would result in a significant decrease in Verbal GRE scores of the post-HARP sample, if the demographics changed significantly.

6. The addition of the HARP rubric to the admissions process with decreased emphasis on GRE scores would result in a significant decrease in Quantitative GRE scores of the post-HARP sample, if the demographics changed significantly.

7. The addition of the HARP rubric to the admissions process with decreased emphasis on GPA scores would result in a significant decrease in pGPA of the post-HARP sample, if the demographics changed significantly.
8. The addition of the HARP rubric to the admissions process with decreased emphasis on GPA scores would result in a significant decrease in uGPA of the post-HARP sample, if the demographics changed significantly.

In the post-HARP sample, applicants were selected for an interview based on both academic and non-academic qualities, with the academic qualities assessed by the admission committee member using the HARP rubric. This rubric was developed around Sedlacek’s research (2004), and based on traits in DPT students that faculty at Program A deemed desirable. Faculty have the opportunity to interview applicants, resulting in a score and a recommendation. The applicants in the post-HARP sample were selected using the rubric that faculty developed and incorporated traits faculty found advantageous in DPT students. Therefore, the hypotheses regarding interview scores and faculty recommendations is as follows:

9. The addition of the HARP rubric to the admissions process would result in higher interview scores in the applicants offered admission in the post-HARP sample.

10. The HARP rubric ratings of the interviewed applicants would correlate to the faculty recommendations.

Assumptions

The introduction of the holistic admissions review process, with the formal use of an application review rubric, would result in an increase in diversity of the admitted students, as measured by age, gender, geographic home region, and race and ethnicity. The use of the HARP rubric would identify applicants who were highly qualified, demonstrating perseverance in life, experience in the field, and leadership experience.
Study Significance

Currently, undergraduate GPAs and pre-admissions GRE scores are academic factors weighted heavily for admissions into DPT programs because of the correlation with success in DPT programs and success on the NPTE (Shiyko & Pappas, 2009). The GRE is frequently included as no other validated exam exists that measures cognitive ability specific to DPT programs (Shiyko & Pappas, 2009). The GRE is a predictor of NPTE pass rate, but primarily for White males, and may not accurately predict success on the NPTE for Black, female or older students (Shiyko & Pappas, 2009).

Holistic admissions review processes may increase student representation of URM populations, but result in other changes as well. With the decreased emphasis on GRE and GPA scores for admissions, and greater emphasis on other non-academic criteria, the assumption exists that the cohort incoming undergraduate GPA, incoming math and science GPA, and all GRE scores would decrease, while interview scores would increase. However, with lower scores for the GRE for Black, female and older students (Bleske-Rechek & Browne, 2014), an emphasis on non-academic measures may result in selecting applicants with lower academic scores but non-academic qualities that result in higher interview scores. This study will evaluate the impact on academic and demographic variables by adding a rubric to a holistic admissions preview process, and could be used as guidance for other DPT education programs.

Study Location

This study was conducted at a DPT program in a private liberal arts institution located in a mid-sized metropolitan area in the East South Central region of the United States, and hereafter referred to as “Program A”. Program A implemented the Physical Therapy Centralized Application Service (PTCAS) in the 2013-14 application cycle to collect applications for review
and identification of those appropriate for interview for admissions. In the 2016-17 application cycle, Program A began interviewing applicants as a group with two faculty interviewers, with the interviews scored on a rubric and stored in the PTCAS system. This process resulted in strong GPA of admitted students, but minimal representation of URM populations. With a desire to increase representation of URM populations in the program, a committee was formed in 2018 to explore a holistic admissions review process. The work by Sedlacek (2017) was initially used to guide the endeavor, borrowing from the eight non-cognitive variables the author described. These dimensions were then compared to current program priorities, and a HARP rubric was created to score applications, to assist in identifying applicants who exhibit successful leadership experience, community service, field experience, and perseverance as a form of preference for long-term goals. The admissions committee implemented a modified version of the rubric as part of the holistic admissions review process during the 2018-19 cycle and continued during the 2019-20 cycle. The applications were scored using the modified rubric, with interview invitations issued on the recommendation of the admissions committee based on both the academic strengths and the score on the HARP rubric in the application cycle for 2018-19 and 2019-20.

Conceptual Framework

This study utilized the guidance from previous reports on nonacademic factors in students of URM populations that lead to success in higher education (Sedlacek, 2004) and research from a DPT program reported that consistently enrolled students from URM populations (Shiyko and Pappas, 2009). Sedlacek (2004) studied successful students of URM populations in higher education, and identified nonacademic variables termed “noncognitive,” associated with “adjustment, motivation and student perceptions” (p.7). Identifying eight noncognitive variables
(positive self-concept, realistic self-appraisal, handling the system successfully, long-term goal preference, associated strong-support system, leadership experience, community involvement, and knowledge from the field), Sedlacek continued to analyze and suggest methods to recognize the traits in applicants of URM populations, using interviews, essays and outcomes assessments (Sedlacek, 2004). Shiyko and Pappas (2009) studied a DPT program that consistently enrolled students from URM populations, seeking correlates to success in the program. The researchers identified pre-admission variables associated with academic success as measured by first-year DPT student GPA and lack of dismissal or probation by the program. Of the pre-admission factors, GRE scores and undergraduate GPA were both highly predictive of first-year GPA and retention in the program, with no differences in academic performance based on race and ethnicity. The program also incorporated application essays in the admissions process with strict scoring, and were found to be moderately predictive of academic success in the program. These studies guided the incorporation of non-cognitive factors, or nonacademic factors for this study, into an admissions process, and the use of a rubric as part of a holistic application review process in a graduate program.

**Methodology**

This study included applications of those who were interviewed from the 2016-17 to 2019-20 admission cycles, and admitted between 2017 and 2020. HARP scores from the admissions committee from the 2018-19 and 2019-20 cycles were collected from the program chair. Faculty recommendation, GRE scores, uGPA, pGPA, and demographics including gender, age, race and ethnicity, and home geographic region for all applicants admitted from 2016 to 2020 were collected from PTCAS data. Quantitative analyses were performed to ascertain if any of the admitted groups differed significantly from year to year in academic variables, and for pre-
and post-HARP rubric implementation for academic variables, interview scores, and demographics. Finally, correlations between HARP scores and faculty recommendations were explored for all applicants interviewed.

Limitations

Many limitations exist in this study. The samples were obtained from one small private university, using only incoming data at time of application and no outcome data at time of program completion. However, four years of data were reviewed, with a relatively larger sample size of 669 applicants offered admission. The samples were not separated by any other factors besides year or HARP status, and factors could have also been compared between gender, age, racial or ethnic identity, or community of origin for potential differences, but that was not the purpose of this study.

Other factors also impacted variables that differed within groups, including the blinding of faculty after the 2016-17 cycle, creating a change in faculty viewing for the second half of the pre-HARP sample, but the entire post-HARP sample. This could have caused faculty to be more or less critical in interviews. Faculty perceptions of inability to review academic factors in candidates and potential impact on scoring was not explored in this study. The findings, while significant, cannot be generalized to all DPT programs.
Definition of Terms

*Academic factors* – cognitive-related variables, including grade point averages and standardized examination scores; also referred to as cognitive factors in literature

*American Council of Academic Physical Therapy (ACAPT)* – a component of the APTA, with the purpose of advancing academic physical therapy by promoting excellence (ACAPT, 2016)

*American Physical Therapy Association (APTA)* – a professional membership organization representing over 100,000 physical therapists, physical therapist assistants, physical therapist students and physical therapist assistant students, seeking to “transform society by optimizing movement to improve the human experience” (APTA, 2018)

*Application cycle* - annual dates for acceptance of applications for programs participating in centralized application services, typically July of one year to June of the following year for physical therapist education programs (PTCAS, 2015)

*Commission on Accreditation in Physical Therapy Education (CAPTE)* - the accrediting agency for entry-level physical therapist and physical therapist education programs, recognized by the U.S. Department of Education and the Council for Higher Education Accreditation (CAPTE, 2020a)

*Diversity* - racial and ethnic populations that are underrepresented in the physical therapy profession relative to the general population, as well as individuals from geographically underrepresented areas, lower economic strata, and educationally disadvantaged backgrounds (Wise, Dominguez, Kapasi, Williams-York, Moerchen, Brooks & Ross, 2017).

*Health disparities* - the disproportionate presence of preventable diseases in underrepresented
minority (URM) populations identified by socioeconomic status, disability, gender, ethnicity, educational attainment, sexual orientation or geographic identity, such as urban or rural (Centers for Disease Control and Prevention, 2018)

*Health inequities* – systematic differences in the health status and resources of different population groups and related to social factors, including education access and attainment, employment opportunities, income factors, gender, and ethnicity (World Health Organization [WHO], 2017).

*Holistic admissions review process (HARP)* - a “mission-aligned admissions or selection processes that consider a broad range of factors – experiences, attributes, and academic metrics – when reviewing applications. Holistic review allows admissions committees to consider the “whole” applicant, rather than disproportionately focusing on any one factor” (Association of American Medical Colleges, 2019)

*Nonacademic factors* – also referred to as noncognitive factors in literature, but are desirable characteristics, qualities or traits not measured by grade point averages or standardized exam scores, but deemed desirable in an applicant

*Physical therapist* - healthcare professionals who diagnose and treat individuals of all ages with medical problems or health-related conditions that limit their ability to move and function in their daily lives (American Physical Therapy Association, 2019c)

*Rural* – in a nonmetropolitan area that is identified as “noncore” or “micropolitan” by the National Center for Health Statistics in 2013, based on the 2010 U.S. Census, and categorized by county, with a population up to 49,999 and limited density of the population (Ingram & Franco, 2014).

*Science and math grade point average (pGPA)* – the GPA from the prerequisite science and
math courses, which vary by program, that are required to be completed prior to beginning physical therapist education

*Undergraduate cumulative grade point average (uGPA)* – cumulative grade point average for all courses complete prior to application for admission into a PT program

*Underrepresented minority (URM)* - those racial and ethnic populations that are underrepresented in the physical therapy profession relative to their numbers in the general population, as well as individuals from geographically underrepresented areas, lower economic strata, and educationally disadvantaged backgrounds (Wise, Dominguez, Kapasi, Williams-York, Moerchen, Brooks & Ross, 2017)

*Urban* – in a metropolitan area that is identified by the National Center for Health Statistics in 2013, based on the 2010 U.S. Census, and categorized by county, with a population over 50,000, and a population density of greater than 1,000 inhabitants per square mile (Ingram & Franco, 2014).
Overview

The burden of health inequity in people of URM populations in the United States is well-established (Urban Universities for HEALTH, 2019). These inequities are partially related to lack of access to healthcare providers, or lack of access to providers who understand their health needs (Urban Universities for HEALTH, 2019). As healthcare providers, physical therapists should be prepared to serve diverse populations to combat health inequities. The best method of increasing access to physical therapy by a diverse community is to have a diverse profession, but the demographics of the physical therapy professions does not match the demographics of the U.S. population (American Physical Therapy Association [APTA], 2019a). The current demographics of the physical therapy (PT) workforce are reflective of the student demographics, and shaped by admissions practices. The majority of doctor of physical therapy (DPT) programs in the U.S. focus on academic measures of undergraduate grade point averages and standardized examination scores such as the Graduate Record Examination (GRE), due to the correlation to successful completion of the program and pass rate on the National Physical Therapy Examination (NPTE) (Jones, Simpkins & Hocking, 2014). Many DPT programs utilize faculty interviews to assess fit for the program and the profession (Edgar, Mercer & Hamer, 2014). With the growing awareness that GRE scores vary by race, ethnicity and socioeconomic status, limiting entry into graduate programs, some healthcare programs are implementing holistic admissions processes, most notably in dental and medical schools. The following chapter explores the problems of health inequity, current admissions practices in graduate medical
programs, and the possibility of a holistic admissions review process to address access to care by increasing the workforce diversity.

**Health Inequity**

As a factor of race or ethnicity. The Urban Universities for HEALTH (2019) reports that many people identified as a member of a minority population in the United States have higher morbidity rates, often living in areas without access to adequate healthcare professionals and resources. While healthcare professionals, including physical therapists, are educated and trained to be providers of services to a variety of individuals, current efforts in graduate health professions education programs are not meeting the needs of many underserved populations, leading to health disparities (Urban Universities for HEALTH, 2019). A focused approach to improve access could include a holistic admissions process to remove the bias of standardized testing used for admissions to health profession education programs, and increase the number of professionals who are members of underrepresented and minority populations (Urban Universities for HEALTH, 2019). Professionals who identify as URM are more likely to practice in facilities and regions with higher populations of underserved individuals, which may contribute to a reduction in health inequities (Ballejos, Rhyne, & Parkes, 2015; Xierali & Nivet, 2018). Not only will provision of health care services be impacted by an increase in URM professionals, but also increase research efforts in the areas of need for the underserved in society, and increase URM representation in administrators and policy makers (Cohen, Gabriel & Terrell, 2002). This would lead to best practices in healthcare for URM populations for improved health outcomes (Cohen, Gabriel & Terrell, 2002). But until then, health inequities still exist.
The existence of health inequities among populations of the United States has been tracked by government agencies since colonial times, with varied contributing factors through the years, including structural racism, housing practice disparities, employment opportunities, and education attainment (Bailey et al., 2017). According to the World Health Organization (WHO) (2017), health inequities are “systematic differences in the health populations of different population groups” and related to social factors, including education access and attainment, employment opportunities, income factors, gender, and ethnicity (World Health Organization [WHO], 2017). These health inequities result in health disparities, defined as the disproportionate presence of preventable diseases in underrepresented minority (URM) populations identified by socioeconomic status, disability, gender, ethnicity, educational attainment, sexual orientation or geographic identity, such as urban or rural (Centers for Disease Control and Prevention, 2018). Another factor associated with health disparities is the limited number of providers from URM populations, and access to a provider with similar racial and ethnic identities as the patient has been proven to have a positive impact on the patient’s health (Ballejos, Rhyne, & Parkes, 2015).

For many years, health professions education programs have attempted to instill cultural competency as a method of addressing health disparities of URM populations (Gallagher & Polanin, 2015). Cultural competency in an individual has been identified as the ability of the person to navigate in other cultural environments effectively, an important trait for healthcare providers to utilize when working with clients with differing cultural representations (Capell, Veenstra, & Dean, 2007). Research has found that healthcare policies that address cultural differences and cultural competency training of providers improve patient utilization of healthcare resources and improve quality of care provision (Gallagher & Polanin, 2015). A meta-
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analysis by Gallagher and Polanin (2015) of 25 studies of interventions to increase cultural competency in nursing students and professionals, and found nursing professionals benefitted more from cultural training than nursing students as assessed by various outcome measures. However, the researchers also concluded that no single model for training or measuring cultural competency exists, presenting barriers to developing effective educational interventions to improve cultural competency.

If cultural competency cannot be adequately taught to healthcare professionals and students through training alone, other avenues to improve healthcare access must be explored. One option may be to improve the diversity of those admitted into health education programs, to include students in a single class that represent many population demographics. The American Council of Academic Physical Therapy (ACAPT) created a task force to define underrepresented minorities in the physical therapy profession, and to gather national efforts to increase diversity in the student populations (Wise, Domínguez, Kapasi, Williams-York, Moerchen, Brooks & Ross, 2017). With the current student population in DPT programs across the U.S. no reflective of the general population, Wise et al. (2017) defined URM in the physical therapy profession as “those racial and ethnic populations that are underrepresented in the physical therapy profession relative to their numbers in the general population, as well as individuals from geographically underrepresented areas, lower economic strata, and educationally disadvantaged backgrounds” (p. 10). This definition was adopted not only by ACAPT, but also by the American Physical Therapy Association (APTA) House of Delegates in 2014, which applied the definition to those in physical therapy education, to focus future efforts on diversifying the profession (Wise et al., 2017).
As a factor of community of origin. Other factors affect health care access, including geographic location and living in a rural or urban area (Douthit, Kiv, Dwolatzky & Biswas, 2015). Approximately 75% of the nation is considered rural while accounting for approximately 20% of the U.S. population (Hart, Larson & Lishner, 2005). Rural classification can be defined many ways. According to the U.S. Census Bureau, urban areas are that contain more than 50,000 inhabitants, urban clusters are a dense population cluster of 2,500 to 50,000 people, and rural is the remaining areas (Ratcliffe, Burd, Holder & Fields, 2016). Federal policies often identify areas as metropolitan (over 50,000 inhabitants) or nonmetropolitan (under 50,000 inhabitants) (Hart, Larson & Lishner, 2005). The U.S Census Bureau and the National Center for Health Statistics use counties as the geographical boundaries, and established Metropolitan and Micropolitan Statistical Area (MSA) standards as bound areas for delineation when collecting, studying and reporting data (Office of Management and Budget, 2010). The National Center for Health Statistics developed a six-tiered scheme to classify counties as urban and rural, with urban containing four levels of metropolitan classification from and rural with two classifications of (Ingram & Franco, 2014). A metropolitan statistical area has a population density of at least 1,000 people per square mile with surrounding area of at least 500 people per square mile, with the combined area population totaling 50,000 (Ingram & Franco, 2014). A micropolitan area has a less dense population but must have a central cluster of 10,000 to 49,000 inhabitants (Ingram & Franco, 2014). A noncore area does not meet metropolitan or micropolitan areas (Ingram & Franco, 2014). Micropolitan and noncore areas are both considered rural, with noncore the most rural (Ingram & Franco, 2014).

Living in a rural area can limit access to health services in multiple ways including provider shortage, cultural bias of the patient and the provider, limited financial resources,
limited public transportation, and poor internet services (Khoong, Gibbert, Garbutt, Sumner & Brownson, 2014; Douthit, Kiv, Dwolatzky & Biswas, 2015; Loftus, Allen, Call & Everson-Rose, 2018). Preventative care is often neglected in rural areas for these same reasons (Loftus, Allen, Call & Everson-Rose, 2018). People in rural areas express concern about stigma and discrimination when seeking health care, especially when seeking mental health care (Douthit, Kiv, Dwolatzky & Biswas, 2015). A previous discrimination experience by a provider, either personally or in the community, can decrease willingness to seek care (Douthit, Kiv, Dwolatzky & Biswas, 2015). The distance to see a provider as well as lack of reliable transportation limits ability to seek care (Douthit, Kiv, Dwolatzky & Biswas, 2015). These factors also contribute to difficulty recruiting and retaining trained medical providers, and many specialty services are not provided in rural areas (Douthit, Kiv, Dwolatzky & Biswas, 2015). For some, the option of accessing services through online care, such as telehealth services, would be appealing, but internet services are poor or limited in rural communities (Douthit, Kiv, Dwolatzky & Biswas, 2015). People living in rural areas experience greater poverty and financial limitations, increasing the burden of paying for health care services, or the state and federally provided health care coverage does not reimburse the rates desired by providers (Douthit, Kiv, Dwolatzky & Biswas, 2015). For these reasons, and often a combination of these factors, health care access remains limited in rural areas of the U.S. (Douthit, Kiv, Dwolatzky & Biswas, 2015).

The demographics of the rural population is also changing (Lichtner, 2012; Cromartie, 2018). While the demographics of some rural counties are increasing in the number of people identifying as Hispanic, following agricultural and food processing jobs (Lichtner, 2012), the population remains primarily White (80% or greater) (Cromartie, 2018). Rural inhabitants are also aging, with 20% or more of the inhabitants 65 years or older (Cromartie, 2018). Poverty is
also an issue in rural areas, with URM inhabitants more impoverished than their White neighbors (Cromartie, 2018). The combined lack of financial means, the distance that must be traveled to access health care, and cultural bias can all be barriers to health equity in rural areas of the United States.

Distrust in Health Care

Lack of diversity in health care providers can also become a barrier for URM patients seeking care, often as a result of experiencing racism or distrust of non-minority health care professionals (Whetten, Leserman, Whetten, Ostermann, Thielman, Swartz & Stangl, 2006; Nicolaidis, Timmons, Thomas, Waters, Wahab, Mejia & Mitchell, 2010; Armstrong, Putt, Halbert, Grande, Schwartz, Liao, Marcus, Demeter & Shea, 2013). Armstrong et. al (2013) employed the 9-Item Revised Health Care System Distrust Scale in a phone survey of adults in 40 Metropolitan Statistical Areas in the US in 2006, and determined that health care distrust was higher in Blacks than Whites, and higher in areas with racial residential segregation. Nicolaidis et. al (2010) studied depression care in Black women, and concluded that Black women consistently prefer Black professionals regardless of gender when seeking care for depression, also as a result of experiences of racism. Resolving distrust of health care professionals, improving health of individuals, and reducing health inequities requires a multilevel approach, including increasing the diversity of those in the health care professions (Jackson & Gracia, 2014).

Physical Therapists Demographics

The APTA defines physical therapists as healthcare professionals who diagnose and treat individuals of all ages with medical problems or health-related conditions that limit their ability to move and function in their daily lives (2019c). Job growth of the physical therapy profession
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between 2016 and 2026 is expected to be 28% in the United States (DATA USA, n.d.). A recent criticism of the physical therapy profession is the lack of diversity to meet the rehabilitation needs of a diverse society. In 2017, 81.7% of physical therapists in the United States were identified as White, 11.6% as Asian, and 3.7% as Black, as the three most common demographic identities (DATA USA, n.d.). The U.S. Census Bureau (n.d.) estimated the July 2019 population to be 76.5% White, 13.4% Black, 18.3% Hispanic or Latino, and 5.9% Asian. By comparison, the demographics of licensed physical therapist does not match those of the U.S. population.

To be eligible for licensure, graduates in the U.S. are required to obtain a doctoral degree from an accredited program, with over 200 programs in the U.S. accredited by the Commission on Accreditation of Physical Therapy Education (CAPTE) (American Physical Therapy Association [APTA], 2019b). Of the 20,297 DPT applicants in the 2017-18 application cycle, 8.6% were Native American, 11.24% were Asian, 6.94% were Black (non-Hispanic), 4.8% were Pacific Islander, 9.55% were Hispanic, and 65.81% of applicants were White (non-Hispanic origin) (APTA, 2019a). Of the 11,329 accepted students, 6.3% were Native American, 10.71% were Asian, 4.33% were Black or African American, 4.1% were Pacific Islander, 7.69% were Hispanic, and 71.18% were White, though some applicants selected multiple races and may be counted in two categories (APTA, 2019a). Of the applicants, 40.4% were male and 59.5% were female, while 38.6% of accepted students were male and 61.4% were female. Further, the population representation in the APTA professional membership has undergone minimal change over the past years for many reasons, but in part due to admissions practices in programs (Wise et al., 2017). Therefore, admissions processes in health education programs, including DPT, need to evolve into methods that recognize other applicant attributes that lead to success as a
healthcare provider, to increase the number of professionals who are members of an underserved minority population and address health inequities.

**Admissions Processes**

Entrance into many health profession programs is highly competitive. Admissions committee members are charged to enroll students who will be successful in the program and in the clinic. Many of these programs, including DPT programs, have historically relied primarily on academic measures to assess applicants based on research confirming a correlation between grade point average (GPA) and success in the program, as well as standardized test score to success on licensure exams, specifically the National Physical Therapy Exam (NPTE) (Jones, Simpkins, & Hocking, 2014; Mitchell, Ellison, & Gleeson, 2019). Currently, most DPT programs use the GRE and undergraduate GPA for admission decisions, require observation hours in the field, and interview the most competitive or academically qualified applicants (Mitchell, Ellison, & Gleeson, 2019).

Though the majority use these academic measures, limited consistency in admissions standards exist across DPT programs (Jones, Simpkins, & Hocking, 2014). The majority of DPT programs in the U.S. accept applications through the Physical Therapy Centralized Application Service (PTCAS), an online common application site administered by the APTA, allowing students to apply to multiple programs through one portal (Jones, Simpkins, & Hocking, 2014). Undergraduate transcripts, Graduate Record Exam (GRE) scores, letters of reference, and attestation of observation hours in the field are requested by most DPT programs (Jones, Simpkins, & Hocking, 2014). These variables are then reviewed, with some institutions deciding to admit students solely on these factors, while others use the variables to decide which applicants are to be interviewed prior to admission (Jones, Simpkins, & Hocking, 2014). In one
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study, a regression analysis of almost 19,000 qualified applicants from 2008 to 2011, the statistically significant predictors (p ≤ .05) of entrance into a DPT program were the pGPA, the uGPA, quantitative GRE score, letters of recommendation and gender, with the science GPA the greatest contributor to the prediction model (Nuciforo, Litvinsky & Rheault, 2014). Another recent study found 89% of DPT programs surveyed relied heavily on undergraduate GPA in the admissions decision, and 67% of those surveyed weighted it heavily, with the GRE a close second in weight, if not equally considered (Mitchell, Ellison, & Gleeson, 2019). These studies support a theory that prior performance will predict future performance.

Undergraduate performance and future success. Students’ undergraduate performance has been the topic of many recent research studies, seeking a correlation between uGPA and pGPA to success in DPT programs or on the National Physical Therapy Exam (NPTE) (Coleman-Salgado & Barakatt, 2018; Utzman, Riddle & Jewell, 2007; Ruscingno, Zipp & Olson, 2010). In one study of three consecutive cohorts in a DPT program, uGPA was found to be significantly correlated to success in the first year of the DPT curriculum (Ruscingno, Zipp, & Olson, 2010). However, the same study found that an inverse correlation existed between uGPA and age, in that as age increased, GPA decreased, placing older applicants at a disadvantage for admission. Contrary to expectations, Ruscingno, Zipp and Olson (2010) found no significant correlation between pGPA (the GPA from prerequisite science courses) and the corresponding GPA from the first year of the DPT program. The comparison could conclude that students who perform well in one academic environment have the potential to be successful in another academic environment.

Undergraduate GPA can also vary by race and ethnicity (Fischer, 2007). In a study of almost 4000 students at 28 institutions across the United State, Fischer (2007) reported the
differences in adjustment to college based on race and ethnicity, and the impact the adjustment had on undergraduate outcomes, including GPA. The study sample included an equal number of participants identifying as Asian, Black, Hispanic and White. The students who identified as URM enrolled at a predominantly White university had a higher incidence of being first-generation students, were more likely to be socioeconomically disadvantaged, and were more likely to struggle to adjust as an URM on a predominantly White university (Fischer, 2007). All of these factors result in a significantly lower GPA as measured by their fall semester of the their sophomore year, with White and Asian student having the highest GPAs averaging 3.30, Hispanic students significantly lower at 3.08, and African-American students even lower at 2.95 (Fischer, 2007). This lower GPA in the early years in higher education significantly impacts cumulative GPAs used for admissions into graduate programs.

Programs are not only concerned about success in the DPT coursework, but also on performance on NPTE. If uGPA is correlated to graduate GPA, and licensure exams are reflective of baseline content knowledge gained during coursework, then undergraduate GPA should be a predictor of NPTE pass rate. Of the many academic factors considered in admissions, uGPA is not a significant predictor of pass rate on the NPTE, but rather GRE results are a greater predictor (Coleman-Salgado & Barakatt, 2018).

**Standardized exams and admission into graduate health professions programs.**

Admission committees in graduate medical programs attempt to develop best practices for admitting students with the greatest probability of success in the program and on the licensure exam. These best practices have traditionally relied on the results of standardized exams as a measure of potential success, with admissions committees viewing candidates for probable academic success, rather than clinical success (Jones, Simpkins, & Hocking, 2014). The GRE
has become the choice of standardized test for entrance into many programs, as graduate medical programs often require both procedural and conceptual knowledge for success, and the GRE is intended to measure both general knowledge and knowledge application (Bleske-Rechek & Browne, 2014).

The GRE is a standardized assessment of cognitive abilities, intended to predict the potential success of the applicant in a graduate education program (Bleske-Rechek & Browne, 2014). The test assesses verbal, quantitative and analytical reasoning, with verbal and quantitative reasoning assessing the speed and efficiency for the examinee to acquire diagnostic and interpretive knowledge (Bleske-Rechek & Browne, 2014). However, outcomes on the GRE vary significantly by gender, race and ethnicity, and citizenship status, with those in URM populations scoring lower than their White counterparts (Wilson, Odem, Walters, DePass & Bean, 2019). One study at a graduate school in Texas found that a metrics-only review of applicants to programs at a biomedical sciences school denied entry to twice as many URM applicants compared to their peers (Wilson, Odem, Walters, DePass & Bean, 2019). Heavy reliance on GRE scores in admissions as a predictor of success creates a disadvantage for URM applicants. Standardized tests are perceived as a barrier to graduate education for URM students, and eliminating the GRE from admissions criteria may boost diversity in the health professions (Cahn, 2015).

Bleske-Rechek and Browne (2014) also researched GRE score differences by gender and ethnicity, and found significant differences in scores continued to exist. Verbal reasoning scores were higher in men than women, with a 20- to 30-point gap, and quantitative reasoning scores for women were one-half a standard deviation lower, with men scoring at least 75 points higher. Men with high quantitative reasoning scores frequently showed quantitative tilt, in that their
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verbal reasoning scores were lower than their quantitative scores. Women with higher quantitative reasoning scores tended to score similarly on the verbal reasoning portion, demonstrating a balance in scores. While GRE verbal reasoning scores have gradually increased among all ethnicities, White test takers scored significantly higher than Black test takers, with a 98-point difference in 2007, and White test taker scores were 143 points higher than Black test takers in 2007. Historically URM groups made greater gains between 1982 and 2007, but persistent performance gaps continue to exist by ethnic identification. Part of the improved scores could be related to the increase number of test takers who identify as URM, which corresponds with a greater increase in percentage of applicants to graduate programs who identify in an URM population between 2000 and 2010 (Bleske-Rechek & Browne, 2014).

The second aim of Bleske-Rechek and Browne (2014) was to determine if use of the GRE in the admissions process of graduate programs prevented the enrollment of a diverse student body. Despite the differences in GRE scores, enrollment of women and URM has increased in science and technology fields, possibly because programs have actively recruited URM populations, especially in science, technology, engineering and math (STEM) programs, and used alternate variables to justify entry into the program. The lower GRE score, seen as a potential academic weakness, may be offset by other attributes of the student, such as conscientiousness or persistence, allowing an increase in the diversity of enrolled students.

In a report by the former U.S. Secretary of Health and Human Services, Sullivan (2004), charged that the health care workforce lacked the diversity to meet the needs of the American population, including the limited impact of standardized test outcomes on clinical performance. The report recommended that the steps to diversify the healthcare professions was to utilize standardized tests to best identify where the student will need academic assistance, rather than as
a screen to eliminate applicants from consideration (Cahn, 2015). To decrease the disparity of URM enrolled in allied health professions some graduate health programs are decreasing the emphasis on GRE scores (Cahn, 2015). One study identified PT, occupational therapy, speech-language pathology, and physician assistant programs that participated in a centralized application process and did not require the GRE for application (Cahn, 2015). After identifying these programs, the researcher invited the program representative to participate in a phone interview about their admissions policies and resultant cohort demographics. Using a grounded theory approach, themes were identified to develop a hypothesis on the impact of GRE exclusion on the demographic composition of an admitted class. Of all of the programs reviewed, only 94 programs were identified as not requiring the GRE, of which only 30 agreed to participate in the interviews. All interviewees were administrators or faculty members directly involved in their admissions process, and conducted by telephone. The researcher found that the primary reason for eliminating the GRE was the inability of standardized exams to predict clinical performance or academic success based on internal research seeking correlations between GRE and success of their students. Comments from the participants included the perception of the GRE as a gatekeeper to the program but not a predictor of success. One-third of participants reported the GRE discriminated against URM applicants, and felt mission-driven to eliminate a barrier for entry by URM into the program. All reporting programs expressed an interest in increasing enrollment of URM, as defined by ethnicity, socioeconomic status, first generation status, or gender, with 14 of 30 programs identifying marketing efforts to increase recruitment of URM applicants. Of the 30 total program representatives interviewed, only six reported successes in recruiting the targeted URM with five of these participants describing specific strategies for deliberate recruitment of URM or target populations.
The GRE scores are considered in admissions for DPT programs because of the significant correlation to the NPTE scores, with higher GRE scores associated with success on the NPTE, as expected when comparing the ability to perform successfully on one exam to another (Meiners & Rush, 2017). Other research, however, has also established an association between the GRE scores and graduate GPA success for DPT students (Shiyko & Pappas, 2009). Shiyko and Pappas (2009) created a model for a specific DPT program with an above average representation of URM student to explain 50% of the variance in a student’s GPA in the DPT program, using preadmission factors of the GRE verbal score, the GRE quantitative score, uGPA, an essay score used by the program, and the age of the student. The GRE is frequently considered for admissions into DPT programs, because of this high predictive validity (Shiyko & Pappas, 2009). If the GRE results vary significantly by gender and ethnicity, then other measures need to be considered for entry into DPT programs.

Faculty scoring of interviewed students. After considering academic factors on applications, many DPT programs interview prospective students, with interview methods varying greatly between programs (Mitchell, Ellison, & Gleeson, 2019). Applicants may be interviewed individually or in a group, with faculty or non-faculty, with single multiple interviewers, for any length of time (Mitchell, Ellison, & Gleeson, 2019). While significant time may be spent on the interview process, the perceived value by the admissions committee differs program to program (Mitchell, Ellison, & Gleeson, 2019). Even after the interview, many programs primarily use academic factors in determining admissions offers (Jones, Simpkins, & Hocking, 2014).

Interviews are common in many health profession programs, but especially the medical education. While academic success is measured by GPA and standardized exams, interviews are
intended to ascertain the personal qualities of an applicant that may contribute to being a good clinician (Edgar, Mercer & Hamer, 2014). In a retrospective study, Edgar, Mercer and Hamer (2014) found a significant relationship between interview scores of students and clinical performance, especially those clinical experiences that occurred early in the program ($p \leq .05$). While academic variables contributed to students’ performance on coursework, higher interview scores resulted in better clinical performance, and are worthy for consideration in the admissions process.

**Holistic Admissions in Graduate Programs**

Graduate admissions practices vary widely among institutions and programs, as they all have different missions, services, goals, disciplines, and intended students, and many claim a holistic approach to enrollment, but with varying methods and results (Kent & McCarthy, 2016). Many programs use the term “noncognitive” attributes to describe qualities that are not measured academically, a term used by Sedlacek (2004) for students in possess that contribute to success in higher education, especially students of underrepresented populations (Kent & McCarthy, 2016). Enrolling a cohort of students with diverse backgrounds of culture and experiences is viewed as a means to enrich the experiences of all students, improve academic achievement, increase intergroup communication, and promote long-term positive outcomes that will result in professional excellence and success (Kent & McCarthy, 2016; Glazer, Danek, Michaels, Bankston, Fair, Johnson & Nivet, 2014). With GRE results differing by gender and ethnicity, nonacademic, or “noncognitive” factors may be better predictors of URM student success and increase the diversity of an enrolled cohort (Sedlacek, 2004; Kent & McCarthy, 2016). This consideration of multiple factors, both academic and nonacademic, leads to a holistic admissions review process.
The Association of American Medical Colleges (AAMC) defined holistic admissions as a selection process that is mission-centric and multi-factorial, including the applicant’s experiences, attributes, and academic metrics, allowing a focus on the “whole” applicant, and not just the academic qualifications (2019). According to a report from the Council of Graduate Schools, successful graduate admissions processes should support university and program missions (Kent & McCarthy, 2016). The report voiced the concern that weighting quantitative academic measures places many students at a disadvantage, including those that are non-traditional, of lower socioeconomic status, or of an underrepresented population, and do not consistently predict graduate school success. With the emphasis on data-driven results in programs, methods of measuring multiple predictors of success must be established. The majority of graduate admissions processes are contained in the individual programs rather than in a centralized office of the institution, placing greater stress on the administrators and faculties of those programs (Kent & McCarthy, 2016). Additionally, the demand to increase the diversity of many graduate programs has admission committees seeking methods to increase access while maintaining academic success of the enrolled students. But increasing diversity should not be the only goal of a holistic admissions process. A holistic admissions review process (HARP) should allow committees to evaluate all applicants through the same rubrics, choosing students with multiple factors that lead not only to academic success, but also clinical success (Glazer et. al, 2014).

The implementation of holistic admissions review processes is increasing in both undergraduate and graduate arenas, with strategic efforts made by the Urban Universities for Health (UU HEALTH), the AAMC, and the American Dental Education Association (ADEA) most prominently (Kent & McCarthy, 2016). With an educational emphasis on specific
knowledge and skills sets for the medical professions, the thought exists that admissions programs would emphasize academic knowledge; the emphasis on increasing diversity to address health inequities has encouraged medical and dental education programs to blaze the trail for other health professions (Kent & McCarthy, 2016).

**Urban Universities for HEALTH.** The Urban Universities for HEALTH is a network of universities in the U.S., with the intent of developing and encouraging the use of best practices for educating future healthcare providers to address the health of all populations (Glazer et. al, 2014). UU HEALTH surveyed the presidents of public universities with two or more health profession education programs, with questions designed to assess the level of holistic involvement in the admissions process, and the demographics and academic measures of the students over the past ten years (Glazer et. al, 2014). Among institutions with a clear understanding and implementation of holistic practices, administrators reported either unchanged or improved academic quality of the incoming students, of the level of student retention, and of the student academic performance as measured by average GPA and licensing exam pass rate. Of the responding institutions, 67% of the health professions programs had implemented HARP in the last ten years, primarily in medical and dental schools. Institutions that implemented multiple facets of a holistic admissions process were the most likely to report a significant increase in the diversity of their student population. This study demonstrated that holistic admissions practices, implementing nonacademic factors with academic variables, can significantly increase student diversity, while maintaining academic qualifications and outcomes.

**Medical schools.** The AAMC (2010) began the initiative to advance holistic reviews in medical schools in 2007, seeking methods to view applicants through “a wider lens”, to value the applicant’s experiences, attributes, and academic qualifications, and to consider all factors of an
applicant that would develop into not just a qualified student, but also as a qualified future physician. One impetus for this initiative was the aspiration to increase the diversity of the profession to meet societal needs (Kent & McCarthy, 2016). In holistic admissions guides, the AAMC charges committees with establishing admission practices that are mission-centric and goal-driven, acknowledging that diversity has many definitions and dimensions (AAMC, 2010).

To further the diversity initiative, the AAMC has provided workshops to implement HARP in medical schools, and in the schools that participated in a workshop, the diversity significantly increased for the number of students from URM populations admitted into the school, as well as those that matriculated through the program (Grbic, Morrison, Sondheimer, Conrad & Milem, 2019). The medical school admissions committees that participated in the workshops were already committed to increasing the diversity of their cohorts, which may have resulted in other initiatives aligned with their missions (Grbic, Morrison, Sondheimer, Conrad & Milem, 2019).

As medical schools implement HARP initiatives, some programs are experiencing a change in the demographics of their students, resulting in an increase in the diversity of physicians which may address health inequities (Ballejos, Rhyne & Parkes, 2015). One method is to weight desired nonacademic attributes heavier, without compromising admissions standards. One medical school increased the weight of the nonacademic standards to 65% of the application score, and experienced a 6% increase in students from URM populations (Ballejos, Rhyne & Parkes, 2015). Using HARP methods may improve the ability to admit students with the potential to achieve academic success and clinical success.

**Dental schools.** Like the Association of American Medical Colleges, the American Dental Education Association (ADEA) has created and encouraged strategies to increase the diversity of the dental profession to serve URM populations, and increase access to dental
services (Wilson, Sedlacek & Lowery, 2014). Similar to other health professions, the dental profession lacks equal representation of populations, resulting in decreased access to oral-health care in the underrepresented populations (Sullivan, 2004). In an effort to increase the diversity of the incoming students, ADEA (2019) offers holistic admissions review workshops for dental schools, with topics including admissions procedures to promote institutional excellence, legal considerations for holistic admissions, accreditation impacts, and HARP theory and research. As a program’s mission should provide guidance for action, admissions practices, especially holistic review practices, should be mission centric (Price & Grant-Mills, 2010). If the mission includes increasing access to oral health services for populations with limited access due to underrepresentation in the dental field, then practices to increase diversity of the student population should include a holistic approach (Price & Grant-Mills, 2010).

One method of HARP is the utilization of a rubric to review the applications. One dental program developed an application review rubric that included non-academic factors to determine interview eligibility, and tested it on past applications from 2006 and 2007 (Lopez, Self & Karnitz, 2009). Comparison of these applicants found that students admitted had higher GPAs and standardized exam scores than those not admitted, but that students from underrepresented populations were weighted higher on the non-academic portion of the review rubric (Lopez, Self & Karnitz, 2009). If the dental school had implemented the rubric in their application review, more applicants from underrepresented populations would have been offered an interview (Lopez, Self & Karnitz, 2009).

Another university implementing HARP is the East Carolina University (ECU) School of Dental Medicine, founded in 2007 with a mission to meet the underserved needs of the North Carolina population, especially URM populations (Wilson, Sedlacek & Lowery, 2014). Because
of the school’s mission, the admissions committee decided to implement holistic review in admissions in 2010, and consulted Sedlacek for knowledge of noncognitive factors that lead to success in undergraduate students of URM populations, and the ADEA for the HARP workshops. All faculty and administrators involved in admissions participated in the workshops prior to the 2012-13 application cycle (for admission of the 2013 cohort). The ECU admissions committee reviewed each applicant for cognitive and noncognitive variables, and qualified applicants were interviewed by two to three faculty members. The dental school experienced an increase in students from URM populations after the workshops, with an increase from 9.6% URM students in the 2012 cohort, to 23% of the students representing URM populations in the 2013 cohort. Furthermore, students who scored higher on noncognitive variables on the application received higher scores from faculty during the interviews in the 2012-13 cycle. The ECU School of Dental Medicine planned to continue the training for all faculty and committee members, to further the ability to select students for the desired attributes. This research shows that implementing a mission-driven holistic review can result in an increase in students underrepresented in previous cohorts.

**Nursing programs.** Despite the early implementation of holistic admissions review processes in medical and dental schools, other health professions, including nursing, have been slower to embrace the practice (Glazer, Clark, Bankston, Danek, Fair & Michaels, 2016). In focus groups of nursing deans, the perceived barriers to implementing HARP in nursing were the need for proven outcomes, lack of a proven HARP model to implement, lack of legal guidance, limited training, and fear of reprisals (Glazer, Clark, Bankston, Danek, Fair & Michaels, 2016). Scott and Zerwic (2015) sought a change in admissions in one nursing program, and used the AAMC holistic review guidance to implement a holistic approach to nursing admissions. They
developed a workshop for anyone involved in admissions for their program, based on the AAMC model (Scott & Zerwic, 2015). The program determined that considering experiences and desirable attributes, in conjunction with academic metrics, allowed them to select students for the potential value to the nursing profession. Scott and Zerwic (2015) reflected that while the process admitted students with diverse demographics and experiences, admissions changes were only the first step in addressing health inequities, and that changes needed to occur in the curriculum and with faculty teaching approaches to meet the varied needs of these students.

**Doctor of physical therapy programs.** While nursing programs have been slow to implement holistic admissions practices, allied health professions, including physical therapy, have either been slower or significantly lacking, as minimal research on holistic admissions in DPT programs exists in the literature. The majority of research has been establishing correlations between academic measures, primarily GPA and GRE, to academic and NPTE success (Meiners & Rush, 2017; Mitchell, Ellison & Gleeson, 2019; Ruscingno, Zipp, & Olson, 2010). A recent study by Mitchell, Ellison and Gleeson (2019) invited all 218 DPT programs to participate in a survey about admissions criteria, and received agreement from 73 to participate. The participating administrators or faculty involved in admissions responded to the survey, with 60% of responses indicating that uGPA was a strong predictor of DPT program success, and 67% weighting uGPA heavily for admissions, with 46% weighting uGPA or pGPA heavier than GRE scores. Despite only 60% reporting the perception that uGPA was a strong predictor of success, 89% of programs use the uGPA in admission decisions. Other factors were also weighted, with programs with higher NPTE pass rates reported a greater emphasis on the GRE scores than those with lower (<95%) NPTE pass rates, who weighted the interview heavier. Few participants reported weighting paid experience in the field heavily, while 42% reported weighting
extracurricular activities outside of physical therapy heavier in admissions decisions. Finally, Mitchell, Ellison and Gleeson (2019) reported many discrepancies in the perception of admissions criteria and the used of that criteria that leads to success on the program and the NPTE.

**Conceptual Framework**

The consideration of nonacademic variables in admissions has been explored for undergraduate admissions, with universities choosing “test-optional” admissions practices, allowing students to submit other artifacts in place of a standardized test score (Sedlacek, 2017). In *Beyond the Big Test: Noncognitive Assessment in Higher Education*, Sedlacek (2004) proposed the use of eight nonacademic factors for undergraduate admissions, that were correlated with success in higher education, especially success of students traditionally underrepresented in higher education classrooms by race and ethnicity. These eight factors were positive self-concept, realistic self-appraisal, successful handling of the system (specifically racism), preference for long-term goals, available strong support person, leadership experience, community involvement, and knowledge acquired in the field. Sedlacek created measures of these eight variables through questionnaires, assessment forms and interview questions. In later research, Sedlacek (2017) advised that these eight variables could be used in admissions processes to accept students with value who would have not been admitted under traditional methods, to design retention programs, to develop student services, for teaching and academic advising, for guiding graduate and professional admissions. Sedlacek’s research in undergraduate admissions leads the way for graduate and professional program admissions.

The majority of research on admissions practices compares quantitative data, specifically academic measures, to academic achievement and examination success (Kreiter, 2013).
Professional programs are seeking means of enrolling students from diverse populations, in race and ethnicity, in socioeconomic status, in gender, and in geographic location, among other measures (Coleman & Keith, 2018). This initiative should be mission driven, and should result in a “whole-file” or holistic approach to application review (ADEA, 2019). With the goal of designing an admissions process that would increase the diversity of their students, the dental school admissions committee at the University of Minnesota School of dentistry created an application review rubric to determine eligibility for an interview (Lopez, Self & Karnitz, 2009). The committee defined diversity for their school by ethnic background, rural origin, gender, first-generation status, and personal life experiences through employment or through extracurricular activities. Using the applications from the dental school centralized application service, the committee gathered the academic measures of the Dental Admissions Test (DAT), pGPA and uGPA, and nonacademic measures. Nonacademic measures considered included membership or leadership in extracurricular organizations, work or volunteer experience, first-generation status, underrepresented minority status, research experience, shadowing experience, paid experience in the field or a related field, and information from the personal statement. Using this rubric, they determined that 3.5% of applicants in 2006, and 2% of applicants in 2007 would have received an interview. Furthermore, students from URM populations scored lower on the DAT and GPA measures, but higher scores for nonacademic variables. Review of students admitted showed that the previous admissions practices resulted in students admitted with higher DAT and GPA scores. This study demonstrated that the use of the application review assessment rubric would provide a systematic approach to evaluating applicants for appropriateness of invitation for an interview to determine admissions offers.
Seeking to understand admissions practices that resulted in increased diversity, Shiyko and Pappas (2009) studied a DPT program that consistently enrolled students from URM populations. Their goal was to identify pre-admission factors that predicted academic performance while in the program, as measured by first-year program GPA and academic status at the end of the first year. Academic status was indicated as good standing if the student had not failed any courses, on probationary status if they had failed a course, or dismissed if the program dismissed them. The researchers reviewed GRE scores, uGPA, pGPA, interview scores, recommendation scores, essay ratings, age, gender, and ethnic identity as self-identified on the application. Of the pre-admission factors, GRE scores and undergraduate GPA were both highly predictive of first-year GPA and retention in the program, as expected of academic measures in undergraduate and correlation to graduate academic ability. Age was negatively associated with academic performance, with increased age associated with lower first-year GPA, but no differences in academic performance based on race and ethnicity. The program also incorporated application essays in the admissions process with strict scoring, and were found to be moderately predictive of academic success in the program. While this study validated the use of academic measures for admissions purposes as predictors of success in DPT programs, it also demonstrated that non-academic measures, such as an essay, can be valuable in admissions processes.

Summary

The lack of a consistent approach to admissions, whether single factor or holistic, is evident with the review of the literature. A systematic, objective method of reviewing applications and scoring both academic and non-academic applicant factors for consideration of admissions would be of value to many professions. A review tool, or rubric, could be created by
the admissions committee, guided by the program mission, to provide a consistent and strategic means of completing a holistic application review for admissions. This rubric could incorporate proven markers of student success both academic and nonacademic, to select applicants with the potential to be successful in the program, to be successful in their career, and to contribute to addressing health disparities in the U.S.
Chapter 3

Methodology

Overview

The purpose of this study was to determine if the implementation of a holistic admissions review process (HARP) rubric would result in a change in admissions variables or student demographics. The following chapter recounts the process to ascertain the impact of the addition of the HARP rubric on the demographics and academic qualifications of the applicants offered admission into the program in the 2019 and 2020 admission cycles, which was a change from previous admissions processes with a higher emphasis on academic qualifications and interview results. This study is guided by the work of Sedlacek (2004) who validated nonacademic (or noncognitive) factors of successful URM undergraduate students, and of Shiyko and Pappas (2009) who validated pre-admission requirements in a DPT program with higher enrollment of underrepresented minority students. The previous and current application review process in the DPT program, the data collection and the analysis are described, all to explore the impact of the addition of a HARP rubric on the demographics and academic factors of students offered admission.

Context

Admissions processes in DPT programs have relied primarily on academic factors, including standardized exams such as the GRE, undergraduate cumulative grade point average (uGPA), and prerequisite science and math GPA (pGPA). These traditional admissions methods have contributed to a lack of enrollment by URM populations as compared to the general population of the United States (Bleske-Rechek & Browne, 2014). The gap in GRE scores, seen with higher scores achieved by males than females, and White test takers than Black, Hispanic,
and Indigenous test takers (Bleske-Rechek & Browne, 2014) could contribute to the limited representation by these populations in varied medical professions.

Validation of pre-admission requirements for a DPT program was the topic for research by Shiyko and Pappas (2009). The researchers identified pre-admission variables correlated with academic success in a specific DPT program with many students belonging to URM populations, with academic success measured by GPA at the end of the first year of the program, and lack of dismissal or probation by the program. In the study, the correlation of pre-admission academic and non-academic factors and first-year GPA and academic status were performed. Of the pre-admission factors, GRE scores and undergraduate GPA of the admitted students were both highly predictive of first-year GPA and retention in the program. Age was negatively associated with academic performance, with increased age associated with lower first-year GPA. Using regression models, the researchers found no differences in academic performance of the admitted students based on race and ethnicity. Finally, the use of application essays in the admissions process were valuable if rigorously scored, and were moderately predictive of academic success in the program. This study validated the use of academic measures for admissions purposes as predictors of success in DPT programs, but non-academic measures such as an essay, are also valuable in admissions processes.

While academic metrics are currently weighted heavily for admission offers in DPT education programs in the United States (Mitchell, Ellison & Gleeson, 2019), little research has been reported on nonacademic factors resulting in student success in DPT education programs, including the noncognitive variables related to success of undergraduate students (Sedlacek, 2004). The widely accepted method of reliance on academic measures has contributed to limited diversity in the DPT student body, and subsequently the physical therapy professional body.
However, students must be academically prepared to navigate the challenges of graduate curriculum. A holistic admissions process would recognize the academic abilities of a potential student, as well the nonacademic qualities that will lead to success in the classroom and the clinic.

**Institutional Setting**

This study took place in a DPT education program in a private liberal arts institution located in a mid-sized metropolitan area in the East South Central region of the United States, and hereafter referred to as “Program A”. Program A implemented use of the Physical Therapy Centralized Application Service (PTCAS) in the 2007-08 application cycle to collect applications for review and identification of those appropriate for interview for admissions. Program A interviews applicants prior to determining admission offers, with interview offers issued based primarily on grade point average (GPA) and Graduate Record Examination (GRE) scores. In the 2016-17 application cycle, Program A began interviewing applicants as a group with two faculty interviewers, with the interviews scored on a rubric and stored in the PTCAS system; faculty were able to view the applicant’s transcripts, GPA and GRE scores, as well as letters of recommendation or records of employment, extracurricular activities and observation hours. Beginning with the 2017-18 admission cycle, faculty interviewers were blinded to the academic measures, including transcripts, GRE scores and GPAs, but were still able to view all nonacademic measures. In the 2018-19 application cycle, a HARP rubric was implemented for scoring applications by the admissions committee, to assist with deciding offers for interview or admissions offers in conjunction with applicant GPA and GRE scores. At the same time, GRE scores were emphasized less as a means to determine admission eligibility. The impact of this
change in admissions process, specifically the addition of the HARP rubric, on academic measures and student demographics has yet to be determined.

**Application Review Process**

Previously applicants were reviewed and chosen for an interview primarily based on uGPA, pGPA, and GRE scores. To be considered qualified for admission into the program, a student’s uGPA must be at or above 2.70 and pGPA must be at or above 3.00, and preferred GRE scores of 150 for Quantitative and Verbal sections. A rolling admissions process allows candidates to apply from July to December of each year with applications reviewed in order of receipt, and to qualify for an interview between August and February of each cycle. The applicants with the highest GPA scores and meeting acceptable GRE scores were given higher preference for interviews in the 2016-17 and 2017-18 application cycles. In 2018, a rubric was developed and used to guide application review in the admissions process during the 2018-19 and 2019-20 cycles. The minimum uGPA and pGPA remained the same, but the GRE scores were emphasized less during the interview and admission offer processes. The program began using GRE scores after enrollment to determine if the applicant would need guidance for testing strategies instead.

**Development of the HARP rubric.** For admissions consideration of nonacademic criteria in conjunction with academic variables, an application review rubric was created in 2018 by a DPT faculty committee to quantify information in the letters of recommendation, employment experience, and volunteer or observation time for leadership, persistence and exposure to healthcare, with a goal of selecting applicants from diverse populations and with traits desirable in a physical therapist. Using the guidance of work from Sedlacek (2004), the committee chose four of the eight nonacademic, or noncognitive, variables associated with
success in higher education of URM higher education students to adapt for use in the development of the HARP rubric. The variables chosen included preference for long-range goals which was adapted into persistence, evidence of successful leadership experience, demonstrated community service, and evidence of knowledge in the field, as these were variables in the application that could be measured from information in the application (Sedlacek, 2004). Applicants were scored on persistence through review of leadership activities, letters of recommendation, record of volunteer and employment; leadership was scored from information in volunteer, extracurricular and employment activities; community service was scored in the extracurricular and volunteer activities the applicant entered; and knowledge in and exposure to the field was found in review or extracurricular, volunteer and employment activities. Other items added to the rubric were interpersonal skills, with scores obtained by reviewing letters of recommendation, and an option for the reviewer to add up to two points for other qualities not captured in the rubric but demonstrate desired qualities of student, such as retaking courses to improve eligibility for admission or reapplying after not receiving an admission offer for a previous year. The initial rubric was tested using past applications, beginning with all committee members scoring the same applications simultaneously. When differences in scores were revealed, the terminology of the rubric was clarified. After this initial review, multiple reviewers scored the same applications individually and then compared scores with each reviewer, resulting in further clarification. This process was repeated twice more, resulting in clarification of the scoring language until similar ratings for the same application were achieved by multiple users. The final rubric was sent to the admissions committee, who tested the process. Due to the length of scoring each category, committee members reviewed applications together with the rubric as a guide, and developed a four-point scale of “Yes to Interview, Probably Yes Interview,
Maybe No Interview, No Interview” (see Appendix A). The admission committee still evaluated applications for persistence, leadership, achievements, and experience and exposure in healthcare. Beginning with the 2018-19 application cycle, the rubric was used to review all applicants who met the academic qualifications for enrollment into the program. Applicants with a score of “Interview” who met the prerequisite uGPA ($\geq 2.70$) and pGPA ($\geq 3.00$) were prioritized for an interview, followed by those applicants who scored “Probably Yes Interview” with the prerequisite academic standards.

**Interview scores and faculty recommendations.** The process after the student was selected for an interview remained consistent the last four cycles, with the only significant change in the application review method and selection for an interview. Applicants were interviewed in a group setting, typically six applicants and two faculty members, with applicants completing an on-demand written piece for 15 minutes, followed by questions from the faculty for 60 minutes. The written and interview questions were standardized, with all groups receiving the same questions. Prior to the HARP implementation, faculty were able to view the uGPA, pGPA, transcripts and GRE scores for the first year, as well as demographic information, an essay, letters of recommendations, extracurricular activities, employment history, volunteer activities, honors, scholarships, awards and certifications listed on PTCAS that applicants self-reported for both years. Faculty were blinded to academic factors after the 2016-17 cycle, and the factors were only viewed by the admissions committee. Using the written and verbal answers from the interviews, as well as information from the online application in PTCAS, faculty then assigned scores to the interviewed applicants, with scores for interpersonal experience, exposure to healthcare, leadership and responsibility, persistence toward Program A, persistence in life, overall impression of the written information, and overall impression of the applicant during the
group discussion, using a rubric designed by the admissions committee (see Appendix B). Each of the seven areas are scored zero to two, with a combined score possibility of 14. The faculty member then assigned a rating of “Highly Recommend,” “Recommend,” or “Reservations” about recommending, and provided comments. The admissions committee viewed the interview scores, the recommendation, and the comments to assist with determining admission offers.

**Applicant Demographics**

In the application process through PTCAS, applicants self-selected their identity from multiple prepopulated options, which were then classified into overarching categories, including African American/Black, American Indian/Alaskan Native, Asian, Hawaiian/Pacific Islander, Hispanic/Latino, White, Other, or Declined to Answer. Applicants were able to choose more than one race and ethnicity. The grouped classifications were used for this study.

Applicants reported their date of birth and their age at the time of application. While this age may have changed at the time the student was offered admission, the age at time of application was used for this study. By the time applicants enrolled in the program, they may have been older than the age listed in PTCAS.

The county for the permanent address of the applicant was coded as urban or rural based on the classification from the National Center for Health Statistics, a division of the Center for Disease Control and Prevention (Ingram & Franco, 2013). Counties were assigned to metropolitan and nonmetropolitan stratifications, with nonmetropolitan areas identified as rural for this study (Ingram & Franco, 2013).

**Research Questions**

Recent research demonstrates significant correlation between scores on the Graduate Record Exam (GRE) and the National Physical Therapy Exam (NPTE) (Meiners & Rush, 2017),
significant correlation between undergraduate grade point average (uGPA) and prerequisite science and math grade point average (pGPA) to first year DPT student success (Zipp, Ruscingno & Olson, 2010), and the benefit of interviews on the admissions process to choose students with desirable non-academic qualities (Roberts et al., 2008). Studies have not demonstrated the impact of holistic admissions review processes (HARP) in DPT programs on the academic markers that predict future success, or on the diversity of a cohort, to increase representation of underrepresented or marginalized populations (URM). The impact of HARP in DPT programs on the increase of URM population representation in the program has also not been studied. Therefore, the purpose of this study is to determine if the introduction of an application review rubric as part of a holistic admissions review process has a significant impact on enrollee demographics, interview scores, or academic measures. Specifically:

1. Did the population demographics of the applicants offered admission in the program vary significantly between the two years prior to HARP and two years of HARP:
   a. As measured by gender;
   b. As measured by age;
   c. As measured by racial & ethnic identity;
   d. As measured by community origin type of rural or urban?

2. Is there a significant difference in the pre-admission academic factors of applicants offered admission after the implementation of the HARP rubric as compared to prior to implementation:
   a. As measured by Quantitative GRE scores;
   b. As measured by Verbal GRE scores;
   c. As measured by pGPA;
d. As measured by uGPA?

3. Is there a significant difference in interview scores of applicants offered admission the two years that did not implement the HARP rubric as compared to the two years that implemented the HARP rubric?

4. Does a significant correlation between the HARP ratings and faculty recommendations of all interviewed applicants exist?

**Hypotheses.** The HARP rubric was initially developed based on the research by Sedlacek (2004) on noncognitive factors for success in URM students in higher education, and based on traits faculty at Program A desired in a DPT student. The hypotheses for this research were based on previous studies surrounding GRE and GPA variations based gender, race and ethnicity, and citizenship status (Wilson, Odem, Walters, DePass & Bean, 2019; Fischer, 2007). As the HARP rubric was developed using research surrounding successful URM students (Sedlacek, 2004) and traits desired by faculty, the applicants offered admission should have higher interview scores.

As a result of this research, the hypotheses were as follows:

1. The addition of the rubric to the admissions process would result in a significant change in gender demographics, with an increase in female applicants offered admission in the post-HARP sample.

2. The addition of the rubric to the admissions process would result in a significant increase in the mean age of the applicants offered admission in the post-HARP sample.

3. The addition of the rubric to the admissions process would result in a significant increase in applicants offered admission who identify in the racial and ethnic URM populations in the post-HARP sample.
4. The addition of the rubric to the admissions process would result in a significant
difference in the community of origin, with an increase in applicants from an urban
community in the post-HARP sample.

5. The addition of the HARP rubric to the admissions process with decreased emphasis
on GRE scores would result in a significant decrease in Verbal GRE scores of the
post-HARP sample, if the demographics changed significantly.

6. The addition of the HARP rubric to the admissions process with decreased emphasis
on GRE scores would result in a significant decrease in Quantitative GRE scores of
the post-HARP sample, if the demographics changed significantly.

7. The addition of the HARP rubric to the admissions process with decreased emphasis
on GPA scores would result in a significant decrease in pGPA of the post-HARP
sample, if the demographics changed significantly.

8. The addition of the HARP rubric to the admissions process with decreased emphasis
on GPA scores would result in a significant decrease in uGPA of the post-HARP
sample, if the demographics changed significantly.

9. The addition of the HARP rubric to the admissions process would result in higher
interview scores in the applicants offered admission in the post-HARP sample.

10. The HARP rubric ratings of the interviewed applicants would correlate to the faculty
recommendations.

**Research Procedures**

**Participants and study sampling.** A sample of convenience was employed and included
all applicants who were interviewed by Program A from four-year period between the 2016-17
through the 2019-20 application cycles. From the original sampling, applicants offered admission into the program were placed into a study sample (N = 669) for the research questions seeking the impact of the HARP rubric. Applicants categorized as offered admission included those who were offered admission but declined or withdrew, as well as those who were offered admission and enrolled. For the correlation of the HARP rubric rating to Faculty recommendation, the applicants interviewed in the 2018-19 to 2019-20 cycle were placed into a separate sample (N = 460). All applicants were assigned a study number and all identifying information removed from the data tables to protect the applicant.

**Data collection.** Data were obtained from PTCAS and the admissions committee for this study. Applicants entered all information into the application system, including demographic information as well as unofficial GPA and GRE scores and requested transcripts to be imported for official scores. Faculty entered interview scores and recommendations into PTCAS after the interview is completed. The HARP ratings were collected in a data sheet from the admissions committee faculty members for the 2018-19 and 2019-20 applications. Variables explored in the research are contained in Table 1.

Table 1

<table>
<thead>
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<th>Study Variable Descriptions</th>
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<td><strong>Variable</strong></td>
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| Interviewed Applicant | Categorical | 1 = Not admitted pre HARP  
2 = Admitted pre HARP  
3 = Not admitted post HARP  
4 = Admitted post HARP | Program Specific |
| Gender | Categorical | 1 = Male  
2 = Female  
3 = Declined to answer | PTCAS |
| Age | Continuous | Whole numerals (20 - 42) | Not applicable |
| Race & Ethnicity | Categorical | 1 = American Indian/Alaskan Native  
2 = Hispanic/Latino  
3 = Asian  
4 = African-American/Black (non-Hispanic)  
5 = Hawaiian/Pacific Islander  
6 = White (non-Hispanic)  
7 = 2+ Race/ethnicity designations  
8 = Declined to answer  
9 = Other | APTA/PTCAS |
|-----------------|-------------|-----------------|
| GRE Verbal Score | Continuous | Whole numerals  
(130 - 170) | Educational Testing Service |
| GRE Quantitative Score | Continuous | Whole numerals  
(130 - 170) | Educational Testing Service |
| uGPA | Continuous | To the tenth decimal point  
(2.70 to 4.00) | Not Applicable |
| pGPA | Continuous | To the tenth decimal point  
(2.70 to 4.00) | Not Applicable |
| HARP Rubric score | Categorical | 1 = Yes Interview  
2 = Probably Interview  
3 = Maybe Interview  
4 = No Interview | Program specific |
| Interview Scores | Continuous | Whole numerals  
(0 – 14) | Program Specific |
| Faculty recommendation | Categorical | 1 = Highly recommend  
2 = Recommend  
3 = Reservations | Program specific |
| Community setting | Categorical | 1 = Rural  
2 = Urban | National Center for Health Statistics |

For this study, The applicants during the 2016-17 and 2017-18 cycles were grouped as the pre-HARP sample, as the only change in the admissions process was a reduction in time for the applicants to produce an on-demand writing sample from 30 minutes in 2016-17 to 15
minutes in 2017-18. The applicants during the 2018-19 and 2019-20 cycles also experienced identical admissions processes and were grouped as the post-HARP sample. The applicants were coded using designations from PTCAS, all self-selected and entered into the application system by the applicant. The coded categories included gender as male, female or declined to answer; race and ethnicity as American Indian/Alaskan native, Hispanic/Latino, Asian, African-American/Black (non-Hispanic), Hawaiian/Pacific Islander, White (non-Hispanic), two or more race or ethnicity designations, or declined to answer; and community of origin as rural or urban. The age of the applicant at the time of application was recorded. The GRE Qualitative and Verbal scores as determined by the Educational Testing Service for each student was obtained from PTCAS, with the possible scores ranging from 130 to 170. The uGPA and pGPA from the transcripts submitted to PTCAS were collected. The applicants were rated using the HARP rubric by the two faculty members of the admission committee at Program A, and maintained in separate data spreadsheet, with categories of Yes to Interview, Probably Yes to Interview, Maybe Interview, and No to Interview. Faculty entered interview scores into PTCAS, ranging from zero to 14, with applicants receiving zero to two points in each category, and scores guided by a rubric (see Appendix B).

Faculty recommendations were obtained from PTCAS for the post-HARP interview sample. Recommendations were categorical and scored as Highly Recommend, as Recommend, or as Reservations (on recommending). The HARP scores for all applicants in the post-HARP interview sample were collected from the admissions committee for the analysis.

Analysis Design

A retrospective, quantitative analysis was performed to examine the differences between the applicants offered admission pre- and post-HARP rubric implementation. Analysis of
variance (ANOVA) was used for comparison of the groups pre- and post-HARP rubric for age, pGPA, uGPA, Quantitative GRE, Verbal GRE scores and interview scores for the applicants offered admission. To examine the relationship between the HARP rubric implementation with gender, identity, and community of origin Pearson’s chi-square tests were performed. Correlation between interview scores and HARP rubric scores was assessed through chi-square tests using the scores from all applicants interviewed post-HARP rubric implementation. Because exact sample sizes were unknown prior to the designing the study, a post-hoc power analysis was conducted using G*Power (Faul, Erdfelder, Buchner & Lang, 2009).

Summary

This study explored the impact of a change in admissions process on the academic measures and demographics of applicants offered admission between 2017 and 2020 into a DPT program. Sample data were collected from PTCAS and the admissions committee for applicants interviewed and applicants offered admission. The 2017 and 2018 applicants offered admission were classified as the pre-HARP sample, and the 2019 and 2020 applicants offered admission classified as the post-HARP sample. Statistical analysis on the data included analysis of variance and chi-square tests. The following chapter details the results of the statistical analyses and the rejection or acceptance of the hypotheses.
Chapter 4

Results

Overview

Previous research on the correlation of undergraduate academic measures with graduate student success, the call from the APTA to increase the diversity in the profession, and changes in the admissions process at Program A prompted this study. Prior to the change in procedures in Program A, 621 applicants were interviewed and 378 were offered admission for the 2017 and 2018 admission years. After the HARP rubric was implemented, 460 applicants were interviewed, with 291 offered admission in the 2019 and 2020 admission years (see Table 2). Consistent with the purpose of the study, the data from the four years were grouped into the pre-HARP sample (2017 and 2018) and the post-HARP sample (2019 and 2020), with the data presented for each admission year individually and compared for similarity (see Table 3).

Similarly, a comparison of the means for the 2017 and 2018 students offered admission resulted in no significant differences in the homogeneity for Quantitative GRE (p = .93), Verbal GRE (p = .33), or uGPA (p = .55) but did for pGPA (p ≤ .01). The mean comparison for the 2019 and 2020 students offered admission resulted in no significant differences in the homogeneity for Quantitative GRE (p = .22), Verbal GRE (p = .63), or uGPA (p = .72) but did for pGPA (p = .03). After reviewing equality of variances with the only significant difference in homogeneity in the pGPA of both groups, the applicants offered admission in 2018 replicates the applicants from 2017, and categorized as the pre-HARP sample, while the sample of applicants offered admission in 2019 is sample three and the applicants offered admission in 2020 are also replicates, and are categorized as the post-HARP sample.
Table 2

**Applicants Interviewed and Offered Admission By Admission Year**

<table>
<thead>
<tr>
<th>Admission Year</th>
<th>Interviewed</th>
<th>Offered Admission</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>355</td>
<td>205</td>
</tr>
<tr>
<td>2018</td>
<td>266</td>
<td>173</td>
</tr>
<tr>
<td>2019</td>
<td>244</td>
<td>151</td>
</tr>
<tr>
<td>2020</td>
<td>216</td>
<td>140</td>
</tr>
</tbody>
</table>

Table 3

**Academic Measures by Admission Year**

<table>
<thead>
<tr>
<th>Academic Measure</th>
<th>2017 (N = 205)</th>
<th>2018 (N = 171(^a))</th>
<th>2019 (N = 150(^b))</th>
<th>2020 (N = 140)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantitative GRE</td>
<td>M 151.17</td>
<td>150.22</td>
<td>150.95</td>
<td>150.11</td>
</tr>
<tr>
<td></td>
<td>SD 4.39</td>
<td>4.24</td>
<td>5.22</td>
<td>4.99</td>
</tr>
<tr>
<td>Verbal GRE</td>
<td>M 150.74</td>
<td>150.15</td>
<td>149.09</td>
<td>150.09</td>
</tr>
<tr>
<td></td>
<td>SD 5.13</td>
<td>5.06</td>
<td>9.80</td>
<td>4.97</td>
</tr>
<tr>
<td>pGPA</td>
<td>M 3.67</td>
<td>3.60</td>
<td>3.56</td>
<td>3.57</td>
</tr>
<tr>
<td></td>
<td>SD .22</td>
<td>.27</td>
<td>.26</td>
<td>.29</td>
</tr>
<tr>
<td>uGPA</td>
<td>M 3.68</td>
<td>3.66</td>
<td>3.59</td>
<td>3.65</td>
</tr>
<tr>
<td></td>
<td>SD .22</td>
<td>.23</td>
<td>.26</td>
<td>.267</td>
</tr>
</tbody>
</table>

\(^a\)Variability between analytic sample (171) and the design sample (173) is due to the lack of reported GRE scores in PTCAS.  
\(^b\)Variability between analytic sample (150) and the design sample (151) due to the lack of reported GRE scores in PTCAS.

A post-hoc power analysis was conducted using G*Power (Faul, Erdfelder, Buchner & Lang, 2009) and the sample size for the applicants offered admission to assess the parameters associated with both the analysis of variance and the chi-square test. For both procedures, alpha was set at .05 and the minimum detectable effect size was set at values consistent with Cohen’s values for small magnitude for the analysis of variance, but a large effect size for the chi-square tests \(F = .15, \chi^2 = .95\) (Cohen, 1988). With a total sample of 669 (pre-HARP n = 376, post-HARP n = 291) power was assessed to be .915 for the ANOVA tests, and .950 for the chi-square
analysis. The addition of the HARP rubric to the admission process impacted both demographic and academic variables, as detailed in the following results.

**Demographic Variables**

**Gender.** The first research question was if the population demographics of the applicants offered admissions in the program varied significantly between the two years prior to HARP and two years of HARP for gender. The hypothesis was that the addition of the rubric to the admissions process would result in a significant change in gender demographics, with an increase in female applicants. Of the 378 applicants offered admission from 2017 to 2018, 33.6% self-identified as male, and 32.6% of the 291 applicants offered admission from 2019 to 2020 self-identified as male, with all interviewed applicants designating a gender on application. See Table 4 for the population by gender identity. No significant association between gender and HARP status was identified, and gender did not change significantly with the implementation of the HARP rubric ($p > .05$). Therefore, the null hypothesis was not rejected, and the HARP rubric implementation did not significantly change the male to female composition of the applicants offered admission.

Table 4

<table>
<thead>
<tr>
<th>Gender Identity</th>
<th>Pre HARP</th>
<th>Post HARP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>127</td>
<td>95</td>
</tr>
<tr>
<td>Female</td>
<td>251</td>
<td>196</td>
</tr>
<tr>
<td>Total</td>
<td>378</td>
<td>291</td>
</tr>
</tbody>
</table>

$\chi^2 (1) = .067, p = .795$

**Age.** The second research question was if the age of the applicants offered admissions in the program varied significantly between the two years prior to HARP and the two years of HARP. The hypothesis was that the addition of the rubric to the admissions process would result
in a significant change in the mean age of the student. The average age of the applicants offered admission prior to the rubric use was 22.03 (SD 2.36) years of age, and after the rubric adoption was 22.50 (SD 2.85) (see Table 5). A one-way ANOVA determined a statistically significant difference existed in age between applicants offered admission before the HARP rubric was implemented and after the rubric was implemented \((F(1,667) = 5.386, p = .021)\). The age of applicants prior to HARP rubric implementation \((M = 22.03)\) was significantly less than the age of the post-HARP group \((M = 22.50)\) (Cohen’s \(d\) = .181). Therefore, the null hypothesis was rejected, and the addition of the HARP rubric in the admissions process did affect the age of applicants offered admission.

Table 5

<table>
<thead>
<tr>
<th>Age at Time of Application</th>
<th>M</th>
<th>N</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-HARP</td>
<td>22.03</td>
<td>378</td>
<td>2.36</td>
</tr>
<tr>
<td>Post-HARP</td>
<td>22.50</td>
<td>291</td>
<td>2.85</td>
</tr>
<tr>
<td>Total</td>
<td>22.24</td>
<td>669</td>
<td>2.59</td>
</tr>
</tbody>
</table>

\(a R^2 = .008\)

**Racial and ethnic identity.** The next research question asked if the population demographics of the applicants offered admissions in the program varied significantly between the two years prior to HARP and two years of HARP as measured by race and ethnic identity. The hypothesis was that the identity demographics would be significantly changed and include a greater number of URM applicants offered admission. Due to the limited number of applicants identifying as Native American, Hispanic or Latino, the assumptions of minimal cell sizes for the chi-square test for observations to be of similar distribution in each category was violated. Therefore, these selected URM applicants were combined with the applicants who selected multiple identifies for the chi-square comparison, as the applicants who selected multiple
identities all selected at least one URM identity. Applicants who did not select an identity, or chose “Other” were not included in the URM group counts. Applicants identifying as one of the URM populations offered an interview increased even as the total number offered admission decreased after implementing the HARP rubric (see Table 6).

The introduction of the HARP rubric in the admissions process is associated with statistically significant differences in the reported demographics of the applicants offered admission as measured by their identity, with a small effect size ($\chi^2(5)=14.77$, $p=.011$, $\phi = .149$) (Cohen, 1988). Applicants offered admission who identified as White decreased by 7.5% of the total post-HARP sample as compared to the pre-HARP sample. Increases in all URM identities in comparison to total sample size were seen, with combined URM applicants comprising 6.61% of the pre-HARP sample, and 15.12% of the post-HARP sample. With 27 non-White applicants offered admission in the pre-HARP sample (7.87% of the total sample), and 44 in the post-HARP sample (18.18% of the total sample), non-White applicants were 2.3 times more likely to be offered admission after the HARP implementation. Further, Black applicants were 1.65% of the pre-HARP sample, and 4.76% of the post-HARP sample, increasing the likelihood of being offered admission 2.9 times more than prior to the HARP implementation. Therefore, the null hypothesis was rejected, and the implementation of the HARP rubric exhibited a significant impact on identity demographics as measured by self-selected race and ethnicity.
Table 6

**Self-Reported Identity**

<table>
<thead>
<tr>
<th>Identity</th>
<th>Pre-HARP</th>
<th></th>
<th>Post-HARP</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Native American</td>
<td>1</td>
<td>.27</td>
<td>2</td>
<td>.69</td>
</tr>
<tr>
<td>Other Not Identified</td>
<td>2</td>
<td>.53</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>4</td>
<td>1.06</td>
<td>4</td>
<td>1.37</td>
</tr>
<tr>
<td>Asian</td>
<td>6</td>
<td>1.59</td>
<td>12</td>
<td>4.12</td>
</tr>
<tr>
<td>Black</td>
<td>6</td>
<td>1.59</td>
<td>13</td>
<td>4.47</td>
</tr>
<tr>
<td>2+ Identities</td>
<td>8</td>
<td>2.12</td>
<td>13</td>
<td>4.47</td>
</tr>
<tr>
<td>Did Not Answer</td>
<td>8</td>
<td>2.12</td>
<td>5</td>
<td>1.71</td>
</tr>
<tr>
<td>White</td>
<td>343</td>
<td>90.74</td>
<td>242</td>
<td>83.16</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>378</td>
<td>100.00</td>
<td>291</td>
<td>100.00</td>
</tr>
</tbody>
</table>

**Community of origin.** The final research question regarding demographics was if the implementation of the HARP rubric significantly changed the number of applicants reporting a permanent address in a county that was rural or urban. The hypothesis was that the applicants offered admission from a rural permanent address would decrease. Prior to utilizing the HARP rubric, 22.5% of the applicants offered admission reported a permanent address in a county that was categorized as rural by the National Center for Health Statistics, and 18.9% of applicants offered admission were categorized as from a rural county after utilization (see Table 7). A chi-square analysis determined no association existed between the HARP rubric implementation and the community of origin, and therefore application of the HARP rubric did not significantly impact community of origin, and the null hypothesis was not rejected.

Table 7

**Community of Origin**

<table>
<thead>
<tr>
<th>Origin</th>
<th>Pre-HARP</th>
<th></th>
<th>Post-HARP</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>International</td>
<td>1</td>
<td>.3</td>
<td>1</td>
<td>.3</td>
</tr>
<tr>
<td>Rural</td>
<td>85</td>
<td>22.5</td>
<td>55</td>
<td>18.9</td>
</tr>
<tr>
<td>Urban</td>
<td>292</td>
<td>77.2</td>
<td>235</td>
<td>80.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>378</td>
<td>100.00</td>
<td>291</td>
<td>100.00</td>
</tr>
</tbody>
</table>

\[ \chi^2(1) = 1.27, \ p = .260 \]
Academic Variables

Graduate Record Examination. The first research questions regarding academic variables was evaluating the difference in the Quantitative and Verbal GRE scores when comparing the pre-HARP sample to the post-HARP sample. The hypothesis was that with the decreased emphasis on GRE scores for admission post-HARP implementation, the Quantitative and Verbal GRE scores would decrease significantly after implementation as compared to the pre-HARP sample.

The average Quantitative GRE score of the pre-HARP sample was 150.73 (SD = 4.343), and of the post-HARP sample 150.54 (SD = 5.116) (see Table 8). The average Verbal GRE score of the pre-HARP sample was 150.47 (SD = 5.101), and of the post-HARP sample 149.92 (SD = 5.014) (see Table 8). No significant difference was evident in Quantitative scores (p = .61) or Verbal quantitative scores (p = .16) in pre-HARP and post-HARP samples, and the null hypothesis was not rejected for either the Quantitative or Verbal GRE scores.
Table 8

*Graduate Record Examination Scores of Pre- and Post-HARP Samples*

<p>| | | | | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>M</td>
<td>SD</td>
<td>SE</td>
<td>Lower</td>
<td>Upper</td>
<td>Min</td>
<td>Max</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quantitative GRE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-HARP</td>
<td>376</td>
<td>150.73</td>
<td>4.343</td>
<td>.224</td>
<td>150.29</td>
<td>151.17</td>
<td>138</td>
<td>167</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-HARP</td>
<td>290</td>
<td>150.54</td>
<td>5.116</td>
<td>.300</td>
<td>149.95</td>
<td>151.14</td>
<td>134</td>
<td>164</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>666</td>
<td>150.65</td>
<td>4.693</td>
<td>.182</td>
<td>150.29</td>
<td>151.01</td>
<td>134</td>
<td>167</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbal GRE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-HARP</td>
<td>376</td>
<td>150.47</td>
<td>5.101</td>
<td>.263</td>
<td>149.95</td>
<td>150.99</td>
<td>135</td>
<td>168</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-HARP</td>
<td>290</td>
<td>149.92</td>
<td>5.014</td>
<td>.294</td>
<td>149.34</td>
<td>150.50</td>
<td>136</td>
<td>164</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>666</td>
<td>150.08</td>
<td>5.067</td>
<td>.196</td>
<td>149.84</td>
<td>150.62</td>
<td>135</td>
<td>168</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Grade Point Average.** The next research question for academic variables was seeking a significant difference in the pGPA and uGPA of applicants in the pre-HARP sample as compared to the post-HARP sample. The hypothesis was that addition of the HARP rubric to the admissions process with decreased emphasis on GPA scores would result in a significant decrease in pGPA and uGPA of the post-HARP sample if the demographics were significantly different, based on research that GPA can vary by race and ethnicity (Fischer, 2007). Therefore, because racial and ethnic identity was significantly different in the post-HARP sample, the GPAs would be lower in the same sample.

The average pGPA for the pre-HARP sample was 3.636 (SD = 0.244) and the post-HARP sample was 3.565 (SD = 0.275) (see table 9). An analysis of variance showed a statistically significant difference prerequisite GPA between the groups, with a small effect size, $F(1,667) = 12.429$, $p = .007$, $d = -.119$ (Cohen, 1988). The post-HARP group demonstrated a lower pGPA
by .071. The null hypothesis was rejected, and the pGPA of the post-HARP group is significantly lower than the pGPA of the pre-HARP group.

Table 9

<table>
<thead>
<tr>
<th>Grade Point Averages Between Pre- and Post-HARP Samples</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>SE</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>pGPA Pre-Harp</td>
<td>378</td>
<td>3.636</td>
<td>.244</td>
<td>.012</td>
<td>2.79</td>
<td>4.00</td>
</tr>
<tr>
<td>Post-HARP</td>
<td>291</td>
<td>3.565</td>
<td>.275</td>
<td>.016</td>
<td>3.00</td>
<td>4.00</td>
</tr>
<tr>
<td>Total</td>
<td>669</td>
<td>3.605</td>
<td>.260</td>
<td>.010</td>
<td>2.79</td>
<td>4.00</td>
</tr>
<tr>
<td>uGPA Pre-Harp</td>
<td>378</td>
<td>3.673</td>
<td>.225</td>
<td>.012</td>
<td>2.41</td>
<td>4.00</td>
</tr>
<tr>
<td>Post-HARP</td>
<td>291</td>
<td>3.615</td>
<td>.263</td>
<td>.015</td>
<td>2.77</td>
<td>4.00</td>
</tr>
<tr>
<td>Total</td>
<td>669</td>
<td>3.648</td>
<td>.244</td>
<td>.009</td>
<td>2.41</td>
<td>4.00</td>
</tr>
</tbody>
</table>

The uGPA average was 3.673 (SD = .225) for the pre-HARP sample, and 3.615 (SD = 2.63) for the post-HARP sample (see table 10). A statistically significant difference in undergraduate cumulative GPA existed, as determined by a one-way ANOVA, with a small effect size ($F(1,667) = 9.397, p = .002, d = -.238.)$ (Cohen, 1988). The post-HARP group exhibited a lower uGPA as compared to the pre-HARP group. The null hypothesis was rejected, and the uGPA of the post-HARP group is significantly lower than the uGPA of the pre-HARP group.

Table 10

<table>
<thead>
<tr>
<th>ANOVA for Grade Point Averages Between Pre- and Post-HARP Samples</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prerequisite GPA Between Groups$^a$</td>
<td>.827</td>
<td>1</td>
<td>.827</td>
<td>12.429</td>
<td>.000</td>
<td>-.119</td>
</tr>
<tr>
<td>Within Groups</td>
<td>44.361</td>
<td>667</td>
<td>.067</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>45.187</td>
<td>668</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cumulative GPA Between Groups$^b$</td>
<td>.552</td>
<td>1</td>
<td>.552</td>
<td>9.397</td>
<td>.002</td>
<td>-.238</td>
</tr>
<tr>
<td>Within Groups</td>
<td>39.149</td>
<td>667</td>
<td>.059</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>39.701</td>
<td>668</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$^a$ R² = .018
$^b$ R² = .014
$^c$ Variability between analytic sample (668) and the design sample (669) due to the lack of reported GRE scores in PTCAS
Faculty Interviews

Interview scores. The next research question was seeking a significant difference in interviews scores of applicants offered admission in the pre-HARP sample as compared to the scores in the post-HARP sample. The hypothesis was that the interview scores of applicants offered admission should increase with the post-HARP sample as the rubric was developed around Sedlacek’s research (2004) and based on traits in DPT students that faculty desired. Therefore, applicants in the post-HARP group would be more desirable by faculty, and receive higher scores.

Interview scores varied minimally between the pre-HARP group with a mean of 12.131 (SD = 1.614) and post-HARP samples of 12.058 (SD = .067) (see Table 11). No significant difference in interview scores between applicants offered admission before the HARP rubric and after the HARP rubric was implemented, and the null hypothesis was not rejected.

Table 11

<table>
<thead>
<tr>
<th>Interview Score</th>
<th>Pre-HARP</th>
<th>Post-HARP</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>378</td>
<td>291</td>
<td>669</td>
</tr>
<tr>
<td>M</td>
<td>12.131</td>
<td>12.058</td>
<td>12.099</td>
</tr>
<tr>
<td>SD</td>
<td>1.614</td>
<td>1.148</td>
<td>1.429</td>
</tr>
<tr>
<td>SE</td>
<td>.083</td>
<td>.067</td>
<td>.055</td>
</tr>
<tr>
<td>Lower</td>
<td>11.968</td>
<td>11.926</td>
<td>11.991</td>
</tr>
<tr>
<td>Upper</td>
<td>12.294</td>
<td>12.191</td>
<td>12.208</td>
</tr>
<tr>
<td>Min</td>
<td>6.0</td>
<td>9.0</td>
<td>6.0</td>
</tr>
<tr>
<td>Max</td>
<td>14.0</td>
<td>14.0</td>
<td>14.0</td>
</tr>
</tbody>
</table>

95% CI

Correlation with HARP rubric ratings. The final research question was seeking a correlation between the HARP rubric rating and faculty recommendation for all applicants interviewed after HARP implementation. The hypothesis was that the rating and faculty recommendations would correlate, as both variables were based on desired qualities in DPT students. As the HARP rubric was designed by faculty around Sedlacek’s research (2004), and
on desirable traits in a DPT student, then applicants selected as “Yes Interview” should correlate with the faculty interview recommendation of “Highly recommend.” Of the 460 applicants interviewed in the post-HARP sample, 405 were rated as “Yes to Interview” by the admissions committee, 50 were rated as “Probably Interview” and 5 were “Maybe Interview.” No applicants who received a “No to Interview” rating were interviewed. Of those interviewed, 251 received a “Highly Recommend” rating from faculty, 187 a “Recommend” and 22 a “Reservations” about recommending (see Table 12). A chi-square analysis demonstrated a statistically significant association between the HARP score from the admissions committee and the recommendation by faculty after the interview, though the effect size was small ($\chi^2(6) = 25.28, p \leq .001, \tau = .017$). The null hypothesis was rejected, and a correlation between HARP ratings and faculty recommendations exists.
Table 12

*Correlation of HARP Ratings and Faculty Recommendations*

<table>
<thead>
<tr>
<th>Faculty Recommendation</th>
<th>HARP Score</th>
<th>Yes to Interview</th>
<th>Probably Interview</th>
<th>Maybe Interview</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly</td>
<td>Count</td>
<td>232</td>
<td>17</td>
<td>2</td>
<td>251</td>
</tr>
<tr>
<td></td>
<td>Percentage</td>
<td>92.4</td>
<td>6.8</td>
<td>.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>11.0</td>
<td>-10.3</td>
<td>-.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Standardized Residual</td>
<td>.7</td>
<td>-2.0</td>
<td>-.4</td>
<td></td>
</tr>
<tr>
<td>Recommendation</td>
<td>Count</td>
<td>156</td>
<td>29</td>
<td>2</td>
<td>187</td>
</tr>
<tr>
<td></td>
<td>Percentage</td>
<td>83.4</td>
<td>15.5</td>
<td>1.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>-8.6</td>
<td>8.7</td>
<td>.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Standardized Residual</td>
<td>-.7</td>
<td>1.9</td>
<td>.0</td>
<td></td>
</tr>
<tr>
<td>Reservation</td>
<td>Count</td>
<td>17</td>
<td>4</td>
<td>1</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Percentage</td>
<td>77.3</td>
<td>18.2</td>
<td>4.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>-2.4</td>
<td>1.6</td>
<td>.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Standardized Residual</td>
<td>-.5</td>
<td>1.0</td>
<td>1.6</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Count</td>
<td>405</td>
<td>50</td>
<td>5</td>
<td>460</td>
</tr>
</tbody>
</table>

*Percentage of HARP scores for that Faculty Recommendation*

**Summary**

Demographics, academic variables and interview scores from 669 applicants offered admission were used in this quantitative analysis for the effect of the addition of a HARP rubric in the admissions process, and data from 460 applicants interviewed were used for the correlation of HARP scores to faculty recommendations. The addition of the HARP rubric in the admission process beginning with applicants offered admission in 2019 did impact demographics with a change in the composite racial and ethnic identities resulting in a significantly smaller percentage of applicants offered admission identifying as White only, and a significant increase in the age of applicants offered admission. Gender identity and community of origin were not substantially different after implementation. Academic measures also were impacted, with a
significant decrease in pGPA and uGPA of the post-HARP sample, but no significant change in Quantitate or Verbal GRE scores. Further interpretation and clarification of these results, implications of the outcomes and recommendations for future research can be found in the following chapter.
Chapter 5

Conclusion

Overview

The purpose of the quantitative study was to determine if the addition of an application assessment rubric for a holistic admissions process at Program A significantly impacted the demographics or academic measures of the applicants offered admission, when comparing the two years with the rubric use to the two years prior to the use. This chapter provides an overview of the study with the research questions and methods of analysis. Following this overview will be a discussion of the results. The chapter will conclude with implications from the findings of this study, the limitations of this study and recommendations for future research.

This study was inspired by a faculty appeal for increased holistic admissions processes at Program A resulting in the creation and implementation of a rubric for application review, a call by the president of the APTA, Dr. Sharon Dunn, for an increase in diversity in the physical therapy profession, including in the student body, and a previous review of literature surrounding health inequities and the impact of limited diversity in health professions (Urban Universities for HEALTH, 2019). The faculty appeal was prompted by the limited diversity in the DPT student body at Program A, resulting in a committee formation and creation of the HARP rubric; the call by Dunn was a result of national statistics reporting the limited diversity in the health professions; and the literature review was prompted by personal interests as a healthcare provider.

Many graduate health professions education programs are adopting holistic admissions review processes to increase diversity in the profession in an attempt to address health inequities, including medical and dental schools, but little is reported in the physical therapy literature.
A HOLISTIC ADMISSIONS REVIEW PROCESS

(Wise, Dominguez, Kapasi, Williams-York, Moerchen, Brooks & Ross, 2017). While holistic admissions processes in health care profession programs are perceived as a means to increase the diversity of the physical therapy profession, the impact on the academic admissions factors or population representation has not been extensively studied for DPT programs (Jones, Simpkins & Hocking, 2014). Much research has been completed on the correlation of the GRE and the NPTE pass rate (Meiners & Rush, 2017) and the benefit of interviews on the admissions process (Roberts et al., 2008). The impact of HARP in DPT programs on the increase of URM population representation in the program, changes in academic variables of incoming classes, or outcomes on retention and graduation has not been reported.

The research questions were:

1. Did the population demographics of the applicants offered admission in the program vary significantly between the two years prior to HARP and two years of HARP:
   a. As measured by gender;
   b. As measured by age;
   c. As measured by race & ethnicity;
   d. As measured by community origin type of rural or urban?

2. Is there a significant difference in the pre-admission academic factors of applicants after the implementation of the HARP rubric as compared to prior to implementation:
   a. As measured by Verbal GRE scores;
   b. As measured by Quantitative GRE scores;
   c. As measured by pGPA;
   d. As measured by uGPA?
3. Is there a significant difference in interview scores of applicants offered admission the two years that did not implement the HARP rubric as compared to the two years that implemented the HARP rubric?

4. Does a significant correlation between the HARP ratings and faculty recommendations of all interviewed applicants exist?

As a result of the literature review, the hypotheses were:

1. The addition of the rubric to the admissions process would result in a significant change in gender demographics, with an increase in female applicants offered admission in the post-HARP sample.

2. The addition of the rubric to the admissions process would result in a significant increase in the mean age of the applicants offered admission in the post-HARP sample.

3. The addition of the rubric to the admissions process would result in a significant increase in applicants offered admission who identify in the racial and ethnic URM populations in the post-HARP sample.

4. The addition of the rubric to the admissions process would result in a significant difference in the community of origin, with an increase in applicants from an urban community in the post-HARP sample.

5. The addition of the HARP rubric to the admissions process with decreased emphasis on GRE scores would result in a significant decrease in Verbal GRE scores of the post-HARP sample, if the demographics changed significantly.
6. The addition of the HARP rubric to the admissions process with decreased emphasis on GRE scores would result in a significant decrease in Quantitative GRE scores of the post-HARP sample, if the demographics changed significantly.

7. The addition of the HARP rubric to the admissions process with decreased emphasis on GPA scores would result in a significant decrease in pGPA of the post-HARP sample, if the demographics changed significantly.

8. The addition of the HARP rubric to the admissions process with decreased emphasis on GPA scores would result in a significant decrease in uGPA of the post-HARP sample, if the demographics changed significantly.

9. The addition of the HARP rubric to the admissions process would result in higher interview scores in the applicants offered admission in the post-HARP sample.

10. The HARP rubric ratings of the interviewed applicants would correlate to the faculty recommendations.

The study included applicants who were interviewed from the 2016-17 to 2019-20 admission cycles, and offered admission between 2017 and 2020. HARP scores from the admissions committee from the 2018-19 and 2019-20 cycles were obtained from the admissions committee. Faculty recommendation, GRE scores, uGPA, pGPA, and demographics including gender, age, racial and ethnic identity, and county of permanent residence for all applicants offered admission from 2016 to 2020 were obtained from PTCAS data. Homogeneity of the 2016-17 and 2017-18 applicants offered admission allowed the groups to be combined into a pre-HARP sample, and the homogeneity of the 2018-19 and 2019-20 applicants allowed the two groups to be combined as the post-HARP sample for the analyses. Quantitative analyses were performed to ascertain if any of the groups differed significantly from year to year in academic
variables or demographics, and from pre- and post-HARP rubric implementation. Demographics and academic variables of those offered admission into Program A were compared between admission cycles seeking significant differences between years and between pre- and post-HARP rubric implementation. Finally, correlations between HARP scores and faculty recommendations were explored for all applicants interviewed.

One curious finding of the analysis was the declining number of applicants overall, the number of applicants interviewed, and the number of applicants offered admission each cycle (see Table 13). The number of enrolled students was the same in pre- and post- HARP samples.

Table 13

<table>
<thead>
<tr>
<th>Application Cycle</th>
<th>Applied</th>
<th>Interviewed</th>
<th>Offered Admission</th>
<th>Enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016-17</td>
<td>809</td>
<td>355</td>
<td>205</td>
<td>72</td>
</tr>
<tr>
<td>2017-18</td>
<td>684</td>
<td>266</td>
<td>173</td>
<td>76</td>
</tr>
<tr>
<td>2018-19</td>
<td>569</td>
<td>244</td>
<td>151</td>
<td>72</td>
</tr>
<tr>
<td>2019-20</td>
<td>508</td>
<td>216</td>
<td>140</td>
<td>76</td>
</tr>
</tbody>
</table>

Nationally, the number of applications has been decreasing the last few years for the majority of DPT programs, due to the decreasing practice of candidates applying to multiple programs, as well as the likelihood of URM candidates applying only within their state of residence or at a program with URM faculty representation (Nucifero, 2015). The number of applicants interviewed has also declined due to limited availability of faculty, as interviews were conducted during the week when faculty were teaching, but the percentage of applicants interviewed has remained similar year-to-year (44%; 39%; 43%; 44% respectively) (B. O’Neill, personal communication, May 8, 2020). The number of offers declined as program A was able to retain more applicants who committed to their admission offer, due to increased communication with applicants (J. Wiehebrink, personal communication, May 8, 2020). The ratio of offers to enrolled
declined steadily each, with the final cycle less than two to one odds, demonstrating improved admissions processes overall.

The analysis showed that the addition of the HARP rubric in the admission process beginning for applicants offered admission in 2019 did significantly impact key demographics and academic measures. While gender identity and community of origin were not substantially different after implementation, racial and ethnic identity as well as age were. The outcomes and discussion are found in the following sections.

**Summary of Findings**

**Demographic variables.** Multiple demographic variables of the applicants offered admission were compared between the pre- and post-HARP samples, including gender, age, racial and ethnic identity, and community of origin. Literature from previous studies shaped the hypotheses, that the addition of the rubric to the admissions process during application review would significantly change some variables, with an increase in female applicants, an increase in the age of the applicants, a change in the composite racial and ethnic identities reported, but a decrease in the number of applicants offered admission from a rural area.

With an increased emphasis on nonacademic factors and decreased emphasis on GRE scores, a significant increase in female applicants was expected due to reported differences in GRE outcomes by gender (Wilson, Odem, Walters, DePass & Bean, 2019). Of the 378 applicants offered admission from 2017 to 2018, 66.4% self-identified as female, and 67.4% of the 291 applicants from 2019 to 2020 self-identified as female, with no significant difference in the pre- and post-HARP sample. No interviewed applicants during these four years declined to answer or chose another gender identity designation. This trend follows the national average of those identifying as female as 69.6% of the physical therapists in the U.S. in 2018 (DATA USA,
The ratio of male to female applicants offered admission at Program A is above the composition of applicants and accepted applicants reported by PTCAS for 2017-18, with the comparisons shown in Figure 1 (APTA, 2019a). The PTCAS data also demonstrates a continued downward trend in the ratio of females to males offered admission, suggesting that the program was already above average in offering female applicants an admission opportunity (American Physical Therapy Association [APTA], 2019a). While the applicants identifying as male has increased from 33.9% in 2008-09 to 40.4% in 2017-18, the percentage has remained between 40.4% and 41.0% of applicants since 2013 (APTA, 2019a). This may account for the continued high percentage of offers to females as compared to males, despite the decreased emphasis on the GRE and increased emphasis on nonacademic factors.

Figure 1. A comparison of gender demographic differences among those nationally applied in PTCAS, those nationally admitted who applied through PTCAS, the Pre-HARP sample from Program A, the post-HARP sample from program A, and those in the profession nationally.

While gender demographics were not significantly impacted by the addition of the HARP rubric, average age of the applicants offered admission was, with the age of the post-
HARP sample significantly higher than the pre-HARP sample. The HARP rubric emphasized persistence, and allowed the admissions committee member to consider applicants who repeated courses to improve academic factors, or reapplied, which would result in an older student population. The average age of applicants at time of application who were offered admission into Program A pre-HARP was 22.03 years, and post-HARP 22.5 years. PTCAS reported the average age of females in the 2017-18 cycle was 22.58 for those offered admission and 23.0 for those who applied, and males 23.57 for those offered admission and 24.0 for those applied (APTA, 2019a). Because of the higher percentage of females offered admission, Program A maintained an average age similar to the national average of females offered admission. Not only did the higher percentage of females offered admission affect the overall age, but the practice of allowing “early-entry” into the DPT program did as well. Early-entry into the program allows qualified applicants from the home university to apply to enter the program during their final year of undergraduate education, which would result in younger applicants gaining entry. Twenty-two applicants offered admission pre-HARP sample were designated early-entry applicants while only eight were in the post-HARP sample due to a lower number of early-entry undergraduate students who applied (J. Wiehebrink, personal communication, May 8, 2020). With a lower percentage of early-entry applicants in the post-HARP sample the age would be higher than the pre-HARP sample.

The HARP rubric also significantly impacted the racial and ethnic identities composition of the post-HARP sample, with a significant increase in applicants offered admission who identified in one of the URM groups. All racial and ethnic identities, except White and Asian are underrepresented in DPT education programs (Wise, Dominguez, Kapasi, Williams-York, Moerchen, Brooks & Ross, 2017). With the addition of the HARP rubric, the applicants offered
admission identifying as White significantly decreased from 90.74% in the pre-HARP sample to
83.16% of the post-HARP sample, as multiple identities from 2.12% pre-HARP to 4.47% post-
HARP, as Asian from 1.59% to 4.12% post-HARP, as Black 1.59% pre-HARP to 4.47% post-
HARP. Other URM populations also increased, but not as significantly. The post-HARP
statistics are closer to the national average for the physical therapy workforce, with 80.4%
identified as White, 1.95% as multiple race or ethnicities, 12.9% as Asian, 3.67% as Black, .33%
Native American, and the remaining identified as “Other” in 2018 (DATA USA, n.d.). Though
the Data USA (n.d.) did not have national numbers for all PTs that identified as Hispanic or
Latino, the APTA reported 2.5% of their PT members identified as Hispanic or Latino in a 2017
report (2019f). Of applicants offered admission into DPT programs in the 2017-18, 69.88%
identified as White, 3.3% as multiple races or ethnicities, 9.26% as Asian, 3.59% as Black,
8.40% as Hispanic or Latino, and .19% as Native American (APTA, 2019a). Of these groups,
only White applicants experienced higher acceptance into DPT programs, as the percentage of
White applicants accepted was 5.88% higher than the percentage of White applicants who
applied (APTA, 2019a). The comparison of demographics between Program A, the identity
demographics of applicants from PTCAS, admitted applicants from PTCAS, and the profession
in the U.S. can be found in Table 14. Wilson, Odem, Walters, DePass and Bean (2019) reported
that the use of the GRE disproportionally limits entry of URM applicants into doctoral level
programs. With the decreased emphasis on GRE scores for the post-HARP sample, applicants
from URM groups had a significantly greater chance to be accepted into Program A.
Table 14

Racial and Ethnic Identity of Program A Compared to National Averages

<table>
<thead>
<tr>
<th></th>
<th>U.S. Average %</th>
<th>National PT %</th>
<th>PTCAS Applied %</th>
<th>PTCAS Admitted %</th>
<th>Pre-HARP %</th>
<th>Post-HARP %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Native American</td>
<td>1.30</td>
<td>.33</td>
<td>.30</td>
<td>.19</td>
<td>.27</td>
<td>.69</td>
</tr>
<tr>
<td>2+ Identities</td>
<td>2.70</td>
<td>1.95</td>
<td>3.30</td>
<td>3.30</td>
<td>2.12</td>
<td>4.47</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>18.30</td>
<td>2.50</td>
<td>10.60</td>
<td>8.40</td>
<td>1.06</td>
<td>1.37</td>
</tr>
<tr>
<td>Black</td>
<td>13.40</td>
<td>3.67</td>
<td>6.10</td>
<td>3.59</td>
<td>1.59</td>
<td>4.47</td>
</tr>
<tr>
<td>Asian</td>
<td>5.90</td>
<td>12.90</td>
<td>10.10</td>
<td>9.26</td>
<td>1.59</td>
<td>4.12</td>
</tr>
<tr>
<td>White</td>
<td>76.50</td>
<td>80.40</td>
<td>64.00</td>
<td>69.88</td>
<td>90.74</td>
<td>83.16</td>
</tr>
</tbody>
</table>


Emphasizing non-academic characteristics may have also helped mitigate differences in GPA. Fischer (2007) also reported that GPAs may be lower for undergraduate URM students who attend predominantly White institutions for multiple reasons, including difficulty acclimating due to limited family support as a first-generation college students, or experiencing discrimination during their time at the university. Studies report that URM students who are more involved on campus may acclimate better, and find the support necessary to improve GPA (Fischer, 2007). This is also supported by Sedlacek (2004), who reported that URM students who are successful in undergraduate higher education demonstrate community involvement and success handling the system, which could improve GPA and increase likelihood of admission into graduate programs. The increased campus involvement may be captured in the holistic review of an application, especially for experience and persistence. Lopez, Self and Karnitz (2009) also reported that using a holistic review rubric for dental school applicants would identify more applicants qualified for an interview than using academic metrics alone, and that URM applicants rated higher on non-academic qualities than non-minority applicants. Faculty who interviewed applicants in the post-HARP sample also were blinded both years to the
academic measures in PTCAS, and followed the interview rubric in scoring the applicant, as well as the second year of the pre-HARP sample, which may have increased the interview scores of URM applicants appropriately. Therefore, using the rubric to measure non-academic qualities, while still considering academic metrics such as GPA or standardized exams, increased opportunities for URM applicants to be offered admission into the DPT program at Program A.

The final demographic is the community of origin, based on the applicant’s county of permanent residence. The counties were coded urban or rural using the classifications from the National Center for Health Statistics, a division of the Center for Disease Control and Prevention (Ingram & Franco, 2013). Urban was categorized as metropolitan statistical areas with a population density of at least 1,000 people per square mile and surrounding area of at least 500 people per square mile, with the combined area population totaling 50,000 (Ingram & Franco, 2014). Rural included micropolitan and noncore areas, where a micropolitan area has a central cluster of 10,000 to 49,000 inhabitants and noncore is even less populated (see Figure 2) (Ingram & Franco, 2014). The hypothesis stated that percentage of rural applicants offered admission would decrease with the post-HARP sample, as the rural population is aging and less diverse, based on the U.S. Department of Agriculture report on demographics of rural inhabitants (Cromartie, 2018). The analysis found no significant difference in communities between the pre-HARP and post-HARP sample. Contributing to the consistency in community demographics is the limited change in states of primary residence for admitted applicants, with the top three states included Indiana, Kentucky and Ohio both before and after the HARP was implemented. In the pre-HARP sample, 22.9% of applicants admitted were from Indiana, 38.3% from Kentucky, and 9.3% from Ohio, while in the post-HARP sample, 25.1% of applicants admitted were from Indiana, 37.8% from Kentucky, and 8.0% from Ohio. The lack of significant change in the
urban and rural composition of admitted applicants was impacted by the limited change in the primary states of permanent residence between the two samples.

Figure 2. This figure shows the percentage of the population in a state by county in 2010 (United States Census Bureau https://www.census.gov/library/visualizations/2010/geo/ua2010 ua_pop_map.html)

**Academic variables.** The GRE scores and GPAs of undergraduate coursework are evaluated by DPT admission committees as criteria to determine ability to be successful in the graduate level coursework as well as on the National Physical Therapy Examination (NPTE) (Mitchell, Ellison & Gleeson, 2019). Verbal and quantitative GRE scores are the most predictive of NPTE scores and therefore were the ones chosen for this study (Nucifero, Litvinsky & Rheault, 2014). The first research question was seeking a significant difference in the
Quantitative and Verbal GRE scores of the pre- and post-HARP groups, hypothesizing that with a decreased emphasis on academic measures, they would significantly decline in the post-HARP group. Instead, no significant differences were seen between the groups in either the Verbal or the Quantitative scores (See Table 15). This is intriguing, as research by Wilson, Odem, Walters, DePass and Bean (2019) would lead to the belief that with a significant change in racial and ethnic identity composition of the post-HARP sample, the scores should have declined. However, they did not significantly change, leading to the belief that these applicants will have the same probability of passing the NPTE as the pre-HARP group.

Table 15

<table>
<thead>
<tr>
<th>Academic Measures by Admission Year</th>
<th>2017 (N = 205)</th>
<th>2018 (N = 171)</th>
<th>2019 (N = 150)</th>
<th>2020 (N = 140)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Quantitative GRE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>151.17</td>
<td>150.22</td>
<td>150.95</td>
<td>150.11</td>
</tr>
<tr>
<td>SD</td>
<td>4.39</td>
<td>4.24</td>
<td>5.22</td>
<td>4.99</td>
</tr>
<tr>
<td><strong>Verbal GRE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>150.74</td>
<td>150.15</td>
<td>149.76</td>
<td>150.09</td>
</tr>
<tr>
<td>SD</td>
<td>5.13</td>
<td>5.06</td>
<td>5.06</td>
<td>4.97</td>
</tr>
<tr>
<td><strong>pGPA</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>3.67</td>
<td>3.60</td>
<td>3.56</td>
<td>3.57</td>
</tr>
<tr>
<td>SD</td>
<td>.22</td>
<td>.27</td>
<td>.26</td>
<td>.29</td>
</tr>
<tr>
<td><strong>uGPA</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>3.68</td>
<td>3.66</td>
<td>3.59</td>
<td>3.65</td>
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<tr>
<td>SD</td>
<td>.22</td>
<td>.23</td>
<td>.26</td>
<td>.267</td>
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Analyses of variance was performed on the pGPA and uGPA of applicants, seeking differences in the pre-HARP sample as compared to the post-HARP sample. The hypothesis was that if the demographics were significantly impacted then the pGPA and uGPA would both decrease after HARP rubric implementation, based on research that GPA can vary by race and ethnicity (Fischer, 2007). In fact, a significant difference was seen in both the pGPA and uGPA,
with the post-HARP sample lower, but with a small effect size. Further analysis revealed a significant differences in the pGPA and uGPA by year, seen in Table 16, demonstrating that 2017 was an anomaly, with a significantly higher pGPA that year as compared to all of the following three years (see Figure 3). Analysis of the uGPA by year as seen in Table 17 revealed that the mean uGPA was significantly different when compared to the other three years, and was significantly lower (see Figure 4). While the differences initially appeared to be between the pre- and post-HARP samples, one single year in each skewed the results. These results demonstrate that the difference between the samples for pGPA and uGPA were not influenced by the addition of the HARP rubric, but by a difference in GPAs by year. As the racial and ethnic demographics varied significantly in the post-HARP group, previous research would have indicated that lower GPAs would have been reported for those applicants (Fischer, 2007). Nucifero (2015) also reported White applicants to DPT programs achieved significantly greater GRE, uGPA and pGPA scores than Blacks, Hispanics and Latinos in a study of over 25,000 applicants from 2010 to 2012. One factor influencing GPA positively is the ability for applicants to repeat courses to improve admission prospects. As the applicants were significantly older in the post-HARP sample, they may have repeated key coursework to improve uGPA or pGPA, resulting in higher averages. The average uGPAs of the applicants offered admission at Program A all four years were higher than the average uGPA for all applicants offered admission at DPT education programs at private universities in the U.S. The difference in uGPA by year is not seen in the national trends, with aggregate data for private institutions reported as an average uGPA of 3.51 for 2017, and 3.52 for both 2018 and 2019 (aggregate data not available for 2020 at this time) (CAPTE, 2020b). Another influence resulting in higher uGPA and pGPA is the consideration of academic factors by the admissions committee in selecting interview and admission offers, while
using the rubric to select some candidates that may have otherwise not been offered an interview.

All of these factors combined would have resulted in higher GPAs, regardless of demographics, in the applicants offered interviews.

Table 16

<table>
<thead>
<tr>
<th></th>
<th>Admission Year (I)</th>
<th>Admission Year (J)</th>
<th>MD (I-J)</th>
<th>SE</th>
<th>p</th>
<th>95% CI</th>
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<td>.0023</td>
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<td>.0266</td>
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<td>1.000</td>
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<td></td>
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</table>

*p ≤ .05

MS(Error) = .066.
Figure 3. This graph demonstrates a comparison between the prerequisite GPA per year, with 2017 significantly different from the following years.

Table 17

<table>
<thead>
<tr>
<th>Admission Year (I)</th>
<th>Admission Year (J)</th>
<th>MD (I-J)</th>
<th>SE</th>
<th>p</th>
<th>95% CI Lower</th>
<th>95% CI Upper</th>
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<td>.865</td>
<td>-.1089</td>
<td>.0314</td>
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<td>-.0164</td>
<td>.1337</td>
</tr>
</tbody>
</table>

*p ≤ .05

bMS(Error) = .058.
**Faculty Interviews.** For all four years studied, applicants were interviewed by two faculty members in a group interview setting, with similar format and interview questions each year. Faculty who conduct the interviews were involved in the creation of the rubric, using guidance from research by Sedlacek (2004) on the nonacademic (or “noncognitive”) variables associated with success of URM students in higher education. This research study was seeking a significant difference in interviews scores of applicants offered admission in the pre-HARP sample as compared to the scores in the post-HARP sample, with a hypothesis is that the interview scores of applicants offered admission should increase with the post-HARP sample. This hypothesis was developed on the thought that if faculty helped create the rubric, then applicants selected by the rubric for interview would have more of the desirable traits faculty deemed valuable. Analysis revealed no statistically significant change in interview scores. This may have been a result of only select faculty involvement in the rubric development, while the majority of faculty conduct interviews, with the exception of those on the admission committee. Another factor to consider is that the admissions committee were already selecting applicants for
interviews in the pre-HARP sample that had these desirable qualities, without following a specific guideline. A final factor is the consideration that faculty were blinded to academic measures the two years of the post-HARP sample, rather than just the one year in the pre-HARP group and may have previously inflated or deflated scores based on academic measures in the pre-HARP sample because of the knowledge. However, the lowest score on an interview of a applicants offered admission in the pre-HARP sample was six, and nine in the post-HARP sample, possibly demonstrating that even though no significant difference existed in the mean scores, differences existed in the range of the scores.

The final research question was seeking a correlation between the HARP rubric rating and faculty recommendation for all applicants interviewed with a hypothesis was that the rating and faculty recommendations would correlate, as both variables were based on desired qualities in DPT students. As expected, the analysis demonstrated a significant association between the HARP score from the admissions committee and the recommendation by faculty after the interview, because the applicants were still selected for interview after review of academic measures, primarily pGPA and uGPA, but with the ability of the admissions committee to also select applicants with lower qualifying pGPA and uGPA, exhibiting the desirable traits in a DPT student identified by the rubric.

Conclusions

For this study, demographics, academic variables and interview scores from 669 applicants offered admission were used in this quantitative analysis for the effect of the addition of a HARP rubric in the admissions process. Additionally, data from 460 applicants interviewed were used for the correlation of HARP scores to faculty recommendations. The implementation of the HARP rubric significantly impacted the age and the racial and ethnic identity of the
applicants offered admission in the post-HARP sample. While pGPA and uGPA were also significantly different, the difference can be explained with a significant difference in 2017 for pGPA and 2019 for uGPA and was not significantly impacted by the addition of the HARP rubric to the process. While interview scores did not increase as expected, the ratings from the HARP rubric and faculty recommendations were correlated as expected. Previous research would have suggested the academic factors would have significantly declined if race and ethnicity demographics increased significantly, other factors may have led to the results.

One of the guiding works for this study was that of Sedlacek (2004), who reported nonacademic factors in students of URM populations that lead to success in higher education, and methods of measuring those attributes. Identified were eight noncognitive variables (positive self-concept, realistic self-appraisal, handling the system successfully, long-term goal preference, associated strong-support system, leadership experience, community involvement, and knowledge from the field), as well as methods to assess these traits using interviews, essays and outcomes assessments (Sedlacek, 2004). This study was used for guidance of the HARP rubric development as well, with faculty determining that preference for long-range goals, evidence of successful leadership experience, demonstrated community service, and evidence of knowledge in the field could be assessed when viewing letters of recommendation, employment and volunteer experience and observations in the field, all of which the student enters into their application in PTCAS. The rubric design was guided by the school’s strategic plan, weighting academic components, including the standardized exam score and undergraduate GPA, as well as nonacademic factors, including geographic origin, experience, volunteer activities, and contribution to diversity. The original rubric was scored with a potential of 26 points, but the admissions committee changed the rubric to categories for ease of review. Categories included
“Yes to Interview,” “Probably Interview,” “Maybe Interview” and “No to Interview,” and were much broader with the admissions committee seeking evidence that the applicant demonstrated enough in each of the factors identified by the HARP committee, as well as were academically qualified. With a less strict adherence to the rubric as it was originally designed, this potentially influenced results. The use of the rubric brought awareness of the benefit of nonacademic qualities, which may have also influenced the changes in the racial and ethnic identity demographic ratio in the post-HARP sample. Based on the work by Sedlacek (2004), these students who demonstrated the nonacademic (or noncognitive, according to Sedlacek) traits may have overcome difficulties in undergraduate coursework to persevere and improve GPA and GRE scores.

Further guidance for this study was gained from research by Shiyko and Pappas (2009), who identified pre-admission variables correlated with academic success of URM DPT students, including GRE scores and undergraduate GPA, and measured by first-year DPT GPA and lack of dismissal or probation by the program (Shiyko and Pappas, 2009). The researchers concluded that all GRE scores as well as the uGPA and pGPA were all significantly correlated to the GPA in the first year of PT school. For this reason, GRE scores, uGPA and pGPA were all chosen as key variables to assess for the potential success of the applicant in the DPT program. The program studied by Shiyko and Pappas (2009) also incorporated application essays in the admissions process with strict scoring and were found to be moderately predictive of academic success in the program. While a strict rubric was not used for essay review, one was used for the faculty interview (see Appendix B). For this reason, interview scores were chosen as a variable to be assessed in this study. Shiyko and Pappas (2009) found that identifying as an URM student only correlated with Quantitative GRE scores and age, not with academic difficulty or GPAs.
Program A continued to review pGPA and uGPA for interview and admission offers all four years, with a change in emphasis on the GRE for assistance learning testing strategies for the NPTE. With the knowledge that no significant difference in the pre-HARP and post-HARP sample for academic measures was found, despite a significant difference in demographics, the post-HARP sample should not have a greater chance of academic difficulty or lower NPTE pass rates as compared to the pre-HARP sample.

Other health care education programs are seeking ways to measure the nonacademic factors that lead to success beyond just these academic factors. One DPT education program developed a survey to assess "non-cognitive" variables of applicants, including emotional intelligence, social intelligence, psychological flexibility and grit (Roll, Canham, Salamh, Covington, Simon & Cook, 2018). The survey was sent to first- and second-year students at three institutions across the U.S., with the intent of creating a survey for admissions use to improve identification of valuable non-cognitive traits (Roll, Canham, Salamh, Covington, Simon & Cook, 2018). The researchers reported identified adaptability, intuitiveness and engagement as valuable qualities that could be measured for potential admission processes for their respective DPT education programs (Roll, Canham, Salamh, Covington, Simon & Cook, 2018), which are different from the traits Sedlacek (2004) identified for success. While this method would require applicants to either complete a survey separate from the application process in PTCAS or during the interview process, the HARP rubric was applied to information the applicants already provided in PTCAS, and used to identify applicants for interviews. A survey could be used during the interview process to identify applicants for admissions offers, similar to the purpose of the interviews at Program A. Finding a method of assessing applicants for potential success in the DPT education program during the admissions process is of growing interest, and a rubric is
A HOLISTIC ADMISSIONS REVIEW PROCESS

just one method. Whatever method the education program uses, the process should be based on that program’s intent, goals, and mission, which may include a change in demographics of healthcare providers.

Implementation of the HARP rubric had a positive impact on the demographics of post-HARP sample without significantly decreasing the academic factors. This could be attributed to the URM applicants offered admission embodying the noncognitive variables Sedlacek (2004) attributes to success in undergraduate studies. If the URM applicant has the qualities identified on the HARP rubric, a rubric guided by the work of Sedlacek, then the application of the rubric may assist the admissions committee in selecting applicants that will be successful despite experiencing difficulties. These same qualities that assist URM students overcome instances of racism and discrimination, times of hardship, and struggles in studies are the same qualities needed to be successful in a graduate health professions program. However, results should be interpreted and used with caution. The study limitations and implications are discussed in the following section.

Study Limitations & Implications

Several limitations exist in this study. The samples were obtained from one small private university, using only incoming data at time of application and no outcome data at time of program completion. The samples were not separated by any other factors besides year or HARP status. Factors could have also been compared between gender, age, racial or ethnic identity, or community of origin for potential differences, but that was not the purpose of this study. Without knowing the first year GPA or academic status, as measured by Shiyko and Pappas (2009), academic success is not as assured as incoming statistics would predict. But in another study, Rucingno, Zipp and Olson (2010) found no significant correlation between pGPA and the
corresponding GPA from the first year of the DPT program but did not specifically study URM DPT students. Without knowing ultimate graduation and NPTE pass rates, the impact of a significant change in age and identity demographics cannot be fully evaluated. The potential change in delivery of courses, support for students with lower GPA or GRE scores, or additional testing strategies was not explored in this study. The findings, while important, cannot be generalized to all DPT programs.

Other factors also impacted variables that differed within groups, including the blinding of faculty after the 2016-17 cycle, creating a change in faculty viewing for the second half of the pre-HARP sample, but the entire post-HARP sample. This could have caused faculty to be more or less critical in interviews. Faculty perceptions of inability to review academic factors in candidates and potential impact on scoring was not explored in this study.

This study demonstrates that using a rubric to score nonacademic factors in a holistic admissions process provides one way to standardize an application review and create objective data. Standardizing the process is essential when reviewing hundreds of applicants per committee member, with multiple members per committee. Use of this rubric allows applicants to be selected for interview offers, while the interview allows applicants to be selected for admission offers. Used in conjunction, the HARP rubric and the interview are tools to assess for appropriate offers of admission into the program.

**Future Research & Recommendations**

This study is only a small portion of the potential studies that could be completed when implementing a new action in the admissions process. Future research should include correlation of admissions factors with first year GPA and academic status after HARP rubric implementation. Other research after the change in admission processes should study the factors
measured by the rubric and the association with graduation rates, with time to complete coursework and with the NPTE pass rate. Studies should see a correlation between the factors measured by the HARP rubric and clinical success, both while in the program and after graduation. Studies should seek association between admission factors with changes in faculty course delivery, with the need for faculty support in course delivery methods, or with the need for students for remediation or further academic support. Conducting research comparing academic outcomes between samples based on demographics such as gender, age or racial and ethnic identity should be approached with caution, as the outcomes could create a bias toward specific groups. The comparisons are also difficult unless the sample sizes are similar.

Another area of study could be the impact of the interview on acceptance of offers of admission, especially URM applicants. With candidates applying to multiple programs, many receive more than one offer for admission. If the application review is able to select applicants with nonacademic factors desired by the program, the question remains if that program will also be desired by the applicant. If the program is known to use HARP, applicants may be more confident during the interview, and present more of the desired qualities, while also feeling more desired by the program. This may also lead to an increase in URM students in a program.

Future research could focus on support needed for URM students enrolled in DPT programs. In a study of current literature, barriers to success of URM undergraduate nursing students included financial struggles and the necessity of remaining employed while enrolled; lack of emotion and moral support leading to feelings of isolation and discrimination; loneliness due to limited numbers of URM students in the nursing program; discrimination from faculty, peers, preceptors, patients, and hospital employees; family issues, especially for female students; need for advising and academic support with the perception that the provision of support was
inadequate; lack of URM faculty mentors; limited professional socialization with other URM students and practitioners; and finally, a lack of technical support for students (Loftine, Newman, Duma, Gilden & Bond). While DPT students may experience these areas of difficulty differently, awareness of potential struggles would assist with acclimation to an academically difficult program, and therefore worthy of study.

Currently, the majority of doctor of physical therapy education programs weight cumulative grade point average, prerequisite courses grade point average, Quantitative Graduate Record Exam and Verbal Graduate Record Exam results the heaviest for admission decisions, due to previous studies reporting correlation between these academic factors and success in graduation and on the National Physical Therapy Exam (Mitchell, Ellison & Gleeson, 2019). Holistic admissions processes, considering academic and nonacademic factors, may not only increase the diversity of the profession, but also develop an academic culture that embodies an appreciation of a multitude of backgrounds, experiences, perspectives, and opinions to encourage the development of practitioners who are welcoming of diversity and patient-centered practice (Wise, Dominguez, Kapasi, Williams-York, Moerchen, Brooks & Ross, 2017). Holistic admissions processes should be developed by individual programs, using the program and institution missions and priorities, as recommended by the American Dental Education Association (Lopez, Self & Karnitz, 2009). Implementing a holistic application review process using a rubric for a systematic and objective approach may be a method to increasing the diversity in the physical therapy profession, as encouraged by the American Physical Therapy Association and the American Council of Academic Physical Therapy in recent years. This increased diversity may eventually improve access to healthcare by underrepresented minority patients, and potentially reduce healthcare inequities.
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Cahn, P. S. (2015). Do health professions graduate programs increase diversity by not requiring the graduate record examination for admission?. *Journal of Allied Health, 44*(1), 51-56.


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Appendix A

HARP rubric

Yes to Interview:

- **Cumulative GPA**: $\geq 3.2$
- **Prerequisite GPA**: $\geq 3.2$
- **Persistence**: Well addressed in extracurricular activities, employment, volunteer activities
  - Examples included in college athlete, sustained volunteer activity or employment
- **Leadership**: In extracurricular activities, employment, volunteer activities – started an organization, higher leadership position in an organization (President, VP, etc.), high level of responsibility in an organization, captain of college sports team
- **Achievements/Honors/Awards**: Excluding Dean’s list, moderate evidence in more than one category
- **Exposure to Healthcare**: Well addressed in employment, observations or essay; extensive exposure to more than one profession, and to two or more physical therapy settings
- **Written essay**: Well written (one or less mistakes in spelling or grammar) with insight into personal attributes or prior ability to overcome obstacles
- **Letters of recommendations**: Personalized by writer and/or provided insight into potential as a profession
- **Other**:
  - First Generation student
  - Second Career student

Probably Yes to Interview:

- **Cumulative GPA**: $\geq 3.2$
  - Student who is second career and reapplication $\geq 2.95$
- **Prerequisite GPA**: $\geq 3.2$
- **Persistence**: Moderately addressed in extracurricular activities, employment, volunteer activities,
- **Leadership**: Moderately addressed in extracurricular activities, employment, volunteer activities, with a leadership position requiring moderate responsibility for a short time, or minimal responsibility over an extended period
- **Achievements/Honors/Awards**: Excluding Dean’s list, some evidence in one or more categories
- **Exposure to Healthcare**: Moderately addressed in employment, observations or essay, with exposure to other professions or short times in more than one physical therapy setting
- **Written essay**: Moderately well written (few mistakes in spelling or grammar) with some personal insight
- **Letters of recommendations**: High recommendations and some personal insight but may be lacking personalization
- **Other**:
  - Student who reapplied with significant effort to improve application
Maybe No to Interview:
- **Cumulative GPA ≥ 3.2**
- **Prerequisite GPA ≥ 3.2**
- **Persistence**: Some evidence in extracurricular activities, employment, volunteer activities – participated in the same activity annually, but required minimal time
- **Leadership**: Leadership positions that required minimal responsibility for only short times, addressed in extracurricular activities, employment, volunteer activities
- Achievements/Honors/Awards: Some or not at all addressed
- **Exposure to Healthcare**: Addressed in employment, observations or essay, with exposure to one physical therapy setting
- **Written Essay**: Few mistakes in grammar or spelling, but minimally individualized or contains little personal insight
- **Letters of Recommendations**: Primarily higher recommendations and some personal insight
- **Other**:
  - Student who reapplied with no effort to improve application

No Interview:
- **Cumulative GPA ≤ 2.70**
- **Prerequisite GPA ≤ 3.00**
- **Red Flags** in any category
- **Persistence**: Minimally addressed in extracurricular activities, employment, volunteer activities
- **Leadership**: No evidence of leadership
- **Achievements/Honors/Awards**: Not addressed
- **Exposure to Healthcare**: Somewhat addressed in employment, observations or essay;
- **Written essay**: Multiple mistakes or lacking depth of thought/personalization
- **Letters of Recommendations**: No personal insight or low to moderate recommendation scores
# Appendix B
## Interview Rubric

<table>
<thead>
<tr>
<th>Items</th>
<th>2=exceeds expectations</th>
<th>1=meets expectations</th>
<th>0=does not meet expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interpersonal Experiences (discussion)</strong></td>
<td>Evidence of interpersonal intensity, dealing with difficult people problems or complex interactions or needs</td>
<td>Evidence of significant IP interactions requiring thoughts and needs of others (customer service); Evidence of IP interactions that is friendly, cordial, personal</td>
<td>Little or no Evidence of interpersonal interactions</td>
</tr>
<tr>
<td><strong>Exposure to Health Care (written and discussion)</strong></td>
<td>Consider the depth and breadth, length of exposure, the reflection, and overall decision to become a healthcare professional (PT)</td>
<td>Interaction and exposure to health care with a good understanding of professional health care and exposure to some diagnoses but knowledgeable about a variety of patient types.</td>
<td>Lacks exposure to health care, varied patient diagnoses and lacks understanding of diverse populations and patient types.</td>
</tr>
<tr>
<td>Things to consider:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-already a licensed Health Care Professional -had a paid position as a rehab aide/tech assisting with patient care -certified athletic trainer or a certified personal trainer -certified nursing assistant or home health aide -had a non-paid position as a rehab aide/tech assisting with patient care -observed a physical therapist or other health care professionals working with patients -self or family received physical therapy -worked in a health care setting that does not involve patient care -volunteered in a health care setting that does not involve patient care</td>
<td>Significant interaction and exposure to health care, a diverse population, varied diagnoses and understanding of professional health care</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Leadership/Responsibility (discussion)</strong></td>
<td>Evidence of ability to handle high degree of responsibility with care or management of others; self-directed; independent ability to problem solving</td>
<td>Evidence of ability to handle responsibility, willingly takes leadership roles; some evidence of problem solving. Evidence of significant IP interactions requiring thoughts and needs of others (customer service) Minor roles of leadership</td>
<td>Evidence of IP interactions that is friendly, cordial, personal but lacks problems solving or evidence of leadership skills or responsibility</td>
</tr>
<tr>
<td><strong>Persistence In Life</strong> (discussion)</td>
<td>Evidence of high levels Challenges &amp; Persistence requiring personal sacrifice (college athletics, significant mission work) Evidence of overcoming significant challenges in personal life</td>
<td>Evidence of significant and consistent volunteerism with evidence of personal integrity or persistence</td>
<td>Little or no Evidence of persistence or personal integrity</td>
</tr>
<tr>
<td>------------------------------------</td>
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<td>---------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Persistence Towards Bellarmine (written)</strong></td>
<td>Visited PT department, observed SLC, attended open house, personal communication. Evidence of sincere interest in Bellarmine, BU undergrad from the area, or home town close</td>
<td>Efforts to visit department, personal communication, personal connection, Evidence of knowledge of Bellarmine DPT program beyond what is on the internet</td>
<td>Internet search on program. Evidence of some but little knowledge of Bellarmine University and the DPT program</td>
</tr>
<tr>
<td><strong>Overall Impression: Group Discussion</strong></td>
<td>Poised; conversational; gestures enhance verbal message, establishes/maintains eye contact; appropriate body language/facial expression; precise and appropriate vocabulary; statements are comprehensive, inclusive of other group members</td>
<td>Relatively composed; gestures congruent with the verbal message; Eye contact established occasionally; body language/facial expression adequate; conveys clear complete message/idea with description; terminology used in appropriate context; maybe over or under involved in group discussion</td>
<td>Lacks or inappropriate facial expressions; withdraws from communication; unclear statement with omissions of important ideas; uses slang and incorrect terminology must be prompted to participate in group discussion. Unprepared; excessive or restricted gestures; avoids eye contact; poor body language/distractive</td>
</tr>
<tr>
<td><strong>Overall Impression: Written Communication</strong></td>
<td>High quality with correct sentence structure; well organized, vocabulary used is precise, appropriate and comprehensive; addresses all questions; able to articulate thoughts clearly</td>
<td>Average quality; 1 to 3 spelling and/or grammatical errors, average sentence structure; appropriate vocabulary use; able to address all questions yet not thoroughly. Able to articulate thoughts with some clarity.</td>
<td>Low quality; many spelling/grammatical errors, poor sentence structure, use of slang or inappropriate terminology; statements unclear; did not address the questions properly</td>
</tr>
</tbody>
</table>
Appendix C

IRB Approval

From: Christy D. Wolfe <cwolfe@bellarmine.edu>
Sent: Wednesday, March 4, 2020 1:07 PM
To: Michael K. Vetter <mvetter2@bellarmine.edu>
Cc: Connie R. Smith <csmith6@bellarmine.edu>; Francis T. Hutchins <fhutchins@bellarmine.edu>
Joseph F. Sinski <jsinski@bellarmine.edu>; Mark R. Wiegand <mwiegand@bellarmine.edu>; Christy D. Wolfe <cwolfe@bellarmine.edu>
Subject: IRB#832: Pilot Holistic Admissions Review Process for a Doctor of Physical Therapy Program in a Private University

March 4, 2020

Dr. Michael Vetter
School of Education, Bellarmine University

Dear Dr. Vetter:

The IRB has received your application for the project entitled *Pilot Holistic Admissions Review Process for a Doctor of Physical Therapy Program in a Private University*. The project has been designated protocol #832. The review status of your protocol is exempt under Category 4, "Secondary research for which consent is not required" and the "information is recorded so the subject cannot readily be identified (directly or indirectly/linked) and investigator does not contact subjects and will not re-identify the subjects". You may proceed with your project. As always, the IRB expects full compliance with relevant policies and procedures as applicable. If any issues emerge that may alter the protocol and/or an adverse event occurs, you are required to contact the IRB chair as soon as possible.

[https://www.bellarmine.edu/academicaffairs/faculty_affairs_and_research/research-and-creativity/irb/](https://www.bellarmine.edu/academicaffairs/faculty_affairs_and_research/research-and-creativity/irb/)

If you have any questions, feel free to contact me. We wish you the best with your project.

cw

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Christy Wolfe, PhD
Associate Professor of Psychology
Chair, Bellarmine IRB
Bellarmine University
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Louisville, KY 40205
(502) 272-7971
Office: McGowan Hall, Room 173