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THE EFFECT OF A DOCTOR OF PHYSICAL THERAPY PROGRAM
CURRICULUM ON CULTURAL COMPETENCE AMONG STUDENTS AT A
PUBLIC, MIDSIZE, MIDWESTERN UNIVERSITY

By
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A DISSERTATION IN PRACTICE

Submitted to the faculty of the Graduate School of Creighton University in Partial
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Abstract

Doctor of Physical Therapy (DPT) and other healthcare professional education programs have been charged with developing a culturally competent healthcare workforce in order to better meet the needs of diverse communities and reduce health inequities. The purpose of this quantitative, longitudinal, quasi-experimental educational intervention dissertation-in-practice (DIP) study was to examine the effects of an integrated DPT program curriculum on student cultural competence at a public, midsize, midwestern university. The Intercultural Development Inventory (IDI) was administered to three separate student cohorts across four different timepoints, including upon entry into the program (baseline) and at the end of the first, second, and third year. Developmental Orientation (DO) and Orientation Gap (OG) scores from the IDI were utilized. Data analysis was performed using descriptive statistics, independent and dependent samples *t*-tests, and one-way ANOVA with pairwise comparison. Results showed statistically significant improvements in both DO and OG scores from baseline to the end of the DPT didactic curriculum; however, significant change only occurred during Year 1 ($p < 0.001$) with a medium effect size ($d = 0.63$ for DO, $d = 0.68$ for OG). With greater understanding and visibility, the study findings were analyzed, leveraged, and incorporated into recommendations for curricular revision and program reform targeting cultural competence development among DPT students.

Keywords: cultural competence, physical therapy, DPT curriculum, Intercultural Development Inventory

Dedication

To those who lean in, hold space, bear witness, and press on.

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CHAPTER ONE: INTRODUCTION

This chapter serves to elucidate the real-world problem surrounding development of student cultural competence within Doctor of Physical Therapy (DPT) education programs. The purpose of this dissertation-in-practice (DIP) study will be introduced within this chapter and the guiding research questions will be posed. Specific hypotheses developed to address the research questions will be presented and an overview of the study methodology will be provided. In addition, the aim of this study will be described, and relevant terms will be defined in order to enhance understanding. This introduction will also include a discussion of delimitations, limitations, and personal biases pertinent to this study. The chapter will conclude with my personal reflections as a scholar-practitioner.

The practice of physical therapy in the United States is guided by the American Physical Therapy Association (APTA) and the establishment of explicit professional core values and ethical standards. The following seven APTA Core Values are recognized: accountability, altruism, compassion/caring, excellence, integrity, professional duty, and social responsibility (APTA, 2019a). Built on these core values, the APTA Code of Ethics identifies eight guiding principles, starting with the first principle addressing key elements pertinent to cultural competency, as directly quoted:

Principle #1: Physical therapists shall respect the inherent dignity and rights of all individuals (Core Values: Compassion, Integrity)

1A. Physical therapists shall act in a respectful manner toward each person regardless of age, gender, race, nationality, religion, ethnicity, social or economic status, sexual orientation, health condition, or disability.

1B. Physical therapists shall recognize their personal biases and shall not discriminate against others in physical therapist practice, consultation, education, research, and administration (APTA, 2020c, p. 1).

Additional principles that incorporate important topics pertinent to cultural competence are directly quoted as follows:

Principle #2: Physical therapists shall be trustworthy and compassionate in addressing the rights and needs of patients and clients. (*Core Values: Altruism, Compassion, Professional Duty*) (APTA, 2020c, p. 1).

Principle #6: Physical therapists shall enhance their expertise through lifelong acquisition and refinement of knowledge, skills, and professional behaviors. (*Core Value: Excellence*) (APTA, 2020c, p. 3).

Principle # 7: Physical therapists shall promote organizational behaviors and business practices that benefit patients and clients and society. (*Core Values: Integrity, Accountability*) (APTA, 2020c, p. 3).

Principle #8: Physical therapists shall participate in efforts to meet the health needs of people locally, nationally, or globally. (*Core Values: Social Responsibility*) (APTA, 2020c, p. 3).

As evidenced in these core documents, the development of cultural competence is recognized as vital to the physical therapy profession (APTA, 2019a, 2020b; 2020c, 2020d; CAPTE, 2020).

Dedication to cultural competence is also reflected in the APTA Mission, Vision, and 2019-2021 Strategic Plan, thru the visionary principles of *consumer-centricity* and *access/equity*, and a strategic goal specific to valuing cultural competence in regards to

stewardship (APTA, 2020b). In 2019, the APTA House of Delegates adopted an official position in support of efforts to increase diversity, equity, and inclusion, as well as a Cultural Competence Policy (APTA, 2019b) in support of cultural competence as defined by the Centers for Disease Control and Prevention (CDC) as follows: “Cultural competence is the integration and transformation of knowledge about individuals and groups of people into specific standards, policies, practices, and attitudes used in appropriate cultural settings to increase the quality of services; thereby producing better outcomes” (CDC, 2020a, para. 6).

The APTA works closely and cooperatively with the Commission on Accreditation in Physical Therapy Education (CAPTE) (<https://www.capteonline.org/>) to ensure that individuals entering the profession of physical therapy receive quality education and preparation. Nationally recognized by the United States Department of Education and the Council for Higher Education Accreditation, CAPTE requires DPT education programs to meet eight established standards, each with specific required elements (CAPTE, 2020). Pertinent to the development of cultural competence, CAPTE Standard 5 includes the requirement that programs recruit, admit, and graduate DPT students “consistent with the mission and goals of the institution and the program and consistent with the societal needs for physical therapy services for a diverse population” (CAPTE, 2020, p. 18). Standard 6 requires DPT programs have a comprehensive curricular plan, and Standard 7 specifies the inclusion of content that prepares students to practice in a manner consistent with the APTA Core Values and the APTA Code of Ethics (CAPTE, 2020). DPT education programs are obligated to address CAPTE standards and required elements in order to obtain and maintain specialized CAPTE

accreditation status. However, DPT education programs have the freedom to adopt their own pedagogical approaches and methods to achieve these standards.

Statement of the Problem

Healthcare inequities related to poor quality of care for minority populations in the United States have been widely documented (National Academies of Sciences, Engineering, & Medicine, 2017). The World Health Organization (WHO) states that social determinants of health are mostly responsible for health inequities, and describes them as the “conditions in which people are born, grow, live, work and age,” acknowledged to be shaped by “economic policies and systems, development agendas, social norms, social policies and political systems” (WHO, 2021, para. 1). *Healthy People* (<https://health.gov/our-work/healthy-people>) is a science-based, government initiative that addresses the latest public health priorities and challenges through establishing data-driven objectives at the start of each decade to improve the health and well-being of people nationwide. Recognizing the impact of social determinants on health outcomes for specific populations, the *Healthy People 2020: An End of Decade Snapshot* states that “Environmental, economic, and sociocultural factors such as structural racism or systemic bias can contribute to health disparities by race, ethnicity, sex, sexual orientation, gender identity, age, disability, socioeconomic status, or geographic location” (Office of the Assistant Secretary for Health, 2021, p. 13)

Discrimination (including implicit bias) is recognized as a key issue that can adversely affect health outcomes in various populations, with racism specifically linked to low birth weight, high blood pressure, poor health status, and lower quality of health care (Office of Disease Prevention and Health Promotion, n.d.-a). Additional populations

found to be at risk for health disparities due to discrimination include women, LGBT individuals, older adults, and people with disabilities. One of the five overarching goals of *Healthy People 2030* specifically addresses social determinants of health and includes explicit objectives to improve the health, safety, and well-being of lesbian, gay, bisexual, and transgender people, as well as people with disabilities (Office of Disease Prevention and Health Promotion, n.d.-b).

Currently within the United States, the ongoing civil rights protests, the Black Lives Matter (BLM) movement, and the global COVID-19 pandemic serve as evidence of the significant and complex role of racial/ethnic discrimination and the inextricable connection to health inequities. Specific social determinants of health identified by the CDC (2020b) that impact health risk and outcomes include unstable housing, lack of access to quality healthcare, occupations and jobs in essential work settings, low income, and substandard education. Disparities among racial and ethnic minority groups are rooted in American history and systemic, structural racism. Discriminatory governmental practices such as the 1863 Homestead Act disproportionately benefited whites, and systemic racist practices such as redlining within the housing and banking industries negatively impacted people of color and increased their risk of unstable housing (Chun & Evans, 2015). Discriminatory practices also led to racially and socioeconomically segregated neighborhoods, resulting in ongoing inequitable funding of public schools due to reliance on local property tax revenue. Underfunding of public schools has a direct impact on the quality of education provided, limiting the school's ability to hire well-qualified teachers and staff, provide necessary books, supplies, and technology, and to maintain a clean and safe environment (Kraft & Furlong, 2015). Wealth disparities and

poor-quality education at the primary level create an educational disadvantage for students applying to colleges and universities at the secondary level.

The COVID-19 pandemic has highlighted long-standing systemic health and social inequities as evidenced by higher rates of hospitalization and death among racial and ethnic minority groups in the United States. According to the CDC (2020b), age-adjusted hospitalization rates are five times higher among non-Hispanic American Indian/Alaska Natives and non-Hispanic black persons than non-Hispanic white persons; and the approximate rate among Hispanic or Latino persons is four times higher than non-Hispanic white persons. The CDC states that generational inequities in living, working, health, and social conditions put racial and ethnic minority groups at increased risk during the COVID-19 pandemic (CDC, 2020b).

Increasing the diversity of the healthcare workforce and strengthening intercultural competency among healthcare professionals are components of the United States Department of Health and Human Services (USDHHS, 2011) Action Plan to Reduce Racial and Ethnic Health Disparities. In alignment with this plan, the principal standard of the enhanced National Standards for Culturally and Linguistically Appropriate Service (CLAS) in Health and Health Care is to “provide effective, equitable, understandable, and respectful quality care and services that are responsive to diverse cultural health beliefs and practices, preferred languages, health literacy, and other communication needs” (Office of Minority Health, 2013, p. 13). Individuals from diverse racial and ethnic minority groups are significantly underrepresented within the United States professional healthcare workforce (National Center for Health Workforce Analysis, 2017). Healthcare professional education programs have been charged with

developing a culturally competent healthcare workforce in order to better meet the needs of diverse communities (Cohen et al., 2002).

The development of cultural competence among DPT students has been mandated within the profession by the APTA and is essential to effectively meet the needs of diverse clients in a global society (Lattanzi & Pechak, 2012). Several theoretical models of cultural competence development that are applicable to healthcare education are presented in the literature (Alizadeh & Chavan, 2016; Bennet, 1986, 1993; Campinha-Bacote, 1999; 2002; Kachingwe, 2003; Purnell, 2002, 2005). Specific measurements tools have been developed based on different theoretical models and frameworks in order to further investigate cultural competence development (Alizadeh & Chavan, 2016; Campinha-Bacote, 1999; Hammer et al., 2003). Specific experiential and didactic learning elements utilized within the context of DPT programs to facilitate students' development of cultural competence have also been identified (Hayward & Li, 2014; Lattanzi & Pechak, 2012; Loghmani et al., 2011). However, there is limited information regarding the effect of participation in an integrated DPT program on the overall process of cultural competence development. Whether implicit or explicit, improved cultural competence through participation in a DPT program curriculum is a desired student learning outcome.

What remains unknown is whether participation in a DPT program curriculum influences the development of student cultural competence, as measured by a standardized tool. A recent study utilizing the Global Worldview Cultural Competence Survey found a significant difference in scores between entering and exiting health science students; however, neither cohort reached the level of proficiency (Jones & Pinto-

Zipp, 2017). The relationship between time spent participating in a DPT program curriculum and student cultural competence development remains unclear. Without a better understanding of this relationship, leaders in DPT programs and other health professional education institutions cannot effectively and strategically innovate solutions that positively impact student cultural competence, and in turn, address health inequities (Bryson, 2011).

Purpose of the Study

The purpose of this quantitative, longitudinal, quasi-experimental educational intervention study was to examine the effect of an integrated DPT program curriculum on student cultural competence at a public, midsize, midwestern university. This study explored the difference in cultural competence development (dependent variable) for different student cohorts (independent variable) at different points in time (independent variable) who had all participated in the same integrated DPT program curriculum.

The DPT program curriculum included 92 credit hours of didactic coursework and 27 total credit hours of clinical education experiences. The didactic curriculum consisted of lectures, labs, and discussion-based seminar courses with incorporation of model and standardized patient simulations and community or clinic-based experiences, per instructor discretion. Four required clinical education courses were integrated between the didactic coursework, with a fifth required clinical education course occurring upon completion of all didactic curriculum, at the end of the DPT program.

The variable 'cohort' had three groups, each containing graduate students who were actively enrolled in the DPT program at the time of the study. Student cohort was determined by anticipated year of graduation from the program, designated as cohort A,

B, or C. The variable 'time' had four categories, consisting of a baseline (T0) at the start of the program, and then at the end of the first year (T1), the end of the second year (T2), and end of the didactic curriculum during the third and final year (T3). The dependent variable was 'cultural competence' and was measured using the Intercultural Development Inventory (IDI).

Based on the Intercultural Development Continuum (IDC) that was adapted from the Bennet's (1986) Developmental Model of Intercultural Sensitivity (DMIS), the IDI has been shown to be a valid and reliable measure of cultural competence (Hammer, 2011; Hammer et al., 2003; Wiley, 2016, 2017). Embedded within the IDI, there are five worldview orientations that occur along the IDC that move from a monocultural to an intercultural orientation as follows: Denial, Polarization, Minimization, Acceptance, and Adaptation. IDI results provide information related to perceived orientation (PO) and developmental orientation (DO), referring to where individuals believe they fall on the IDC, and where they actually fall, respectively. This difference between PO and DO is measured via an orientation gap (OG) score, representing one's degree of accuracy with self-perception of cultural competence. Therefore, the IDI can be used to investigate cultural competence development at the individual and group level within a DPT education program. Development of cultural competence will be operationally defined within this study by DO and OG scores on the IDI.

Research Question and Hypotheses

The following research questions served to guide this study:

RQ1: What is the effect of an integrated DPT program curriculum on student cultural competence, as measured by DO scores on the IDI?

RQ2: What is the effect of an integrated DPT program curriculum on student accuracy of self-perception of cultural competence, as measured by OG scores on the IDI?

Based on knowledge of cultural competence and the integrated DPT curriculum of the DIP study site (further explained in Chapter 2), the following hypotheses were developed and investigated:

Hypothesis 1: Cohort B and Cohort C will not significantly differ in DO and OG scores at baseline (T0) and after Year 1 curriculum (T1).

Hypothesis 2: Cohort A and Cohort B will not significantly differ in DO and OG scores after Year 2 curriculum (T2) and after Year 3 curriculum (T3).

Hypothesis 3: Cohort A will have significantly higher DO scores and lower OG scores at T3, compared to T2.

Hypothesis 4: Cohort B will have significantly higher DO scores and lower OG scores at T1, T2, and T3 compared to baseline T0.

Hypothesis 5: Cohort C will have significantly higher DO scores and lower OG scores at T1 compared to baseline T0.

Aim of the Dissertation in Practice (DIP)

The aim of this DIP study was to better understand the relationship between participation in an integrated DPT program curriculum and student cultural competence development in order to design evidence-based recommendations for DPT program curricular revision at a public, midsize, midwestern university. By measuring students' level of cultural competence and accuracy of their self-perception of cultural competence at different points within the DPT program, the potential effect of the curriculum on cultural competence was made more evident.

With greater understanding and visibility, distinct curricular elements and pedagogical approaches being utilized during specific time periods leading up to or between administrations of the IDI can be identified and examined by DPT program chairs, curriculum committee members, and faculty. Findings can be analyzed, leveraged, and incorporated into curricular revision and program reform to facilitate cultural competence development among DPT students. By enhancing development of cultural competence, DPT program graduates are better equipped to advance the profession's efforts to meet the health and care needs of diverse clients and reduce health inequities (Lattanzi & Pechak, 2012).

Definition of Relevant Terms

The following terms were used operationally within this study.

Culture: “the integrated pattern of thoughts, communications, actions, customs, beliefs, values, and institutions associated, wholly or partially, with racial, ethnic, or linguistic groups, as well as with religious, spiritual, biological, geographical, or sociological characteristics” (USDHHS, 2011, p. 24)

Cultural competence: “the dynamic and evolutionary process of acquiring the ability to provide effective, safe, and quality care to individuals from different cultures, along with considering the different aspects of their cultures” (Sharifi et al., 2019, p. 6). This concept incorporates is used interchangeably with the term *intercultural competence* which refers to the capability to accurately understand and appropriately adapt behavior to cultural difference and commonality (Hammer et al., 2003; Hammer, 2019).

Curriculum: “a plan for the education of learners that includes objectives, content, learning experiences and evaluation methods—all of which are grounded in the mission

and expected student outcomes of the program and are based on consideration of educational theory and principles, the nature of contemporary practice, and the learners' previous experiences" (CAPTE, 2020, p. 21). For the purposes of this study, the term also encompasses optional extra-curricular or co-curricular activities such as volunteering and service-learning experiences (e.g., participation in pro-bono clinic, study abroad).

Developmental Orientation (DO): "an individual's primary orientation toward cultural differences and commonalities along the Intercultural Development Continuum® (Denial, Polarization, Minimization, Acceptance, or Adaptation) as assessed by the IDI. The DO is the perspective that individuals most likely use in those situations where cultural differences and commonalities need to be bridged" (IDI, 2019, p. 5).

Diversity: "includes group/social differences (e.g., race, ethnicity, socioeconomic status, gender, sexual orientation, country of origin, as well as cultural, political, religious, or other affiliations) and individual differences (e.g., age, mental/physical ability, personality, learning styles, and life experiences)" (CAPTE, 2020, p. 18).

Health disparities: "differences that exist among specific population groups in the United States in the attainment of full health potential that can be measured by differences in incidence, prevalence, mortality, burden of disease, and other adverse health conditions" (National Academies of Sciences, Engineering, and Medicine, 2017, p. 57-58).

Intercultural Development Continuum (IDC): a continuum created by the developers of the IDI which "identifies five orientations that range from the more monocultural orientations of Denial and Polarization to the transitional mindset of

Minimization to the more intercultural or global mindsets of Acceptance and Adaptation” (IDI, 2019, p. 3) based on completing the IDI assessment.

Orientation Gap (OG): degree of accuracy of self-perception of cultural competence measured by “the difference along the Intercultural Development Continuum® between an individual’s Perceived Orientation and Developmental Orientation. The larger the gap, the more likely the individual may misread how effective they are in bridging across cultural differences” (IDI, 2019, p. 5).

Perceived Orientation (PO): where an individual places themselves along the Intercultural Development Continuum® (Denial, Polarization, Minimization, Acceptance, or Adaptation). “This reflects how you see yourself when you interact with culturally diverse individuals and groups” (IDI, 2019, p. 5).

Methodology Overview

This DIP study utilized a quantitative approach with a longitudinal, quasi-experimental design to examine the effect of an integrated DPT program curriculum on development of student cultural competence at a public, midsize, midwestern university. Longitudinal data was obtained from three different student cohorts at different time points across the curriculum, including data from the start and end of each year of the three-year DPT program.

The two independent variables for this study were *time* within the DPT program and student *cohort*. Time was operationalized as four different points within the three-year, year-round DPT program. The first time point was the baseline (T0) at the start of the DPT program (within the first few weeks), and next three time points were at the end of each year of the curriculum, designated as Time 1 (T1), Time 2 (T2), and Time 3 (T3).

Student cohort was operationalized according to year of graduation from the DPT program and designated as Cohort A, Cohort B, and Cohort C.

Cultural competence development, consisting of level of cultural competence and student accuracy of self-perception of cultural competence, were operationalized as two continuous, dependent variables as measured by the IDI, represented by DO and OG scores, respectively. The IDI is a 50-item, proprietary questionnaire available online that has been shown to have strong validity and reliability for measuring cultural competence across diverse cultural groups based on rigorous psychometric testing (Hammer, 2011; Hammer et al., 2003). DO and PO scores on the IDI correspond to one of five orientations along the IDC that range from the more monocultural orientations of Denial and Polarization, to the transitional mindset of Minimization, to the more intercultural or global mindsets of Acceptance and Adaptation (IDI, 2019). For example, a DO or PO score between 85 -115 would correspond to a Minimization orientation, while a score between 115-130 would be categorized within the Acceptance orientation.

A nonprobability, purposeful convenience sample of quantitative IDI scores of DPT students from each of the four designated time periods within the program was utilized. The IDI was completed by all three student cohorts as a stand-alone assignment in a required course during specified time points within the program. Permission to access that data was granted by the DPT department. Specifically, longitudinal IDI data was collected for Cohort B across all four designated time periods, including at start of the program (baseline T0), at the end of the first year (T1), at the end of the second year (T2), and at the end of the didactic curriculum in the third year (T3). Data was collected

for Cohort A at the end of the second year (T2) and third year (T3). Data was collected for Cohort C at the start of the program (baseline T0) and at the end of the first year (T1).

Hypotheses testing was conducted using independent samples t-tests with pairwise comparison, paired samples t-tests, and analysis of variance (ANOVA). When the dependent variable is continuous (such as DO or OG scores), a t-test allows for measurement and comparison of the difference between two groups means, while ANOVA allows for comparison between more than two groups (Creswell & Creswell, 2018; Field, 2013). Independent samples t-tests with pairwise comparisons were conducted to determine between-group effects, comparing Cohort B and C at T0 and T1, and comparing Cohort A and B at T2 and T3. Separate paired samples t-tests and ANOVA were used to examine change in DO and OG scores over time. Paired samples t-tests were used to compare scores from T0 to T1 in Cohort C, and scores from T2 to T3 in Cohort A. One-way, within factor repeated measures ANOVA was conducted to examine change over time at T0, T1, T2, and T3 within Cohort B.

Delimitations, Limitations, and Personal Biases

Generalization of the findings of this study to individuals or places outside of this specific DPT program was not the intent of this DIP study. This is recognized as a delimitation. Due to the selected study design elements, the results and findings of this study are particular to the context of students within the DPT program at a specific midsize, midwestern university, and it cannot be inferred that study findings would transfer to other curriculum or DPT programs.

Cross-sectional sampling from different DPT student cohorts at different times may be a limitation to the extent that samples may not be representative of other DPT

student cohorts at that same time within the program. Similarly, findings may not be valid for other student cohorts. The inherent academic freedom allowed to faculty to deliver program curriculum in a variety of ways cannot be controlled, potentially impacting intervention fidelity. An inability to control for experiences that possibly influenced development of students' cultural competence outside of the context of participation in a DPT program curriculum serves as an additional limitation.

Recognizing my own social identities, roles and biases as a researcher was a critical step in bracketing my own experiences in order to maintain integrity throughout the process (Creswell & Creswell, 2018). Being a physical therapist and mother of two transracially adopted children has fueled my desire and passion to help develop healthcare practitioners who demonstrate cultural competence. I also acknowledge that as a white, Christian, able-bodied, heterosexual, cisgender individual, I hold multiple privileged, majority identities within the context of healthcare, and specifically within the field of physical therapy. I recognize that as a faculty member within the DPT program where this study was conducted, I have a vested interest in the results. My challenge was to remain curious about authentically addressing the research question, and bracketing my own experiences related to cultural competence development throughout the research process. I took care to acknowledge and limit potential confirmation bias during data analysis through utilization of experienced research mentors within my department, the university Statistical Consulting Center, as well as my DIP committee members to inform my methodology and periodically review my data analysis, results, and findings. As advocated by Creswell & Creswell (2018), reflexivity facilitated my ability to remain true to the data throughout the research process.

Reflections of the Scholar-Practitioner

Upon entering this Ed.D. program, I was attracted to the mission and underlying values that are oriented toward social justice. In early anticipation of completing a culminating DIP, I was not fully aware at the time that development of a solution to a complex, real-world problem was prioritized, rather than only contributing to the general body of knowledge. Recognizing that a DIP can and should do both, I continue to be impassioned by the concept of knowledge translation of research into practical application and innovation of solutions to complex, real-world problems within my community.

Upon reflection, I continued to wrestle with categorizing my personal, philosophical worldview in the context of research and leadership. Based on various program readings from books such as *Research Design* by Creswell and Creswell (2018) and *The SAGE Handbook of Leadership* edited by Bryman et al. (2011), the descriptions of a transformative worldview and transformational leadership resonated with me. I desire social justice and mercy for individuals who are marginalized or disenfranchised within our society. Although not incongruent, I feel that my socialization into the medical field as a physical therapist has ingrained a post-positivistic philosophy that embraces the scientific method.

My research topic selection was founded in a desire to address the problem of current health disparities and inequities among marginalized, minority groups, which was informed by my transformative worldview. Yet the purpose and methodology of my DIP study was influenced by a postpositivist worldview. I had considered exploring cultural competence development among DPT students utilizing a pragmatic mixed methods

approach to best understand the problem, believing that “truth is what works at the time” (Creswell & Creswell, 2018, p.11). Although not explicitly articulated previously, I realized that I had developed perhaps a false assumption that quantitative research is more respected or holds greater value than qualitative research within medical and health care higher education. I also learned that I am personally more drawn to qualitative research and the inherent human connection and interaction that it encompasses. In light of those realizations, I originally desired to bridge the gap with a mixed methodology study – a solution consistent with my top two strengths of connectedness and input, as identified by StrengthsFinder 2.0 (Rath, 2015).

Similarly, I desired to embrace a relational approach to leadership which, according to Hosking (2011), requires acknowledging and respecting different meanings of “relational” in different contexts. The author explains that the focus with this approach is on *eco*-logical (‘power to’ voice/difference) versus *ego*-logical (‘power over’/dominance) processes allowing for soft self-other differentiation (ongoing, language-based process, interconnected and extended, multiple local realities, heart-felt listening) versus hard self-other differentiation (self-centered grasping of universal knowledge of reality, dis-heartened listening). I believe that a relational leadership approach is very much congruent with a qualitative research approach. Yet, in anticipatory reflection of my DIP proposal, I saw the irony that pragmatic thinking led me to the conclusion that conducting a qualitative or mixed methods study in the current context of a COVID-19 pandemic was not easily feasible, nor reasonable given my life circumstances. Therefore, I conducted a quantitative, quasi-experimental study utilizing both existing data and new data in order to facilitate DPT program improvement efforts

that are pragmatically evidence-based and intentional in addressing social injustices through individual transformation in order to reduce disparities within the healthcare setting.

Summary

The development of cultural competence within students in health care education programs has been identified as one strategy to address healthcare inequities within the (USDHHS, 2011). The development of cultural competence among DPT students has been mandated within the profession by the APTA and is essential to effectively meet the needs of diverse clients in a global society (Lattanzi & Pechak, 2012). However, the relationship between participation in a DPT program curriculum and level of cultural competence among students remains unclear. The purpose of this quantitative, longitudinal, quasi-experimental educational intervention study was to examine the effect of an integrated DPT program curriculum on student cultural competence at a public, midsize, midwestern university. Study results and findings may be useful in identifying possible pedagogical and curricular elements that influence cultural competence development and be leveraged to inform evidence-based DPT program reform within the public, midsize, midwestern university in which the study was conducted.

Chapter 2 will discuss the evolution of cultural competence and current conceptual models and associated assessment tools that are applicable to healthcare practice and education. The current debate within the literature regarding use of relevant terminology will be addressed and pertinent curricular elements present within healthcare education programs will be explored.

CHAPTER TWO: LITERATURE REVIEW

Enhancing cultural competence among healthcare providers has been identified as one strategy to address health inequities in the United States (USDHHS, 2013). This topic has received much attention within the literature over the past few decades, with a plethora of terms and numerous models presented across multiple disciplines. This literature review will first explore the origins of cultural competence and the evolution of associated terms and definitions within the context of healthcare. A selection of pertinent cultural competence models, conceptual frameworks, and assessment tools that are utilized within healthcare will be presented, followed by a summary of the ongoing debate surrounding the concepts of cultural humility and cultural competence. Finally, curricular elements and educational strategies utilized to promote cultural competence within the context of healthcare and physical therapy education programs will be presented in this literature review.

As mentioned in Chapter 1, the definition of *cultural competence* that will be used within this study is derived from the concept analysis by Sharifi et al. (2019) and reads as follows: “the dynamic and evolutionary process of acquiring the ability to provide effective, safe, and quality care to individuals from different cultures, along with considering the different aspects of their cultures” (p. 6). *Intercultural competence*, as referenced in the context of the IDI and defined by Hammer (2012), is a dynamic process involving “increasing cultural self-awareness, deepening understanding of the experiences, values, perceptions, and behaviors of people from diverse cultural communities, and expanding the capability to shift cultural perspectives and adapt

behavior to bridge across cultural differences” (p. 116). The concepts will be used interchangeably for the purposes of this study.

Cultural Competence: An Evolving Construct

Theoretical Foundation

The origins of cultural competence within healthcare in the United States can arguably be traced back to Arthur Kleinman’s (1978, 1981) work advocating for client-centered medical practice, and Madeleine Leininger’s (1978, 1985, 1988) *Theory of Nursing: Cultural Care Diversity and Universality*. Arising from the field of anthropology, Kleinman et al. (1981, 2006) proposed that rather than focusing on the disease process, the practice of medicine should be client-centered and incorporate individuals’ cultural values, conceptions, and beliefs surrounding their personal experience of illness. Congruently, in her seminal theory work on cultural care, Leininger (1978, 1985, 1988) describes how the concept of culture was borrowed from anthropology and the concept of care was borrowed from nursing. Thus, the interdisciplinary concept of *cultural care* was born, with the goal to provide culturally congruent nursing care through discovery of care meanings, patterns, and processes within practice (Leininger, 1988).

Embedded in conceptualization of this theory are two guiding principles for promoting cultural competence: 1) the maintenance of a broad, objective, and open attitude toward individuals and their cultures, and 2) avoidance of seeing all individuals as alike (stereotyping) (Leininger 1978; Wells, 2000). Integration of these original guiding principles into current models of cultural competence plays a critical role in

effectively applying this theory to practice at the individual and organizational levels (Wells, 2000).

Pioneering Definition

Although Kleinman et al. (1978) first articulated the importance of culture in medicine, and Leinenger's (1988) theory promoted culturally congruent healthcare, the concept of cultural competence is now widely used among human services and other disciplines. In 1989, Cross et al. described cultural competence as "a set of congruent behaviors, attitudes, and policies that come together in a system, agency or amongst professionals and enables that system, agency, or those professionals to work effectively in cross-cultural situations" (Cross et al., 1989, p. 182). Originating from mental health within the context of social work, this definition, or some variation of it, was one of the first to be widely adopted in settings where cultural competence is recognized as an intervention to address health inequities (Brach & Fraserirector, 2000).

Intersecting Terminology

A plethora of terms and definitions within the contemporary literature are utilized across multiple disciplines to describe the construct of cultural competence. The definitions themselves, as well as definition of associated terms, have evolved over time along with the attributed meanings. Additional commonly used terms to describe this construct include multi-, trans-, cross-, or inter-cultural competence. Terms such as cultural awareness, cultural appropriateness, cultural safety, cultural sensitivity, cultural proficiency, cultural tailoring, cultural attunement, cultural humility, cultural agility, and cultural congruence have also been applied to denote similar or identical concepts (Alizadeh & Chavan, 2016; Danso, 2018; Horevitz et al., 2013; Wells, 2000). The

abundance of terms related to, or synonymous with, cultural competence has contributed to the challenges surrounding application to research, education, and practice in attempts to reduce health inequities. Theoretical and conceptual models can be useful to better understand and explain the construct of cultural competence as distinct from these other terms within any given context.

Models of Cultural Competence

Cultural competence within the context of healthcare education and clinical practice can be better understood through exploration of theoretical and conceptual models. Several theoretical and conceptual models have been presented across a variety of disciplines within the literature (Alizadeh & Chavan, 2016; Bennett, 1986; Campinha-Bacote, 1999; Chang et al., 2012; Purnell, 2002; Suh, 2004; Wells, 2000). Based on these models, a variety of cultural competence assessment instruments have been developed and utilized within healthcare education and practice (Campinha-Bacote, 1999; Gozu et al., 2007; Hammer et al., 2003; Matsumoto & Hwang, 2013; Price et al., 2005; Purnell, 2016).

Many of the cultural competence models presented in the literature share underlying assumptions including the existence of different cultures and subcultures, and acknowledgement that individuals have different levels of awareness or understanding of their own culture and different cultures, as well as the influence of those cultures on behavior and interactions. One commonality is the conceptualization of cultural competence as a process that occurs along a continuum, with self-awareness recognized to be a primary step (Bennet, 1986; Campinha-Bacote, 1999; Purnell, 2005). Although terminology differs between models, generally one end of the continuum represents a

lack of cultural competence (which may include ethnocentrism, denial, destructiveness, and unconscious incompetence), and the other end represents cultural competence (which may include ethno-relativism, cultural proficiency, integration, and unconscious competence). Models may differ in their areas of focus, with some targeting skill domains or behaviors to be adopted or adapted, while others illuminate common aspects of culture that need to be acknowledged and incorporated. A selection of cultural competence models based on multiple theories and research that are commonly described in the healthcare literature will be presented. In addition, associated cultural competence assessment tools applied within physical therapy education research will be highlighted.

Developmental Model of Intercultural Sensitivity (DMIS)

Originally presented by Milton Bennet (1986), the Developmental Model of Intercultural Sensitivity (DMIS) was described as a phenomenological, developmental model based on the key organizing concept of *difference*. Bennet (1986) stated that cultures differ in the way they create and maintain worldviews, and therefore the concept of fundamental difference must be internalized in order for intercultural sensitivity to develop. The author's model is illustrated as a continuum divided into six stages of development (the basis for the current five-stage IDC within the IDI) that each represent ways of experiencing difference as follows: denial, defense, minimization, acceptance, adaptation, and integration. Hammer et al. (2003) later describes the DMIS as a framework for conceptualizing dimensions of intercultural competence by providing an explanation of how cultural difference is construed. This model presents an approach to training intercultural sensitivity and promoting personal growth based on one's ability to comprehend and experience difference (Bennet, 1986).

Intercultural Development Inventory (IDI)

In order to measure the orientations toward cultural differences as described in the DMIS, Hammer et al. (2003) established the IDI. Adapted from the original six-stage continuum described by Bennet (1986), the current IDC contains five stages moving from a monocultural to an intercultural orientation as follows: Denial, Polarization, Minimization, Acceptance, and Adaptation. Based on psychometric testing, the original defense stage of the IDC was incorporated into the Polarization orientation, and the integration stage was removed. IDI results provide information related to PO and DO, referring to where participants believe they fall on the IDC, and where they actually fall, respectively. This difference or gap between PO and DO is measured via a quantitative OG score.

Through rigorous psychometric testing, the IDI has been found to have high cross-cultural validity and reliability and can be used by individuals and organizations to assess current levels of cultural competence, as well as changes in cultural competence (Hammer, 2011, 2012; Hammer et al., 2003; Wiley, 2016, 2017). Serving as a pertinent example in healthcare, the IDI has been utilized to research cultural competence of students, faculty, and staff within a nursing education program (Kruse et al., 2014). Similarly, a study published in the *Journal of Physical Therapy Education* utilized the IDI to investigate the cultural sensitivity of physical, occupational, and speech therapy students pre- and post-international clinical placement (Peiying et al., 2012). The IDI has been utilized in over 70 Ph.D. research dissertations and more than 60 published articles,

and is recognized as an appropriate research tool that can be used to guide changes in practical outcomes in a variety of fields (Hammer, 2015).

Cross Model of Cultural Competence (Cross model)

In their 1989 landmark publication, *Towards a Culturally Competent System of Care: A Monograph on Effective Services for Minority Children Who are Severely Emotionally Disturbed*, Cross et al. (1989) describe becoming culturally competent as a developmental process that moves along the following continuum: cultural destructiveness, cultural incapacity, cultural blindness, cultural pre-competence, and cultural proficiency. In this manner, the authors describe how cultural competence may be viewed as a goal, emphasizing that actions can be taken at every level (individual, organization, and system) in pursuit of this goal. Five essential elements that must be congruent and function at every level are identified by the researchers: 1) value diversity, 2) have the capacity for cultural self-assessment, 3) be conscious of the dynamic inherent when cultures interact, 4) have cultural knowledge, and 5) have developed adaptations to diversity.

Similar to the DMIS, the Cross model recognizes a developmental process that occurs along a cultural competence continuum. In contrast, this model proposes essential elements of cultural competence that can be generally applied at multiple levels within a system of care, including at the policymaking, administrative, practitioner, and consumer level. Cross et al. (1989) report that provision of culturally competent service begins with commitment from the practitioner, an awareness and acceptance of cultural differences, an awareness of one's own cultural values, "an understanding of the 'dynamic of difference' in the helping process, and the ability to adapt practice skills to fit the client's

cultural context” (p. 32). Wilson (1982, as cited in Cross et al., 1989) listed personal attributes, knowledge areas, and skills deemed to be essential for cultural competence as it pertains to the individual practitioner. Modifications of this model have been applied to case report research examining the impact of an international immersion experience on the cultural competence of a DPT student (Grzelak & Glickman, 2014).

The Purnell Model of Cultural Competence (Purnell model)

Developed by Dr. Larry Purnell in 1998, the Purnell Model of Cultural Competence was proposed as a framework to guide cultural competence among multidisciplinary healthcare practitioners (Purnell, 2002, 2005, 2013). The model consists of concentric circles on the outside, with global society represented by the outermost rim, followed by community, family, and person, as the circles move inward. The interior circle consists of the following 12 domains of culture depicted as pie-shaped wedges: overview/heritage, communication, family roles and organization, workforce issues, biocultural ecology, high-risk behaviors, nutrition, pregnancy, death rituals, spirituality, health-care practices, health-care practitioners. A jagged line at the bottom of the model represents cultural consciousness as a non-linear construct, moving between unconsciously incompetent on one end to unconsciously competent on the other.

In addition to describing 12 domains of culture, the Purnell model considers both primary (i.e. age, race, gender, etc.) and secondary (i.e. educational status, socioeconomic status, physical characteristics, etc.) characteristics of culture. This organizing framework is based on multiple theories (including complexity and holographic) and draws on research from a variety of fields and disciplines; however, application is intended specifically for cultural competence within the context of healthcare practice settings

(Purnell, 2002, 2005, 2013). Although this conceptual framework can serve as a guide for assessing, planning, implementing and evaluating interventions, there is no assessment tool for measuring cultural competence associated with this model.

The Process of Cultural Competence in the Delivery of Healthcare Services (PCCDHS)

Often referred to as the Campinha-Bacote (1994, 2002) model within the literature, *The Process of Cultural Competence in the Delivery of Healthcare Services* (PCCDHS) is based on an earlier model of cultural competence that was conceptualized in the context of psychiatric mental health nursing (Campinha-Bacote, 1994). Initially conceptualized in 1991, the original model presented four constructs: cultural awareness, cultural knowledge, cultural skill, and cultural encounter (Transcultural C.A.R.E. Associates, n.d.-b). The model was later revised to include cultural desire and continues to evolve and incorporate new developments in the field in order to better reflect cultural competence as a developmental process (Campinha-Bacote, 2011; Transcultural C.A.R.E. Associates, n.d.-b).

The current PCCDHS model is centered on the interdependent relationship of five constructs: cultural awareness, cultural knowledge, cultural skill, cultural encounters, and cultural desire. The most recent version of the model identifies *cultural encounter* as the foundational construct and the starting point of the process of cultural competence development, and therefore is visually depicted at the center and surrounded by the other four constructs (Campinha-Bacote, 2011). The author purports that the PCCDHS model “begins and ends with the seeking and experiencing of many cultural encounters,” viewing cultural competence as an ongoing, reflective journey during which healthcare

providers should consider the following question, represented by a mnemonic: “Have I ASKED [Awareness, Skill, Knowledge, Encounter, Desire] myself the right questions?” (Campinha-Bacote, 2011, p. 46).

Exemplifying the evolutionary process, Campinha-Bacote (2019) later coined the term *cultural competemility* in an effort to shift the paradigm within healthcare. The term is defined as “the synergistic process between cultural humility and cultural competence in which cultural humility permeates each of the five components of cultural competence: cultural awareness, cultural knowledge, cultural skill, cultural desire, and cultural encounters” (Campinha-Bacote, 2019, para. 9). By viewing cultural competency and cultural humility appositively, rather than in opposition, this term focuses on the intersectionality and allows for recognition of cultural competemility at the individual and organizational level (Fitzgerald & Campinha-Bacote, 2019).

In comparison to the Cross model and DMIS, the PCCDHS model also acknowledges cultural competence to be an ongoing process. In contrast, the PCCDHS initially focused on distinct cognitive, affective, and behavioral characteristics or variable and, rather than viewing development of cultural competence as a function of dynamic engagement with cultural difference along a specific continuum as in the DMIS (Hammer, 2015). However, in more recent iterations of the model, cultural encounters have been identified as foundational to the process of cultural competence development (Campinha-Bacote, 2011). Similar to how the DMIS provides the conceptual basis for the IDI assessment tool, the constructs outlined in the PCCDHS model provides the basis for the *Inventory to Assess the Process of Cultural Competence Among Healthcare*

Professionals (IAPCC), a specific self-assessment tool designed to measure cultural competence in healthcare professionals and students.

Inventory to Assess the Process of Cultural Competence Among Healthcare Professionals (IAPCC)

In 1997, Campinha-Bacote developed the Inventory to Assess the Process of Cultural Competence Among Healthcare Professionals (IAPCC) in an attempt to address the dearth of research on the effects of cultural competence training and development (Transcultural C.A.R.E. Associates, n.d.-a). The original tool has since been revised and adapted, resulting in three different versions intended for 1) health care professionals and graduate students, 2) undergraduate students, and 3) mentors (Transcultural C.A.R.E. Associates, n.d.-a). The revised tool, IAPCC-R, is a self-assessment that examines the five cultural constructs outlined in the PCCDHS model: awareness, skills, knowledge, encounters, and desire. Designed to measure cultural competence of healthcare professionals and graduate students, it has been deemed to be a valid and reliable measure in the United States of America (Riley, 2010). Versions of IAPCC have been utilized within the field of physical therapy to research cultural competence within DPT educational programs (Denton et al., 2016; Palombaro et al., 2015; Paparella-Pitzel et al., 2016).

Synthesis of Paradigms

As presented previously, a variety of theoretical and conceptual models are currently available to help understand what cultural competence is within the context of healthcare practice and education. An evolutionary concept analysis of cultural competence from multiple disciplines (medicine, psychology, education, and social work)

conducted by Suh (2004) identified the following three attributes of cultural competence: *ability, openness, and flexibility*. In addition to several other models, included in the study were Bennet's DMIS, Purnell's model, and Campinha-Bacote's PCCDHS. Five antecedents to cultural competence within four domains were identified:

- Cognitive domain – *cultural awareness* and *cultural knowledge*
- Affective domain – *cultural sensitivity*
- Behavioral domain – *cultural skill*
- Environmental domain – *cultural encounters* (Suh, 2004)

Suh (2004) categorized the consequences of cultural competence as receiver-based variables, provider-based variable, and health outcome variables. The receiver-based variables were holistic nursing care, increased patient quality of life and health care satisfaction, and better adherence to treatment. Provider-based variables included personal and professional growth in the following areas: values, communication, nursing practice, and cognitive development. Identified health outcome variables were increased quality of nursing performance, treatment, and cost effectiveness. The author concluded that cultural competence is a fundamental schema and ongoing process that requires a “commitment to a new way of thinking, which may change over time and with exposure to new and different groups” (Suh, 2004, p. 100).

Alizadeh and Chavan (2016) conducted a systematic review of the literature and identified studies in which conceptual models were utilized to investigate the relationship between caregivers' cultural competence and patient outcomes. Based on results that incorporated 18 publications on cultural competence models, the authors reported that within this context most researchers emphasized that cultural competence is not a discrete

endpoint, but rather an ongoing process and a capability that can be enhanced over time. Of note, the Campinha-Bacote (2002) PCCDHS was the only model from those presented within this DIP literature review that was included in the systematic review by Alizadeh and Chavan (2016). The majority of models reviewed identified *cultural awareness*, *cultural knowledge*, and *cultural skills/behaviors* as key elements of the construct, and several models also identified *cultural desire/motivation* and *cultural encounter/interaction* as additional dimensions (Alizadeh & Chavan, 2016). In synthesis of the above evolutionary concept analysis conducted by Suh (2004) and the findings of Alizadeh and Chavan (2016), the construct of cultural competence is recognized as an ongoing, developmental process rather than a terminal level of competence to be achieved, and represents an approach to difference that can be facilitated by growth within different domains.

As elucidated within the above reviews, many relevant models of cultural competence focus on influence through specific domains or elements within the construct. Hammer (2015), as the researcher and developer of the IDI, describes the focus on cognitive, affective, and behavioral (CAB) dimensions of cultural competence within the research as the mainstream “CAB paradigm” (p. 12). In contrast, he advocates for a developmental paradigm that “views gains in intercultural competence as a function of the extent and quality of the individual’s engagement with cultural difference” and is “grounded more in dynamic interaction that arises between individuals rather than more static, personal characteristics” (Hammer, 2015, p. 13). The author calls for more cautious conclusions based on mainstream CAB paradigm research related to cultural competence. He argues there is conceptual confusion and a lack of consistency within the

literature, stating that such research oftentimes utilizes incompatible measures that are not culturally generalizable, in addition to having weak demonstrated practical applications and outcomes. For example, the results of a study conducted within a College of Nursing that utilized the IDI demonstrated that self-perception was not an adequate measure of cultural competence (Kruse et al., 2014). Yet, multiple research studies investigating cultural competence development have utilized outcome measures that have been criticized for their limited psychometric strength and their assessment of self-perception of cultural competence or of CAB domains, rather than actual cultural competency (Denton et al., 2016; Doherty et al., 2017; Gozu et al., 2017; Jones & Pinto-Zipp, 2017; Palombaro et al., 2015; Paparella-Pitzel et al., 2016).

A systematic review conducted in 2005 by Price et al. examined the methodologic rigor of 64 eligible studies that utilized cultural competence training, primarily based on the CAB paradigm, as a strategy to improve the quality of healthcare for people from minority groups. The authors concluded there was a lack of methodologic rigor, and findings included “inadequate descriptions of targeted providers, heterogeneity and incomplete description of interventions, nonadherence to basic study design, lack of objective or standard evaluation strategies, and incomplete statistical analysis” (Price et al., 2005, p.584). The results of this systematic review, in combination with Hammer’s (2015) advocacy for a developmental cultural competence paradigm (rather than one that focuses on CAB characteristics) within the research, illustrates the complexity and variety of ways that cultural competence can potentially be developed and measured (or mis-measured) in individuals within organizations and systems. Further, the importance of the environmental domain, inclusive of cultural encounters and diverse interactions,

and the necessity for strong methodologic rigor within the research, is imperative when it comes to interventions and outcomes targeting cultural competence development.

The Role of Cultural Humility

The construct of cultural competence has been deliberated across multiple disciplines within the literature including medicine, nursing, psychology, and social work (Fisher-Borne et al., 2015). A debate regarding use of the term cultural competence has resulted in new and alternate words, as well as evolving definitions and meanings of the construct (Campinha-Bacote, 2019; Danso, 2018; Fisher-Borne et al., 2015; Horevitz et al., 2013; Paparella-Pitzel et al., 2016). From a semantic standpoint, the term cultural competence has been problematized (Kleinman & Benson, 2006). Within the field of medicine, the term insinuates “an easily demonstratable mastery of a finite body of knowledge, an endpoint evidenced largely by comparative quantitative assessments (i.e. MCATs, pre- and post-exams, board certification exams),” rather than a developmental process (Tervalon & Murray-García, 1998, p. 118). Many researchers and educators in various disciplines have called for a change in semantics, proposing that the term *cultural humility* better describes the meaning behind the developmental construct of cultural competence, while others have argued they are separate and distinct, but possibly complimentary or appositive constructs (Campinha-Bacote, 2019; Danso, 2018; Foronda et al., 2016; Prasad et al., 2016; Sharifi et al., 2019; Yancu & Farmer, 2017).

In 1998, Tervalon and Murray-García published a sentinel article in which they advocate for the concept of *cultural humility* within physician training outcomes, purporting that it “incorporates a lifelong commitment to self-evaluation and critique, to redressing power imbalances in physician-patient dynamic, and to developing mutually

beneficial and non-paternalistic partnerships with communities on behalf of individuals and defined populations” (p.123). As noted above, the term cultural competence insinuates an endpoint or the achievement of an appropriate terminal level. In contrast, the term cultural humility implies an attitude or ongoing approach. In support of a shift away from a terminal endpoint and toward an ongoing approach, the concept of cultural humility has become more prominent within the research.

QIAN (Humbleness) Model

Chang et al. (2012) propose the QIAN (humbleness) model as a curriculum framework for integrating cultural humility into healthcare education and training. Based on the works of Chinese philosophers and Chinese cultural values, as well as the personal experiences of Chinese immigrants, the QIAN model acronym emphasizes the principles of “self-Questioning and critique, bi-directional cultural Immersion, mutually Active-listening, and the flexibility of Negotiation” (Chang et al., 2012, p. 269). The authors propose the QIAN (humbleness) model as a pathway to cultural humility in order to enhance cross-cultural clinical encounters and facilitate transformation of culturally sensitive healthcare in globalized practice. Healthcare educators should consider the extent to which the construct of cultural humility is incorporated into any cultural competence development model used in the context of healthcare education and practice.

Multidisciplinary Dialogue

A variety of disciplines have entered the dialogue within the literature surrounding the role of cultural humility in cultural competence development. Within psychology, Hook et al. (2013) completed a series of four studies in which they introduced the construct of cultural humility and a client-rated measure of a therapist’s

cultural humility, finding cultural humility to be positively associated with development of a strong working alliance. Cultural humility has been proposed as an alternative to cultural competence within the field of social work, emphasizing that cultural competence is concerned with knowledge acquisition while cultural humility emphasizes a need for individual and institutional level accountability (Fisher-Borne et al., 2015). From a sociological perspective, Yancu and Farmer (2017) explore how cultural humility and cultural competence are distinct but complementary. The authors describe humility as the process, and competence as the product when it comes to culturally sensitive delivery of healthcare.

In keeping with medical anthropology, Prasad et al. (2016) call for increased concentration on cultural humility within medical education curriculum in order to treat the patient, rather than the illness. It has been argued that healthcare inequities remain despite over a decade of incorporating cultural competency into nursing curricula, emphasizing that since no significant changes in health outcomes have resulted from a focus on cultural competency, it is time to prioritize the development of a lifelong commitment to an ethic of cultural humility within healthcare students (Isaacson, 2014). On the other hand, there may be an opportunity to use both since cultural humility has been identified as a key tool for successful application of cultural competence frameworks within interprofessional healthcare education and practice (Alsharif, 2012). Specific to physical therapy education, it has been explicitly proposed that students engage in reflective practice premised on cultural humility in order to effectively treat diverse clients in a global society (Cleaver et al., 2016).

Concept Analyses: Humility vs. Competence

In 2016, Foronda et al. searched the nursing literature to conduct a concept analysis of cultural humility. Similar to the DMIS in which *difference* is key organizing concept, the authors describe cultural humility as a lifelong process of “openness, self-awareness, being egoless, and incorporating self-reflection and critique after willingly interacting with diverse individuals” (Foronda et al., 2016, p. 213). Based on their analysis, *diversity* and *power imbalance* were identified as antecedents to cultural humility, and *mutual empowerment*, *partnerships*, *respect*, *optimal care* and *lifelong learning* were identified as consequences. Cultural humility has been applied as an approach to look at difference in a variety of contexts within the literature including race/ethnicity, sexual preference, social status, interprofessional roles, and healthcare provider/patient relationships (Foronda et al., 2016).

A critically reflective analysis of cultural competence and cultural humility published in the *Journal of Social Work* concluded that “semantic appeal does not necessarily give cultural humility a utilitarian edge over the construct it seeks to supplant,” arguing that cultural humility doesn’t appear to add more value to practice than cultural competence (Danso, 2018). The author delineates how many of the identified limitations associated with cultural competence are derived from construct fragmentation, defined as “the practice of ascribing meanings and interpretations to concepts different from their original definition” causing concepts to “lose their originality, dynamism, or radicalism as they travel through different literary landscapes and times” (Danso, 2018, p. 416). A compelling argument is presented, suggesting that cultural competence must evolve as a transformative and dynamic tool, rather than being

viewed as a stagnant construct. It can be argued that as the construct of cultural competence as evolved, cultural humility has been incorporated into the meaning, interpretation, and application of cultural competence as a term and a construct.

Recognizing the ambiguity surrounding the concept of cultural competence in nursing, Sharifi et al. (2019) conducted a concept analysis and identified the following six defining attributes of cultural competence: *cultural awareness*, *cultural knowledge*, *cultural sensitivity*, *cultural skill*, *cultural proficiency*, and *dynamicity*. The authors identified *cultural humility* as an antecedent, in addition to *cultural diversity*, *cultural encounter and interaction*, *cultural desire*, *general humanistic competencies*, *educational preparation*, and *organizational support*. Consequences of cultural competence were identified and categorized as those related to care receivers, those related to care providers, and health-related consequences (Sharifi et al., 2019).

In light of the evolving debate and plethora of terminology, the construct of cultural competence and related terms should be operationally defined within the specific contexts in which they are being utilized in order to clarify intended meaning and enhance understanding (Horevitz et al., 2013). Acknowledging cultural humility as an antecedent to cultural competence is consistent with the literature presented within this review, and is congruent with the meaning attributed to cultural competence and operationalization within the context of this DIP study.

Cultural Competence in Physical Therapy

Pertinent to this study, scholarly products specific to the development of cultural competence within the context of the physical therapy profession and DPT education were reviewed.

Grounded Theory

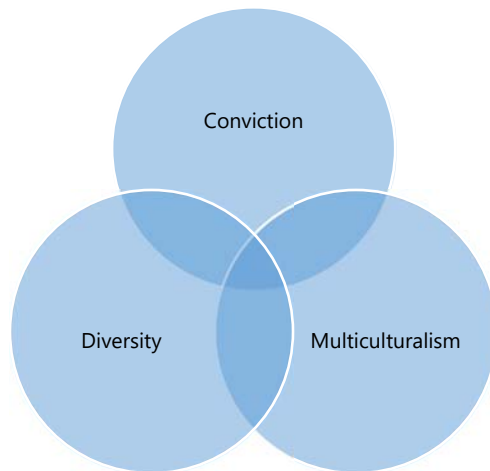
Kachingwe (2003) conducted a phenomenological grounded theory investigation of diversity and multiculturalism among physical therapists within the profession, with the stated purpose to gain knowledge and develop a model for use within physical therapy education. The study resulted in the development of a model of interculturalization based on an identified inexorable link between diversity, multiculturalism, and conviction. The author defined diversity as “a representation of people that exemplifies all cultural and congenital differences” (Kachingwe, 2003, p. 6). Multiculturalism was defined as “the infusion of culture into scholarship, theory, concept, and fact to create a culturally pluralistic curriculum that reflects the contributions and experiences of all cultures in articulating unity without hierarchy” (Kachingwe, 2003, p. 7). Conviction was defined as “a belief, held as a truth, to become an ideology compelling one to action” (Kachingwe, 2003, p. 7).

The model of interculturalization by Kachingwe (2003) is visually presented in Figure 1 as a Venn diagram with diversity, multiculturalism, and conviction depicted as three independent circles. Reflecting the dynamic and evolving nature of interculturalization, the model changes in shape based on the setting and existence of each component. For example, when there is less diversity present, the circle representing diversity would be depicted smaller, and the size of the other circles representing multiculturalism and conviction would reflect the respective proportional levels of each within a particular context (Kachingwe, 2003). It is highlighted that in order for the phenomena of interculturalization to occur, the three components must all coexist and overlap. Depending on the extent of each phenomenon, the model may show no

overlapping circles, or only two circles overlapping instead of all three, representing a lack of interculturalization within the organizational setting.

Figure 1

Model of Interculturalization



Note. From “A Grounded Theory Investigation of Diversity and Multiculturalism in the Physical Therapy Profession,” by A. F. Kachingwe, 2003, *Journal of Physical Therapy Education*, 17(1), p. 9 (<https://doi.org/10.1097/00001416-200301000-00003>)

Themes that emerged from the study suggest that cultural competence within DPT students can be developed through:

- Incidental learning through daily social interactions (i.e., contact with diverse students).
- Understanding of physiologic difference (i.e., skin pigment and erythema dose).
- Understanding of cultural difference and similarities (to dispel stereotypes).
- Fostering an inclusive environment (an intricate balance among diversity, multiculturalism, and conviction).

Findings suggest that when interculturalization is present within a DPT education program that consists of a diverse student body, a multicultural curriculum, and convicted faculty, the development of student cultural competence is facilitated.

Blueprint for Teaching

Drawing on the work of Kleinman et al. (1978), Cross et al. (1989) and Campinha-Bacote (1999), the APTA (2014) developed a *Blueprint for Teaching Cultural Competence in Physical Therapy Education*, recognizing the promotion of cultural competence to be a critical part of best practice. Originally published in 2008 and updated in 2014, the blueprint outlines a holistic model that requires the physical therapy student to:

- Examine self through reflective practice;
- Learn about the diversity dimensions that influence health outcomes, and affect the human experience both positively and negatively;
- Recognize the need for a patient-centered approach for delivery of culturally competent physical therapy services;
- Value effective communication between the patient and the therapist as fundamental for delivery of culturally competent care;
- Incorporate the National Standards for Culturally and Linguistically Appropriate Services (CLAS) in Healthcare;
- Address the determinants of health that influence health outcomes;
- Apply core knowledge about culture, belief systems, and traditions to enhance the patient-therapist interaction. (APTA, 2014, p. 6-7)

In addition to outlining the above requirements, the blueprint provides definitions and models to support effective communication about cultural competence in the profession of physical therapy. Furthermore, overarching goals are presented, as well as objectives for the knowledge, affective, and psychomotor domains of teaching and learning (APTA, 2014).

The model presented within the APTA blueprint aligns with the CAB paradigm, previously described by Hammer (2015). There is a focus on building cultural competence through specific educational strategies to develop personal characteristics, recognizing that “achieving cultural competence as a physical therapist or physical therapist assistant is a process that is cultivated within the individual through acquisition of knowledge, attitudes and behaviors specific to culture, language and communication” (APTA, 2014, p. 3). Although this model recognizes cultural competence as a developmental process, there is little acknowledgement of the role of meaningful engagement with cultural difference, as emphasized in the DMIS and IDI.

Interculturalization, as described by Kachingwe (2003), inherently requires the presence of diversity, a component that is significantly lacking within the model presented within the APTA blueprint. Acknowledging significant changes since the 2014 update of the blueprint, the APTA (2020d) has explicitly provided online web resources intended to succeed the blueprint which include general cultural competency curriculum resources, resources aimed to help faculty develop self-awareness and prepare to teach cultural competence to students, and assessment tools. In addition, independent searches for best practices and evidence-based resources specific to diversity, equity, inclusion, and cultural competence curriculum are encouraged (APTA, 2020d).

Pertinent Curricular Elements within Healthcare Education

Several studies in the literature explore strategies to facilitate development of cultural competence among students in a variety of healthcare education programs. The results of a published systematic review of the literature from 1980 to 2003 supported the utilization of training and educational interventions to improve cultural competence (Beach et al., 2005). The APTA (2014) *Blueprint for Teaching Cultural Competence in Physical Therapy Education* serves as a guide to assure that core knowledge, attitudes, and skills specific to developing cultural competence are addressed within DPT education programs, but falls short of providing teaching and learning strategies or recommendations for inclusion of specific curricular elements.

In an effort to effectively prepare DPT students to work in a global society, specific curricular strategies and elements have been identified within the literature. Strategies include an emphasis on reflective practice, public/global health content, experiential learning, and international educational partnerships/exchanges which may include web-based video conferencing (Lattanzi & Pechak, 2012; Panzarella & Matteliano, 2008; Romanello, 2007; Smith & Crocker, 2017). Based on a review of the literature and personal experience, strategies and specific curricular elements used to enhance cultural competence can be categorized as either didactic or experiential learning. Common didactic learning methods often incorporate reflective practice, and may include selective problem-based or case-based learning activities. Experiential learning opportunities represent additional curricular elements with the potential to facilitate cultural competence, and may include immersion within a specific cultural context or diverse encounters. It should be noted that experiential learning opportunities

may be integrated into the didactic curriculum, as a specific experience within a classroom or laboratory, or as a clinical education experience within a physical therapy practice setting. Separate clinical experiences are often accompanied by simultaneous reflective practice guided by targeted didactic instruction.

Didactic Learning

Didactic learning methods seek to provide students with information and theoretical knowledge that can be applied in clinical practice. They traditionally include activities such as readings, lectures, demonstrations, and discussions. These didactic approaches can be utilized to train students in various domains of cultural competence. Didactic strategies specifically pertaining to DPT education programs that have been identified within the literature include reflective practice, integration of problem-based and case-based learning activities, and integration of public and global health content (Lattanzi & Pechak, 2012; Loghmani et al., 2011).

Reflective Practice

The fostering of reflective practice that is premised on cultural humility and entails self-awareness, self-reflection, self-assessment, and cognizance of others has been identified as a key curricular component within DPT programs seeking to prepare culturally competent students (APTA, 2014; Cleaver et al., 2016; Lattanzi & Pechak, 2012). Opportunities for students to self-reflect on targeted activities can be explicitly stated within course assignments and facilitated through the use of specific questions and dialogues. For example, students may be asked to reflect on information provided within a particular lecture, after engaging with a panel of diverse speakers or guest lecturer, or after watching an assigned video. Reflective practice can be encouraged by assigning a

written reflection paper after a particular activity, or through journaling of personal reflections while participating in clinical observations or clinical education rotations. Students can be required to complete a self-assessment of professional behaviors and formulate relevant personal goals based on their assessment.

Problem-Based and Case-Based Learning

Another strategy for developing cultural competence within healthcare students is utilization of problem-based and case-based learning. This method involves presentation of individual patient case study scenarios that provide students an opportunity to apply their current knowledge and skills (Loghmani et al., 2011). Case studies can contain intentionally embedded cultural differences and can be presented in a variety of ways including lecture presentation, written case, demonstration, simulation, or use of audio-visual recording. For example, a case study may include patient demographics and psychosocial information, such as the patient being from a diverse cultural or ethnic group, practicing a non-dominant religion, or married to a same-sex partner. Additional strategies to facilitate application of learning may include use of guided questions, group discussions, and/or role-plays. One study examining the use of a multigenerational case family series within a DPT program curriculum reported positive preliminary outcomes related to enhancing students' cognitive, cultural, and ethical competence (Loghmani et al., 2011).

Public and Global Health Content

Globalization and the emphasis of prevention and wellness within the field of physical therapy support integration of public and global health content within physical therapy education. Such content may include introduction to World Physiotherapy/ the

World Confederation for Physical Therapy (<https://world.physio/>), and discussion of pertinent topics such as health disparities and social determinants of health (Lattanzi & Pechak, 2012). Within DPT education programs, public and global health content may be integrated within an existing course, or multiple courses, or stand alone as a separate, dedicated course.

Experiential Learning

Experiential learning generally refers to learning through an experience and reflecting on that experience (Smith & Crocker, 2017). Experiential learning within healthcare education programs may include participation in activities such as clinical education placements, simulation experiences, service-learning projects (domestic or international), study abroad programs, and engagement with pro-bono clinics. The higher education literature supports multiple positive outcomes of cross-cultural interactions, both within the context of healthcare education and beyond (Alger, 1997; Bowen & Bok, 1998; Denton et al., 2016; Gurin et al., 2004; Peiying et al., 2012; Springer & Hatcher, 2017). Nursing students who participated in a diverse standardized patient simulation demonstrated a significant increase in their perception of transcultural self-efficacy (Ozkara San, 2019). Exposure to a variety of cross-cultural encounters throughout a DPT curriculum has been shown to significantly increase students' self-rating of cultural competence as measured by the student version of the IAPCC (Palombaro et al., 2015). Enhanced interculturalization within a DPT program may facilitate student cultural competence (Kachingwe, 2003).

Cultural Immersion

International study abroad opportunities allow for extended experiential learning as students are immersed in an environment with enhanced opportunity for cross-cultural interactions. Such opportunities within the context of a DPT program may be in the form of international clinical placements or service-learning projects abroad. DPT students who participated in a 9-day study abroad experiential learning trip in Ecuador demonstrated a significant increase in self-assessed cultural competence as measured by the student version of the IAPCC (Hayward & Li, 2014). However, results of a phase one pretest of a larger interventional study within a College of Nursing found there was no correlation between individual cultural competence and overall time spent abroad at baseline, as measured by the IDI (Kruse et al., 2014). Based on an ethnographic case report following an 8-day immersion experience within the context of a DPT program, findings included an expanded worldview and increased cultural competence as perceived by the student (Grzelak & Glickman, 2014).

Diverse Encounters

DPT students may have opportunities for culturally diverse experiences domestically as well. Although such opportunities may be only partially immersive, or for shorter timeframes, they provide additional occasions for students to interact with cultural difference. DPT programs may offer service-learning projects or clinical education placements that occur in a culturally diverse geographic area, or involve working with culturally-diverse patient populations. Patient simulation experiences may include use of diverse standardized case-based patients, or diverse actors role-playing clients utilizing physical therapy services. Engagement with a panel of diverse

individuals within a classroom or lab setting can provide additional opportunities. Consistent with the APTA's professional values and vision, DPT students may have opportunities to participate in pro-bono clinics that potentially service more diverse patient populations.

DIP Study Site Curriculum

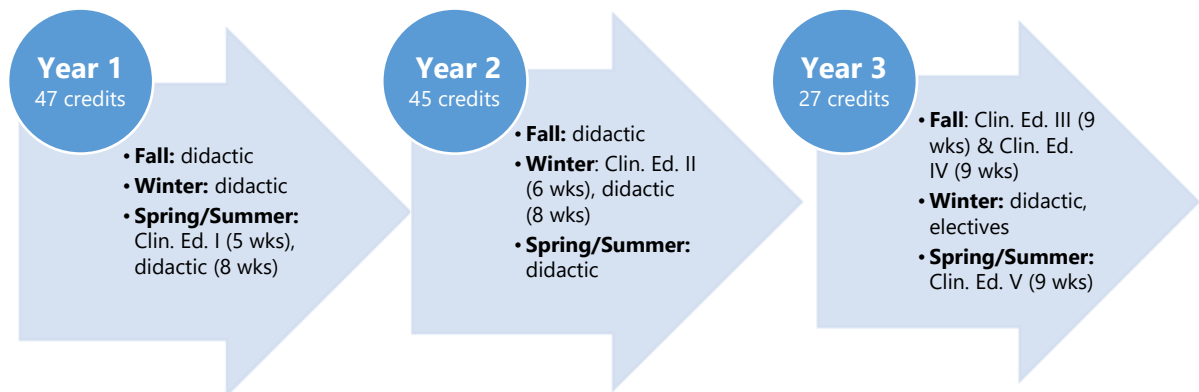
Pertinent curricular elements that exist within the DPT program of a midsize, midwestern, public university will be outlined in order to contextualize this DIP study. According to the university website, the DPT education program from which the data was collected for this study requires completion of 119 credits over three-years, divided into nine consecutive semesters, with integrated clinical education placements. Students may select from up to 5 optional elective courses, each an additional 3 credit hours, that are only offered during the final didactic semester in winter of their third year. A cohort consisting of 60-62 students are admitted each fall, with graduation occurring in August during the third year of the DPT program.

Of the 119 required credit hours, 27 total credit hours are integrated student clinical experiences (38 weeks total) that are scheduled at different intervals throughout the three-year program. Classroom preparation precedes clinical experiences that are interspersed throughout the program curriculum, allowing students to apply recently presented didactic material based on specific domains of physical therapy practice. The first clinical experience (4 credit hours, 5 weeks long) occurs at that start of the first spring/summer semester at the end of the first year. The second clinical experience (5 credit hours, 6 weeks long) occurs at the start of the winter semester in the second year. Students start the third year with two, back-to-back clinical experiences (each experience

is 6 credit hours, 9 weeks long) during the fall semester. These back-to-back clinical placements occur in two different settings and are then followed by a semester of didactic curriculum in the winter. Students may select from up to 5 optional, non-required elective courses (each an additional 3 credit hours), that are only offered during the final didactic semester in winter of their third year, according to enrollment/demand. Students complete the DPT program with a final clinical experience (6 credit hours, 9 weeks long) at the end of their third year. See Figure 2 for a diagram summary of the standard DPT program curriculum.

Figure 2

DPT Program Curriculum



Based on personal knowledge and communication from within the DPT program, content related to cultural competence development is integrated throughout the didactic curriculum, with opportunities for reflection and application occurring during the clinical education experiences that are interspersed throughout the three-year program. DPT faculty were asked to report on course content related to diversity/inclusion, based on the following definition contained within an internal, unpublished document: “Includes

group/social differences (e.g., race, ethnicity, socioeconomic status, gender, sexual orientation, country of origin, as well as cultural, political, religious, or other affiliations) and individual differences (e.g., age, mental/physical ability, personality, learning styles, and life experiences).” Excluding the off-campus, clinical education experience courses, eleven didactic courses were identified as explicitly addressing the topic. Of those courses, six occur within the first year of the curriculum, four occur within the second year, and one occurs within the third year.

Cultural competence is addressed within the five integrated clinical education courses through use of the Physical Therapist Clinical Performance Instrument (PT CPI) that requires clinical instructors to rate students on their ability to adapt delivery of physical therapy services with consideration for patients’ differences, values, preferences and needs (APTA, n.d.). Five different clinical experiences (a total of 27 credit hours and 38 cumulative weeks) are offered across the country and internationally, providing students an opportunity for exposure to a variety of practice settings in different geographic regions. As mentioned previously, the first clinical experience is five weeks long (4 credit hours) and occurs during the spring/summer semester of the first year. The second is six weeks long (5 credit hours) and occurs during the winter semester of the second year. The third and fourth clinical experiences occur back-to-back, during the fall semester of the third year and are each nine weeks long (6 credit hours each). The program concludes with a final, nine week long clinical experience (6 credit hours) during the spring/summer semester of the last year of the program, upon completion of all didactic curriculum.

In addition to the above clinical education courses, various experiential learning activities, including standardized and model patient simulation events, are integrated into the program curriculum within different courses. Voluntary extra- and co-curricular opportunities may provide students with additional cross-cultural experiences, including participation in the university-affiliated pro-bono clinic, interprofessional education (IPE) events, and a service-learning trip to South America.

Cultural competence is recognized as vital to the physical therapy profession as evidenced by inclusion within the APTA's professional core documents (APTA, 2019a, 2020c). However, DPT education pedagogy may incorporate a variety of didactic and experiential learning methods in order to achieve this goal. The relationship between participation in a comprehensive DPT program curriculum and student cultural competence development throughout the program remains unclear.

Summary

Promotion of cultural competence has been identified as a strategy to reduce health inequities and is supported by the physical therapy profession (APTA, 2019a, 2019b, 2020b, 2020c, 2020d; CAPTE, 2020; Lattanzi & Pechak, 2012; USDHHS, 2011). The body of literature that addresses cultural competence across multiple disciplines has led to inconsistencies and variations in conceptualization and practical application, arguably due to construct fragmentation as previously described by Danso (2018). Despite these potential challenges, and possibly contributing to them, there is an abundance of scholarly literature focused on the development and application of conceptual models and frameworks within the context of healthcare education.

However, there is a lack of understanding and consistency surrounding development, implementation, and evaluation of effectiveness of comprehensive teaching and learning strategies designed to enhance cultural competence (Alizadeh & Chavan, 2016; McFarland & Wehbe-Alamah, 2019; Price et al., 2005). Much of the research examining the relationship between various interventions and the impact on cultural competence utilize self-administered tools that have not been rigorously psychometrically validated (Goza et al., 2007; Purnell, 2016). In addition, the overall methodologic rigor of many studies examining the impact of cultural competence training has been questionable or lacking (Price et al., 2005).

Notwithstanding these issues, cultural competence models and associated assessment tools have been utilized to research cultural competence within DPT education programs (Denton et al., 2016; Doherty et al., 2017; Grzelak & Glickman, 2014; Hayward & Li, 2014; Jones & Pinto-Zipp, 2017; Kachingwe, 2003; Palombaro et al., 2015; Panzarella, 2009; Paparella-Pitzel et al., 2016; Romanello, 2007). Specific didactic and experiential learning elements utilized to facilitate DPT students' development of cultural competence have been identified within the literature. Several research studies examined specific curricular elements, rather than an integrated program curriculum, and most relied on student self-assessment to measure cultural competence.

Chapter 3 will provide an overview of the research design and specific methodology for this quasi-experimental, educational intervention DIP study. An explanation of the study variables, population sample, data collection and analysis will be provided. The validity and reliability of the IDI survey instrument will be presented. Study variables will be operationalized and data will be analyzed using IDI scores from

different DPT student cohorts at different points within the program curriculum. Finally, ethical considerations for this DIP research study will be explored.

CHAPTER THREE: METHODOLOGY

Cultural competence development is recognized as vital to the profession of physical therapy (APTA, 2019a, 2019b, 2020b, 2020c, 2020d; CAPTE, 2020; Lattanzi & Pechak, 2012). Doctor of Physical Therapy (DPT) education programs have pedagogical freedom in how student cultural competence development is incorporated into the curriculum. The measurable impact of participation in an integrated DPT program curriculum on development of student cultural competence remains unclear. The purpose of this quantitative, longitudinal, quasi-experimental educational intervention study was to examine the effect of a three-year educational intervention on cultural competence development over time among DPT students in different cohorts at a public, midsize, midwestern university. This chapter will review the research questions and outline the specific hypotheses investigated. A comprehensive overview of the research design and methodology will be provided, followed by a description of the study population and sample. Data collection procedures will be presented and methodological integrity will be discussed. Specifically, a detailed explanation of the IDI as an appropriate data collection instrument will be provided, including discussion of the measure's established validity and reliability. Ethical considerations will also be addressed.

Research Questions

The following research questions served to guide this longitudinal, quasi-experimental, educational intervention study:

RQ1: What is the effect of an integrated DPT program curriculum on student cultural competence at a public, midsize, midwestern university, as measured by DO scores on the IDI?

RQ2: What is the effect of an integrated DPT program curriculum on student accuracy of self-perception of cultural competence, as measured by OG scores on the IDI?

Research Hypotheses

To address the research questions, the following five hypotheses were investigated:

Hypothesis 1: Cohort B and Cohort C will not significantly differ in DO and OG scores at baseline (T0) and after Year 1 curriculum (T1).

Hypothesis 2: Cohort A and Cohort B will not significantly differ in DO and OG scores after Year 2 curriculum (T2) and after Year 3 curriculum (T3).

Hypothesis 3: Cohort A will have significantly higher DO scores and lower OG scores at T3, compared to T2.

Hypothesis 4: Cohort B will have significantly higher DO scores and lower OG scores at T1, T2, and T3 compared to baseline T0.

Hypothesis 5: Cohort C will have significantly higher DO scores and lower OG scores at T1 compared to baseline T0.

Methodology

Research Design Overview

This study utilized a quantitative approach. A longitudinal, quasi-experimental design was implemented to examine the effect of a three-year educational intervention on cultural competence development among DPT students in different cohorts at a public, midsize, midwestern university. Data utilized for this study consisted of DPT students' quantitative IDI scores collected within an educational setting as part of program evaluation. Specifically, DO and OG scores from individual IDI reports were analyzed.

Use of a survey instrument such as the IDI allows for the collection of quantitative data that can be analyzed to objectively test theories, measure the relationship between variables, and make inferences regarding causation (Creswell & Creswell, 2018). Within this study, analysis of quantitative IDI scores provides an opportunity for inferences regarding student cultural competence (DO scores) and their related self-perception of cultural competence (OG scores) to be drawn, as they relate to different time points within the DPT program curriculum.

In a true experimental design, the independent variable (experimental stimulus) is systematically manipulated while other variables are controlled and held constant, in order to isolate and evaluate the possible effect of the independent variable on the dependent variable or outcome in question (Babbie, 2017; Creswell & Creswell, 2018). The purpose of this study was to evaluate the effect of an integrated DPT program curriculum over time within student cohorts (independent variables) on student cultural competence developmental orientation scores (DO) and orientation gap scores (OG) (dependent variables).

In order to establish causality, an experimental design is necessary to control for potential confounding variables, in order to determine if the independent variable actually caused the effect on the dependent variable outcome (Babbie, 2017; Creswell & Creswell, 2018). In an experimental design, the study sample is recruited via use of specific inclusion and exclusion criteria, participants are randomly assigned to different groups or levels of an independent variable, and confounding variables are controlled (Creswell & Creswell, 2018). In the case of this DIP, the study sample was pre-determined without randomization based on student cohort and time spent within the

program, and there was no control group. Therefore, the research design and methodology for this study was quasi-experimental and utilized statistical analysis in order to determine if any change in student cultural competence development could be attributed to the integrated DPT program curriculum over time. However, when claiming causality, one must consider the impact of experimenter bias, as well as the extent of generalizability and the potential impact of testing itself on results (Babbie, 2017). In the case of this DIP, the study context (specific to a single DPT program) and the potential impact of instrument reactivity and social desirability (related to repeated use of the IDI) were considered.

Variables

Independent Variables

The two independent variables in this research study were time within the DPT program and student cohort. Both categorical independent variables had multiple levels.

Time. Time as a categorical variable was operationalized as four different points within the DPT program curriculum as follows:

1. Baseline (T0) at the start of the program (within the first few weeks)
2. Time 1 (T1) at the end of Year 1
3. Time 2 (T2) at the end of Year 2
4. Time 3 (T3) at the end of the program's didactic curriculum during Year 3 (within the last few weeks)

Student Cohort. Student cohort as a categorical variable was operationalized according to year of graduation from the DPT program and designated as Cohort A, Cohort B, and Cohort C.

Dependent Variables

Cultural competence and student accuracy of self-perception of cultural competence were each operationalized as continuous, dependent variables as measured by the IDI using developmental orientation (DO) and orientation gap (OG) scores, respectively.

Developmental Orientation (DO). The DO score was operationalized as a numeric score on the 50-item IDI assessment between 55 and 145, expressed as an integer plus two decimal places (IDI, 2019). Calculation of scores within the IDI is not transparent. Calculated scores correspond to categorical orientations along the Intercultural Development Continuum (IDC), but exact cut-off scores that separate each orientation are not revealed. Categorical orientations and approximate corresponding scores along the IDC are as follows: Denial contains scores ~55-70, Polarization contains scores ~70-85, Minimization contains scores ~85-115, Acceptance contains scores ~115-130, and Adaptation contains scores ~130-145.

Orientation Gap (OG). The perceived orientation (PO) score is operationalized as a numeric score on the IDI between 40 and 145, expressed as an integer plus two decimal places. The OG is the difference between an individual's PO score and their DO score. An OG score of 7 points or higher can be considered a meaningful difference between how an individual sees themselves (PO) along the IDC®, and their actual primary orientation (DO) when interacting with those who are culturally diverse (IDI, 2019). The larger the OG score, the more likely an individual may “misread how effective they are in bridging across cultural differences” (IDI, 2019, p. 5). According to the IDI, when the PO score is higher than the DO score it indicates an overestimation of

cultural competence. Conversely, when the DO score is higher than the PO score it indicates an underestimation of cultural competence. When DO and PO scores match, it is indicative of an accurate assessment of one's adaptation to cultural difference, or accurate self-perception of cultural competence.

Population and Sample

The population for this study was DPT students from a public, midsize, midwestern university. A nonprobability, purposeful convenience sample was utilized, with data consisting of student IDI scores collected from different DPT student cohorts at different points within the integrated program curriculum. Specifically, data from three different student cohorts was utilized, designated as Cohort A, Cohort B, and Cohort C. The study population and sample size were pre-determined based on the number of students admitted into each DPT cohort at the start of the program, student attrition during the program, and ultimately the actual number of students who complete the IDI at each designated point within the curriculum. At the start of the DPT program, 60 students were admitted into Cohort A and Cohort C, and 62 students were admitted into Cohort B.

In conjunction with the Statistical Consulting Center from the study site, an a priori power analysis was conducted using G*Power 3 software (Faul et al, 2007). A power analysis can be utilized to determine if a sample size is adequate to detect a significant relationship between identified variables and allows for computation of the necessary sample size as a function of pre-specified significance level and population effect size (Cohen, 1988; Creswell & Creswell, 2018). By estimating the effect size in advance of sampling, the number of subjects required to likely avoid a Type II error (concluding there is no effect when one actually exists) can be calculated (Sullivan &

Feinn, 2012). Cohen's d effect size index classifies $d = 0.2$ as a small effect, $d = 0.5$ as a medium effect, and $d \geq 0.8$ as a large effect size (Field, 2013; Sullivan & Feinn, 2012).

Using a significance value of .05, a minimal effect size analysis was conducted at three different power levels (.80, .90, and .95) based on anticipated data collection to compare between two group means (Cohort B vs. Cohort A or C) and repeated comparison of within group means (Cohort B). Statistical power within a research study depends on effect size and sample size, and represents the probability of Type I error (showing a statistically significant difference when an actual difference does exist) (Sullivan & Feinn, 2012). Based on power analysis results for this DIP study, to achieve a small effect size ($d = 0.2$), the total sample size for comparing between group means (comparing Cohort B vs. A or C) would need to be approximately 35, 45, or 55 for a statistical power of .80, .90, or .95, respectively. To achieve a small effect size ($d = 0.2$) for within group means (comparisons within Cohort B), the total sample size would need to be approximately 24, 30 or 35 for a statistical power of .80, .90, or .95, respectively. Therefore, in order to compare the difference between two group means, a minimum of 12 students per cohort is needed to determine a small effect size. The smallest cohort sample contained 55 students (Cohort A), with the other samples containing 60 students (Cohort B) and 62 students (Cohort B). All cohort sample sizes were substantially larger than the minimum required for a small effect size.

Data Collection

According to the IDI website (<https://idiinventory.com/>), the IDI is a proprietary instrument and requires that individuals be trained and licensed as Qualified Administrators (QAs) through participation in a three day, online qualifying seminar

prior to utilization or engagement in research using the IDI, analyzing IDI data, or presenting or publishing IDI results. As the primary investigator of this study, I successfully participated in the IDI Qualifying Seminar and became an QA of the IDI. See Appendix A for a copy of the Certificate of Completion.

Intercultural Development Inventory (IDI)

The IDI is a 50-item, proprietary questionnaire that can be completed in 15-20 minutes and is available online, according to the IDI website mentioned previously. The IDI is available in 17 different languages and two different versions: educational and organizational. Data collected for this DIP study was obtained from the educational version of the IDI, administered in the student's self-selected language.

Due to the proprietary nature of the IDI, actual items from the current measure are not publicly available. A selection of sample items from the original version of the measure are shown in Appendix B. Items within the IDI correspond to orientations on the IDC that range from the more monocultural orientations of Denial and Polarization to the transitional mindset of Minimization, to the more intercultural or global mindsets of Acceptance and Adaptation (IDI, 2019). Individuals who complete the IDI are asked to respond to each item by selecting from the following response options: 1 = disagree, 2 = disagree somewhat more than agree, 3 = disagree some and agree some, 4 = agree somewhat more than disagree, and 5 = agree. Upon completion of the IDI, individuals are provided with a report containing quantitative numeric DO and PO scores that correspond to one of the five categorical orientations along the IDC (Denial, Polarization, Minimization, Acceptance, or Adaptation) (IDI, 2019). The IDI has been shown to have

strong validity and reliability across diverse cultural groups based on rigorous psychometric testing (Hammer, 2011; Hammer et al., 2003; Wiley, 2016, 2017).

Validity and Reliability. Testing associated with the IDI largely supports the DMIS and the resulting IDC as a valid framework for cultural competence (Hammer et al., 2003). In 2016, Ace Ventures conducted an independent review of the validity evidence associated with the IDI (Wiley, 2016). Evidence from Phase 1 (Hammer et al., 2003) and Phase 2 (Hammer, 2011) of development of the IDI was included, as well as additional studies within the literature that reviewed or utilized the IDI. The independent review employed Standards for Educational and Psychological Testing, inclusive of five defined sources of validity evidence as follows: evidence based on test content, response processes, internal structure, relations to other variables, and testing consequences (Wiley, 2016). The overall conclusion was that development procedures for the IDI were consistent with the expectations described in the standards, and the research surrounding the instrument provides strong support for the IDI as a valid measure of intercultural competence, moving beyond face validity. In addition to establishment of strong construct validity, evidence of predictive criterion validity and support for use of the IDI as part of a selection process (i.e., for employees or students) to determine cultural competence has been reported (Hammer, 2011; Wiley, 2016).

Ace Ventures conducted additional independent psychometric analyses to further test the performance of items and scores of the IDI (Wiley, 2017). Using a sample of size of 218,111 respondents, the analyses included examining test score performance across key variables (including gender, ethnic minority status, age, educational level, country), as well as Differential Item Functioning (DIF), Confirmatory Factor Analysis (CFA), and

internal reliability analyses. Item analyses and test score performance supported scale/item validity across all tested key variables, as well as conceptual structure validity. DIF found a lack of cultural bias, concluding that the IDI is a cross-culturally reliable instrument (Wiley, 2017). Reliability analysis of data from the educational version of the IDI indicated strong internal reliability with overall test scores (0.84), as well as acceptable subscale reliability: Denial (0.72), Polarization (0.85), Minimization (0.79), Acceptance (0.75) and Adaption (0.81) (Wiley, 2017).

During Phase 1 of IDI development, no significant difference was found in correlations between social desirability and the five scales of the instrument (Hammer et al., 2003). The authors report that scale scores “did not appear to be influenced by any general tendency for respondents to provide socially desirable responses,” and state that this finding is “particularly notable, since tests of intercultural competence are often casually criticized as being ‘transparent’” (Hammer et al., 2003, p. 439). Therefore, the IDI has been shown to be a cross-culturally valid assessment of the DMIS model, and has been deemed a reliable and generalizable measure of intercultural competence that can be utilized to address organizational and educational goals (Hammer, 2011; Hammer, 2003; Wiley, 2016, 2017).

Data Collection Procedures

Cross-section and longitudinal student cohort IDI scores provided data for this study. Cross-sectional scores were collected from three different DPT student cohorts (A, B, and C) who were administered the IDI during the same timeframes within the integrated curriculum, including at the start of the program (T0), and at the end of each respective year in the program (T1, T2, and T3). Longitudinal data was collected from

one of the three cohorts (cohort B) that completed the IDI at each of the four designated time points (T0, T1, T2, and T3) within the integrated DPT program curriculum.

The DPT student IDI group profile reports were available to the principal investigator (PI) through the university's IDI qualified administrator (QA), in conjunction with the university's Division of Inclusion and Equity, as part of departmental program evaluation and improvement efforts. Prior to seeking IRB approval and requesting DPT student IDI Individual Profile Reports (IPR), an Independent Honest Broker Assurance Agreement was used in order to maintain student anonymity and confidentiality throughout the research process. See Appendix C for a copy of the Independent Honest Broker Assurance Agreement with personal identifying information redacted. The university QA, who is a faculty member from outside of the DPT department, signed this agreement certifying that she would de-identify all individual data, maintain linkage code information, and protect complete confidentiality of research subjects' private information throughout the research process.

Student IDI group profile reports were obtained from the QA honest broker and labeled as Cohort A, Cohort B, or Cohort C based on year of graduation from the program. The time within the program that the IDI was administered to each respective cohort was indicated as T0, T1, T2, or T3. T0 represents baseline at the start of the program, and T1 and T2 represent the end of Year 1 and Year 2, respectively. T3 represents the end of the integrated DPT program's didactic curriculum in Year 3.

The QA honest broker was provided with an informational key to assist with labeling and organizing the required data. Specifically, the key designated which DPT class corresponded to which student cohort (A, B or C) and the timeframe within the DPT

program that the IDI was administered (T0, T1, T2, or T3). The QA honest broker was also provided with an electronic Microsoft Excel spreadsheet template to organize and compile the requested deidentified individual IDI scores for the PI. Once the deidentified individual IDI data was obtained, it was reviewed and formatted with guidance from the university's Statistical Consulting Center in preparation for quantitative analysis.

Data Analyses

Data analysis was conducted using both Statistical Analysis System (SAS) software and IBM's Statistical Package for Social Science (SPSS) Version 27, as selected by the study site's Statistical Consulting Center. The means and standard deviations of DO and OG scores (dependent variables) were calculated for each cohort (A, B, & C) at the respective time periods (T0, T1, T2, T3) according to the research design. Hypotheses testing was conducted using independent samples t-tests with pairwise comparison of the differences, paired samples t-tests, and ANOVA with post-hoc pairwise comparisons. Given the large study sample size, normality of the sampling distribution (difference) of the means was assumed based on the central limit theorem. According to Field (2013), a sample of 30 or more is widely accepted as a large enough sample size to invoke the central limit theorem. Mauchly's test was utilized to test for sphericity. Sphericity assumes the variances of the differences between data taken from the same entity are equal (Field, 2013). In this case, it was used to analyze the variance of difference between DO and OG scores from the same student cohorts at different times. Bonferroni correction, which has more statistical power with smaller numbers of comparisons, was applied to control the Type I error rate with repeated measures ANOVA (Field, 2013).

Testing of Hypotheses 1 and 2

In order to determine between-group effects, two separate analyses were conducted to test hypotheses 1 and 2. Cohort is the independent variable in both hypothesis 1 and 2. The dependent variables are DO and OG within both hypotheses. When the dependent variable is continuous (such as DO or OG scores), a t-test allows for measurement and comparison of the difference between two groups means (Creswell & Creswell, 2018; Field, 2013). An independent samples t-test with pairwise comparison was conducted to determine if Cohort B, as compared to Cohort C, had significantly different DO and OG scores at baseline (T0) and if the change in DO and OG scores after Year 1 curriculum (T1) was significantly different. A second independent samples t-test with pairwise comparison was conducted to determine if Cohort A, as compared to Cohort B, had statistically different DO and OG scores following Year 2 (T2), and if the change in DO and OG scores after Year 3 (T3) was significantly different.

Testing of Hypotheses 3 and 5

In order to determine within-group effects over time, separate analyses were conducted within each student cohort. Time was the independent variable, and DO and OG scores were the dependent variables. When the dependent variable is continuous (such as DO or OG scores), dependent paired samples t-test allows for measurement and comparison of the difference between two group means from the same sample (cohort) at different time points (repeated measures) (Creswell & Creswell, 2018; Field, 2013). To test hypothesis 3, a dependent paired samples t-test was conducted using Cohort A to examine change in DO and OG scores from T2 to T3. To test hypothesis 5, a separate

dependent paired samples t-test was conducted using Cohort C to examine change in DO and OG scores from T0 to T1.

Testing of Hypothesis 4

To test hypothesis 4, a one-way within factor repeated measures ANOVA was conducted to compare DO and OG scores within Cohort B at each of the four time points: baseline T0, T1, T2, and T3. Time was the independent variable, and DO and OG scores were the dependent variables. Due to availability of additional data from all time points for Cohort B, four groups were analyzed (instead of two, as with Cohort A and Cohort C). ANOVA allows for the measurement of the difference between the means of more than two groups (time points) and is appropriate when the dependent variable is continuous (DO, OG scores) (Creswell & Creswell, 2018; Field, 2013). In addition, effect size using Cohen's *d* was calculated using the complete longitudinal data from Cohort B. Effect size is an objective measure of the magnitude of the observed effect, or difference between two groups (independent of sample size), and should be reported in conjunction with statistical significance (Field, 2013; Sullivan & Feinn, 2012).

Ethical Considerations

In order to ensure ethical integrity and avoid any potentially deceptive practices throughout the research process, IRB approval to conduct this DIP study using IDI student cohort group reports and de-identified individual student reports was obtained. See Appendix D for a copy of the determination letter from Creighton University and Appendix E for a copy of the determination letter from the university where the research was conducted. Identifying information has been redacted to protect anonymity of the research study site.

Due to the nature of this study, informed consent did not apply as the raw data was made available within the context of educational program evaluation and quality improvement efforts. Students were enrolled in DPT program courses based on cohort year in the program at the time of IDI administration. Students were requested to complete the IDI as an assignment associated with their respective course requirements. In addition, an email letter from the department chair was sent out to students prior to each IDI administration, explaining the purpose of the IDI and encouraging students to participate. Students were assured that only cohort scores would be shared with any member of the DPT faculty. See Appendix F for a sample letter sent to students from the DPT department chair.

In keeping with ethical research practices, the anonymity of individual participants and confidentiality of data was maintained via utilization of an Independent Honest Broker Assurance Agreement. Individual IDI scores were de-identified by an IDI QA honest broker from outside of the DPT department prior to dissemination to the PI. Anonymity of individual IDI scores was maintained within all written and verbal presentation of data. All de-identified individual IDI reports and group IDI reports were kept secure through utilization of a password-protected computer and portable storage device kept in a locked file cabinet when not in use. In addition to consulting with committee members throughout the research process, the PI sought guidance from experienced quantitative researcher, including qualified statisticians from the university where the study was conducted in order to ensure methodologic integrity.

Summary

The purpose of this longitudinal, quasi-experimental DIP study was to examine the effect of a three-year educational intervention on cultural competence over time among DPT students in different cohorts at a public, midsize, midwestern university. The study sample was pre-determined without randomization based on student cohorts and time spent within the program (independent variables). Cultural competence and accuracy of self-perception of cultural competence was operationalized, respectively, as numeric DO and OG scores (dependent variables) on the IDI, a psychometrically valid and reliable proprietary instrument.

Independent samples t-tests were conducted to determine between-group effects, comparing Cohort B and C at T0 and T1, and comparing Cohort A and B at T2 and T3. Separate dependent samples t-tests and a one-way ANOVA with pairwise comparisons were used to examine change in DO and OG scores over time. Specifically, paired samples t-tests were used to examine scores at T0 and T1 in Cohort C, and scores at T2 and T3 in Cohort A. One-way, within factor repeated measures ANOVA was conducted to examine change over time at T0, T1, T2, and T3 within Cohort B. This quantitative, quasi-experimental design utilized a variety of statistical analyses to determine the effect of an integrated DPT program curriculum over time on cultural competence of students in different cohorts at a public, midsize, midwestern university. Chapter 4 will present the results of the statistical analyses and the research findings.

CHAPTER FOUR: RESULTS AND FINDINGS

The purpose of this educational intervention DIP study was to examine the effect of an integrated DPT program curriculum on student cultural competence at a public, midsize, midwestern university. The following research questions were used as a guide:

Research Question 1: What is the effect of an integrated DPT program curriculum on student cultural competence at a public, midsize, midwestern university, as measured by DO scores on the IDI?

Research Question 2: What is the effect of an integrated DPT program curriculum on student accuracy of self-perception of cultural competence, as measured by OG scores on the IDI?

To address these questions, the following five hypotheses were investigated:

Hypothesis 1: Cohort B and Cohort C will not significantly differ in DO and OG scores at baseline (T0) and after Year 1 curriculum (T1).

Hypothesis 2: Cohort A and Cohort B will not significantly differ in DO and OG scores after Year 2 curriculum (T2) and after Year 3 curriculum (T3).

Hypothesis 3: Cohort A will have significantly higher DO scores and lower OG scores at T3, compared to T2.

Hypothesis 4: Cohort B will have significantly higher DO scores and lower OG scores at T1, T2, and T3 compared to baseline T0.

Hypothesis 5: Cohort C will have significantly higher DO scores and lower OG scores at T1 compared to baseline T0.

This chapter will present the results and findings of this longitudinal, quasi-experimental, educational intervention DIP.

Results

A total of 177 observations from three student cohorts across four time points within the DPT program were included in the data analysis. The number of students within each cohort who completed the IDI at a given timeframe was variable, ranging from 55-62 students, as shown in Table 1.

Table 1

Sample Size at Data Collection Time Points in Curriculum

Cohort	T0	T1	T2	T3
A	—	—	55	55
B	60	60	60	60
C	62	60	—	—

Note. T0 = baseline at start of program; T1 = end of 1st year; T2 = end of 2nd year, T3 = end of 3rd year didactic curriculum.

Demographic information was not collected at the time of each IDI administration, so the exact demographic make-up of each group of respondents within a student cohort at each timeframe was not available. General demographic characteristics of each matriculated DPT cohort based on program admissions data is provided in Table 2. Across the three DPT student cohorts, the majority of accepted students were female (67-82%), white (87-95%), in-state residents (85-95%), with an average age of 21.64 years, and an average of 301.67 observation hours within a physical therapy practice setting.

Table 2*Demographic Characteristics of Matriculated DPT Cohorts*

	Cohort A	Cohort B	Cohort C
N	60	62	60
Gender			
Female	43 (71.67%)	51 (82.26%)	40 (66.67%)
Male	17 (28.33%)	11 (17.74%)	20 (33.33%)
Race			
White	57 (95.00%)	54 (87.10%)	57 (95.00%)
White & Hispanic	0 (0.00%)	3 (4.83%)	0 (0.00%)
White & Asian	1 (1.67%)	1 (1.61%)	3 (5.00%)
Asian	0 (0.00%)	2 (3.22%)	0 (0.00%)
American Indian	1 (1.67%)	0 (0.00%)	0 (0.00%)
Not specified	1 (1.67%)	2 (3.23%)	0 (0.00%)
In-State Resident	51 (85.00%)	58 (93.55%)	57 (95.00%)
Mean Age in Years (SD)	21.66 (3.74)	21.63 (1.53)	21.64 (1.42)
Mean Observation Hours	263	316	326

Note: Demographic information was self-reported at time of submission of application to the DPT program. Not all students who applied to the program completed the IDI.

Observation hours refer to number of verified hours spent observing in physical therapy practice setting.

Effect of Curriculum on Student Cultural Competence

Pertaining specifically to RQ1, the means and standard deviations of DO scores by cohort over time are presented in Table 3. Results for hypotheses 1 demonstrate that Cohort B was not significantly different from Cohort C at T0 on DO, $t(110.76) = 0.29, p = .78$. In addition, Cohort B was not significantly different from Cohort C on change in DO from T0 to T1, $t(98.10) = 0.43, p = .67$. Inspection of the two cohort means at T0 and T1 indicates that the average DO score for Cohort B at T0 ($M = 90.21$) was not significantly different than the average score for Cohort C at T0 ($M = 89.39$). On

a 90-point scale, the mean change in DO scores from T0 to T1 for Cohort B was 8.14 ($SE = 1.67$) and for Cohort C was 9.51 ($SE = 2.71$).

Further, results for hypothesis 2 demonstrate that Cohort A was not significantly different from Cohort B at T2 on DO, $t(112.96) = -1.37, p = 0.17$. In addition, Cohort A was not significantly different from Cohort B on change in DO from T2 to T3, $t(112.97) = 0.50, p = .67$. Inspection of the two cohort means at T2 and T3 indicate that the average DO score for Cohort A at T2 ($M = 95.77$) was not significantly different than the average score for Cohort B at T2 ($M = 99.63$). On a 90-point scale, the mean change in DO scores from T2 to T3 for Cohort A was 2.06 ($SE = 1.77$) and for Cohort B was 0.79 ($SE = 1.82$).

Results for hypotheses 4 and 5 demonstrate a statistically significant difference was found among the DO scores over time for Cohort B, $F(177,3) = 13.25, p < .001$ and Cohort C, $t(59) = 3.05, p < .001$. Post hoc pairwise comparisons indicate that the DO scores for Cohort B between T0 and T1 differed significantly ($p < .001, d = .63$). There were no other significant differences among the pairwise comparisons between T1, T2, or T3 mean DO scores for Cohort B. Table 3 shows that the mean DO score for Cohort C at T0 was 89.39 and at T1 was 98.47; the mean DO score for Cohort B at T0 was 90.21, at T1 was 98.35, at T2 was 99.63, and at T3 was 100.42. Further, results for hypotheses 3 demonstrate that mean DO at T2 was not significantly different from T3 for Cohort A, $t(54) = 1.1.6, p = .25$.

Table 3*Means and Standard Deviations of DO Scores by Cohort Over Time*

	Baseline (T0)	End Year 1 (T1)	End Year 2 (T2)	End Year 3 (T3)
Cohort A	—	—	95.77 (14.23)	97.83 (15.78)
Cohort B	90.21 (13.04)	98.35 (13.76)	99.63 (15.83)	100.42 (14.80)
Cohort C	89.39 (18.18)	98.47 (15.59)	—	—

Note. Standard deviations are presented in parentheses. DO was measured as a numeric score on the IDI that corresponds to a categorical orientation along the IDC. All DO means presented were in the Minimization Orientation (~85-115 points).

Developmental Orientation Findings

Guided by RQ1, this study sought to determine the effect of an integrated DPT program curriculum on student cultural competence as measured by DO scores on the IDI. Testing of hypotheses 1 and 2 was initially conducted to determine whether there was a cohort effect on mean DO scores. Based on results, both hypotheses 1 & 2 were fully supported indicating there was no cohort effect on DO scores. Therefore, it can be inferred that any significant changes in DO scores over time cannot be accounted for based on student cohort and may be attributed to the integrated DPT program curriculum.

Testing of hypotheses 3, 4, and 5 was conducted to determine whether there were significant differences in DO scores over time. Based on results, hypotheses 4 and 5 were fully supported, but hypothesis 3 was not supported. Combined findings indicate there was an approximate 9-point improvement in student cultural competence from when students entered the program to the end of the first year, as measured by DO. Although this finding was significant, student DO scores remained within the Minimization

orientation (~85-115) of the IDC. No significant change in student cultural competence was found during Year 2 or Year 3. Therefore, participation in Year 1 of the integrated DPT program curriculum seems to have some effect on student cultural competence development. However, Year 2 and Year 3 of the curriculum appear to only maintain the gains made during Year 1.

Effect of Curriculum on Student Accuracy of Self-Perception

Pertaining specifically to RQ2, the means and standard deviations of OG scores by cohort over time are presented in Table 4. Results for hypotheses 1 demonstrate that Cohort B was not significantly different from Cohort C at T0 on OG, $t(82.30) = -0.51, p = 0.61$. In addition, Cohort B was not significantly different from Cohort C on change in OG from T0 to T1, $t(75.41) = 0.36, p = 0.72$. Inspection of the two cohort means at T0 and T1 indicates that the average OG score for Cohort B at T0 ($M = 29.69$) was not significantly different than the average score for Cohort C at T0 ($M = 31.10$). On a 90-point scale, the mean change in OG scores from T0 to T1 for Cohort B was -5.40 ($SE = 1.02$) and for Cohort C was -6.46 ($SE = 2.72$).

Further, results for hypothesis 2 demonstrate that Cohort A was not significantly different from Cohort B at T2 on OG $t(112.67) = 1.5, p = 0.14$. In addition, Cohort A was not significantly different from Cohort B on change in OG from T2 to T3, $t(112.45) = -0.94, p = .35$. Inspection of the two cohort means at T2 and T3 indicate that the average OG score for Cohort A at T2 ($M = 26.66$) was not significantly different than the average score for Cohort B at T2 ($M = 23.97$). On a 90-point scale, the mean change in OG scores from T2 to T3 for Cohort A was -1.37 ($SE = 1.10$) and for Cohort B was 0.18 ($SE = 1.23$).

Results for hypotheses 4 and 5 demonstrate a statistically significant difference was found among the OG scores over time for Cohort B, $F(2.64, 155.73) = 11.43, p < 0.001$, and Cohort C, $t(59) = 2.37, p = .02$. Post hoc pairwise comparisons indicate that the OG scores for Cohort B between T0 and T1 differed significantly ($p < .001, d = .68$). There were no other significant differences among the pairwise comparisons between T1, T2, or T3 mean OG scores for Cohort B. Table 4 shows that the mean OG score for Cohort C at T0 was 31.10 and at T1 was 24.96; the mean OG score for Cohort B at T0 was 26.69, at T1 was 24.29, at T2 was 23.97, and at T3 was 24.14. Further, results for hypotheses 3 demonstrate that mean OG at T2 was not significantly different from T3 for Cohort A, $t(54) = 1.25, p = .22$.

Table 4

Means and Standard Deviations of OG Scores by Cohort Over Time

	Baseline (T0)	End Year 1 (T1)	End Year 2 (T2)	End Year 3 (T3)
Cohort A	—	—	26.66 (8.90)	25.29 (9.68)
Cohort B	29.69 (8.02)	24.29 (8.34)	23.97 (10.26)	24.14 (9.06)
Cohort C	31.10 (19.60)	24.96 (9.44)	—	—

Note. Standard deviations are presented in parentheses. OG was measured as a numeric score on the IDI that is the difference between an individual's PO and DO scores. All OG means presented were greater than 7 points, which is considered a meaningful difference according to the IDI.

Orientation Gap Findings

Guided by RQ2, this study sought to determine the effect of an integrated DPT program curriculum on student accuracy of self-perception of cultural competence as measured by OG scores on the IDI. Testing of hypotheses 1 and 2 was initially conducted to determine whether there was a cohort effect on mean OG scores. Based on results, both hypotheses 1 & 2 were fully supported indicating there was no cohort effect on OG scores. Therefore, it can be inferred that any significant changes in OG scores over time cannot be accounted for based on student cohort and may be attributed to the integrated DPT program curriculum.

Testing of hypotheses 3, 4, and 5 was conducted to determine whether there were significant differences in OG scores over time. Based on results, hypotheses 4 and 5 were fully supported, but hypothesis 3 was not supported. Combined findings indicate there was an approximate 6-point improvement in student accuracy of self-perception of cultural competence from when students entered the program to the end of the first year, as measured by OG. However, this 6-point improvement does not overcome the large discrepancy in how students perceived themselves and their actual orientation. An OG score of 7 points or higher can be considered a meaningful difference between how an individual sees themselves (PO) along the IDC, and their actual primary orientation (DO). Mean OG scores never dropped below 23.97 for any of the cohorts at any time point. No significant change in student accuracy of self-perception of cultural competence was found during Year 2 or Year 3. Therefore, participation in Year 1 of the integrated DPT program curriculum seems to have some effect on student accuracy of

self-perception of cultural competence. However, Year 2 and Year 3 of the curriculum appear to only to maintain the gains made during Year 1.

Summary

The results and findings of this quantitative, quasi-experimental DIP study serve to illuminate the effect of a three-year educational intervention on cultural competence development of DPT students at a public, midsize, midwestern university. Results revealed parallel trends throughout the analysis in regards to student levels of cultural competence as measured by DO, and accuracy of self-perception of cultural competence as measured by OG. Hypotheses 1 and 2 were supported, indicating that student cohorts did not differ significantly in level of cultural competence, nor accuracy of self-perception of cultural competence, at each time point within the curriculum.

Establishment of significant similarity between cohorts served as a control, such that significant changes in student cultural competence development were likely not attributed to student cohort, but rather possibly due to the effect of participation in an integrated DPT program curriculum.

Hypotheses 4 and 5 were supported; hypothesis 3 was not supported. Results and findings indicate a positive change in cultural competence development over time (as indicated by a significant increase in mean DO scores and decrease in OG scores) from when students entered the DPT program (T0), to when they completed the didactic curriculum (T3) towards the end of the final year of the program. However, there was only a significant positive change in DO and OG scores during participation in Year 1 of the integrated DPT program curriculum. No significant changes were noted during Year 2 or Year 3 in either dependent variable.

These findings support undergoing review of the first-year curriculum in order to identify and leverage possible pedagogical and curricular elements that may be positively influencing development of student cultural competence. Findings can be utilized to inform evidence-based recommendations for specific curricular revision within each year of the program, and for overall program reform to better facilitate development of student cultural competence, particularly within the second and third years. Chapter 5 will further explore the implications of these research finding in the context of a proposed solution to the complex, real-world problem surrounding development of cultural competence among DPT students in order to better address health inequities.

CHAPTER FIVE: PROPOSED SOLUTION AND IMPLICATIONS

The results and findings of this longitudinal, quasi-experimental, educational intervention DIP were presented in Chapter 4. This chapter will discuss further the study results and integrate the findings to provide evidence-based recommendations for curricular revision. The aim of this DIP will be reviewed. A comprehensive, evidence-based solution to improve cultural competence development among DPT students at a public, midsize, midwestern university will be presented. Supporting evidence for the proposed solution and anticipated challenges and considerations for implementation will be discussed. In addition, a plan for evaluating of outcomes and implications for application, leadership, and future research will be addressed.

Discussion

Results of this study indicate that although participation in an integrated DPT program curriculum as a whole improved student cultural competence and accuracy of self-perception of cultural competence, significant growth only occurred during Year 1 of the curriculum. There was a positive trend in cultural competence development (increasing DO scores and decreasing OG scores) from the start of the program (T0) to the end of the didactic DPT curriculum (T3), but changes during the second and the third year were not significant.

Minimization

Findings of this study indicated there was a statistically significant approximate 9-point improvement in DO scores, indicating increased student cultural competence development from when they entered the program to the end of the first year. However, despite this change, students still remained within the Minimization orientation (~85-115)

of the IDC throughout the DPT program curriculum. Based on normally distributed IDI results in the general population, approximately 65.25% of people, on average, have Minimization as their primary orientation to cultural difference (Hammer, 2019). The results of a study investigating the cultural competence of students, faculty, and staff within a College of Nursing were consistent with this trend represented in the general population (Kruse et al., 2014). Results of a 2012 study found that pre- and post- mean IDI scores of physical, occupational, and speech therapy students who participated in international clinical placements began and remained within the Minimization orientation (Peiying et al., 2012).

As stated within the IDI, Minimization is a transitional mindset that highlights commonalities or similarities in universal values and principles. Differences are de-emphasized, which can mask a deeper understanding of cultural difference. It is important to note that the underlying contributing factors and presentation of this orientation can take two different forms, according to the IDI (Hammer, 2019; IDI, 2021). Minimization may occur due to limited cultural self-understanding, and this is more commonly experienced within individuals from the dominant culture group. However, Minimization can also be utilized as a strategy for navigating the values and practices of the dominant culture group, and this is more often seen in individuals from non-dominant cultural groups (Hammer, 2019; IDI, 2021).

The ramifications of continuing to graduate DPT students who minimize cultural difference and commonalities should be further explored. Minimization mindsets are often reinforced when strategies that focus on similarities and commonalities are successful without a need to attend to cultural differences; however, members of the non-

dominant culture can often feel “not heard” (IDI, 2021). Implications of Minimization within an organizational setting may include a lack of appreciation for diversity as a resource and the upholding of universalistic tolerance policies (using a gender or color-blind approach) that may lead to poor recruitment and retention of diverse individuals, according to the IDI.

Individuals within Minimization from the dominant culture may support universalistic principles, values and practices without fully understanding how they may mean something different in other cultures (Hammer, 2019; IDI, 2021). Individuals may accept their institutional privilege, but deny their power and unconsciously impose their own cultural norms on others. In the context of healthcare, patients and clients are often already vulnerable due to inherent power dynamics. Lack of cultural understanding and imposition of dominant cultural norms can lead to a breakdown in effective communication and a lack of trust, creating a barrier to establishing a therapeutic client-practitioner relationship. This may directly or indirectly impact health outcomes and inequities.

Regarding evidence-based curricular reform, these findings support inclusion of curricular elements that focus on increased cultural self-understanding and awareness around power and privilege (Hammer, 2019). Students should engage in learning and reflection about their own culture, in order to better understand themselves as cultural beings. The IDI recommends increased awareness and understanding of other patterns of cultural difference, such as conflict resolution styles, as well as general culture frameworks and culture-specific patterns (Hammer, 2019).

In addition to including curricular content that is specific to students' developmental orientation, consideration should be given to the amount of time required for students to engage with the material. In order to move up one full orientation (or more) on the IDC, it takes approximately 30-50 hours of concentrated effort and intentional engagement in the self-reflective process (Hammer, 2019). Therefore, if students are currently in the Minimization orientation, curricular reform efforts to move students in to the Acceptance orientation should require a minimum of 30-50 hours of engagement and self-reflection focused on increasing students' capacity to more effectively navigate cultural differences (Hammer, 2019).

Inaccuracy of Self-Perception

In regards to student accuracy of self-perception of cultural competence, it is important to note that the approximate 6-point decrease in OG scores during Year 1, although statistically significant, did not decrease enough to approach the minimum 7-point difference considered by the IDI to be the cut-off point for assessing a meaningful difference in how an individual sees themselves (Hammer, 2019). At baseline, students entering the DPT program were markedly inaccurate with their self-perception of cultural competence, over-estimating their competency by more than four times the indicated level determined by IDI. Despite a slight, statistically significant but non-meaningful improvement (6 points) after the first year, students' substantial overestimation of cultural competence persisted throughout the program. Consistent with this finding, a study conducted by Kruse et al. (2014) within a College of Nursing reported that 98% of participants overestimated their level of cultural competence as measured by the IDI. Results of both this study and the study by Kruse et al. demonstrated that self-perception

is not an accurate measure of cultural competence, based on significant discrepancy between perceived orientation (PO) scores and DO scores on the IDI. Additionally, it may be the case that accurate self-perception is required before any other improvements in orientation scores can be seen.

Year 1 Alternative Considerations

Cultural competence is acknowledged within the literature as an ongoing, self-reflective developmental process, requiring cultural awareness and knowledge, cultural sensitivity, cultural skill, cultural desire/motivation, and cultural encounters (Alizadeh & Chavan, 2016; Bennet, 1986; Campinha-Bacote, 1999, 2011; Hammer, 2015; Purnell, 2005; Suh, 2004). Results indicate that a statistically significant change in cultural competence occurred during Year 1 of the DPT program curriculum. Keeping this in mind, these findings suggest that a targeted review of the first-year curriculum may be warranted to identify and leverage distinct curricular elements and pedagogical approaches that could have positively influenced cultural competence development among first-year DPT students. Recognized as a self-assessment tool, use of the Inventory to Assess the Process of Cultural Competence Among Healthcare Professionals-Revised (IAPCC-R) may be helpful to further pinpoint and identify curricular elements that students and faculty perceive to be impacting their cultural competence awareness, skills, knowledge, encounters, and desires (Transcultural C.A.R.E. Associates, n.d.-a).

Given that there was not significant improvement in student cultural competence during Year 2 and Year 3 of the DPT program, strategic review and revision of the didactic curriculum focused on efforts to enhance student cultural competence

development during these timeframes is warranted. Although improvements in cultural competence development may have been facilitated by the first-year DPT program curriculum, multiple factors should be considered when interpreting this finding. Factors potentially impacting students' self-awareness, opportunities for diverse encounters, and the influence of clinical education courses should be considered.

Self-Awareness

The transition into a graduate level, professional clinical doctoral program in healthcare may have influenced development of student cultural competence. Students may have naturally engaged in more self-reflection during the first year of the program, as they transitioned into a new phase of life and prepared to pursue their educational and career goals. It is recommended that QAs who are conducting IPR debriefing sessions ask individuals if they had or are currently experiencing a significant recent transition because the profile results reflect the snapshot in time when the IDI was completed (Hammer, 2019). Self-reflection and increased self-awareness related to planning and executing a significant life transition during the first year of the DPT program may have facilitated cultural competence development, rather than the DPT integrated curriculum. One commonality among the various models presented in the literature is the conceptualization of cultural competence as a process that occurs along a continuum, with self-awareness recognized to be a primary step (Bennet, 1986; Campinha-Bacote, 1999; Purnell, 2005). A greater understanding about how transitions influence this developmental process potentially impact scores on the IDI is needed. Future studies examining the cultural competence of students in transition versus non-students who are not in transition would be warranted.

Diverse Encounters

In addition to bolstering an accurate self-awareness, cultural encounter or engagement with cultural difference is a necessary component in the cultural competence development process (Alizadeh & Chavan, 2016; Bennet, 1986; Campinha-Bacote, 1999, 2011; Hammer, 2015; Purnell, 2005; Suh, 2004). While there was significant demographic homogeneity, based on limited available data, within the student it is possible that incoming DPT students were exposed to greater diversity when entering the graduate program. Students may have lived in geographic areas or attended undergraduate institutions with less diversity prior to enrollment in the DPT program. Geographic relocation and participation in a DPT program housed within a College of Health Professions building within an urban setting may have contributed to the change in scores during Year 1 either unrelated to, or perhaps enhanced by, participation in the Year 1 DPT program curriculum. Additional research controlling for students' previous life experiences would be warranted.

Clinical Education

Clinical education that occurs off-campus within various clinical settings provides another opportunity for diverse encounters and potential development of cultural competence. As stated in Chapter 2, the DPT program curriculum contains five separate clinical education experiences (totaling 27 total credit hours, 38 weeks) that utilize the CPI and are integrated and scheduled at different time intervals throughout the three-year program. During Year 1 of the program curriculum, there is only one five-week clinical education experience placed in the third semester of the program. In contrast, Year 2

contains one 6-week clinical education experience, and Year three contains three nine-week clinical education experiences.

Final data collection for this DIP occurred at the end of the program's didactic curriculum (T3) during with Winter semester of Year 3. The final nine-week clinical education course occurring in the last Spring/Summer semester of the program was not captured within the study results and findings. Although DPT students frequently report having more diverse encounters while participating in off-campus clinical education experiences, if participation in clinical education courses was a key contributing factor to student cultural competence, similar growth would have been expected during Year 2 and Year 3. However, it is possible that both the novelty and primacy of the Year 1 clinical education experience resulted in enhanced saliency in regards to the different domains and components of cultural competence, causing increased DO scores. As stated previously, results indicate that participation in an integrated DPT program curriculum had a positive effect on student cultural competence, with significant improvements only occurring during Year 1.

Clinical Performance Instrument (CPI). Cultural competence is addressed during clinical education courses integrated throughout the DPT program curriculum through use of the Physical Therapist Clinical Performance Instrument (PT CPI) (APTA, n.d.). The PT CPI: Version 2006 contains 18 performance criteria representing professional practice, patient management, and practice management. Cultural competence is a single item assessed within the professional practice performance criteria and requires rating of a students' ability to adapt delivery of physical therapy services with consideration for patients' differences, values, preferences and needs (APTA, n.d.).

The following are sample behaviors provided within the CPI, directly quoted (APTA, n.d., p. 19):

- a. Incorporates an understanding of the implications of individual and cultural differences and adapts behavior accordingly in all aspects of physical therapy services.
- b. Communicates with sensitivity by considering differences in race/ethnicity, religion, gender, age, national origin, sexual orientation, and disability, or health status.
- c. Provides care in a nonjudgmental manner when patients' beliefs and values conflict with the individual's belief systems.
- d. Discovers, respects, and highly regards individual differences, preferences, values, life issues, and emotional needs within and among cultures.
- e. Values the socio-cultural, psychological, and economic influences on patients and clients and responds accordingly.
- f. Is aware of and suspends own social and cultural biases.

Directions for clinical instructors (CIs) include assessment of a student's performance of all 18 items and completion of the CPI at the midterm evaluation and the end of the clinical experience (APTA, n.d.).

The validity and reliability of using the CPI to assess cultural competence development in DPT students deserves additional discussion. Although a validation study of the revised PT CPI: Version 2006 was published in 2012, it did not examine the interrater reliability of the instrument (Roach et al., 2012). The authors acknowledged ongoing and anticipated difficulties related to establishing reliability, but felt that

interrater reliability of the 2006 version was equal to or better than the 1997 version due to requiring participants to complete online training and achieve a perfect score on a case-based assessment (Roach et al., 2012). Specifically, the validity and reliability of the item on the CPI that addresses cultural competence requires further investigation.

DPT educators and leaders within the APTA must acknowledge the potential impact of CIs with various levels of cultural competence assessing students' cultural competence within the CPI. This process raises several pertinent questions: Can a CI with a monocultural orientation effectively assess student cultural competence? What are the ramifications if both the CI and the student exhibit monocultural or minimization orientations? How might guidance from a CI with a more monocultural or transitional mindset effect student cultural competence development? Can a CI with a monocultural mindset accurately assess a student's ability to adapt to cultural differences if they are not aware of those differences? How do dialogues and decisions pertaining to delivery of culturally competent care between two individuals with monocultural or transitional mindsets impact patients? What are the ramifications of relying on self-perception and subjective assessment of cultural competence within a widely-used student performance instrument? How might this impact patient outcomes and health inequities?

The serious, potential ramifications of having CIs with monocultural or minimization orientations use the CPI to provide guidance and feedback to students on cultural competence development deserve further attention. Further exploration of CIs' cultural competence and the influence on assessment of student cultural competence is warranted. Educators should consider if the current process may be perpetuating cultural

incompetence, depending on the level of cultural competence of CIs. The same concern holds true for faculty teaching didactic curriculum within DPT programs.

Aim Statement

The aim of this DIP study was to better understand the relationship between participation in an integrated DPT program curriculum and student cultural competence development in order to design evidence-based recommendations for DPT program curricular revision at a public, midsize, midwestern university. By measuring students' level of cultural competence and accuracy of their self-perception of cultural competence at different points within the DPT program, the potential effect of the curriculum on cultural competence was made more evident.

Didactic Curriculum Review

Results of this DIP study support DPT program curricular review to identify and analyze specific curricular elements within Year 1 that can be leveraged, built upon, and incorporated into curricular revision and reform that may have a positive impact on student cultural competence development. Excluding the off-campus clinical education courses, eleven didactic courses were identified by the lead faculty as explicitly addressing the topic of diversity and inclusion. Of those courses, six occur within Year 1 of the curriculum, four occur in Year 2, and one occurs in Year 3. Taken at face value, it would appear that increased exposure to content explicitly related to cultural competence in Year 1 may have led to higher DO scores. Subsequently, there may have been a failure to effectively build upon Year 1 curricular elements during Year 2 and Year 3, as reflected in no significant change in DO scores during those years.

Based on evidence provided in Chapter 2, the construct of cultural competence as described within the current multi-disciplinary literature includes cultural awareness and knowledge (cognitive domain), cultural sensitivity and desire/motivation (affective domain), cultural skill (behavioral domain), and cultural encounter (environmental domain) (Alizadeh & Chavan, 2016; Suh, 2004). Upon further review of the identified DPT courses in Year 1, specific curricular elements to facilitate development of student cultural competence were identified (Lattanzi & Pechak, 2012; Romanello, 2007).

Identified Curricular Elements

Reflective practice with an emphasis on self-awareness was heavily embedded within Year 1 coursework assignments. In addition, modules within specific courses contained content related to gaining cultural awareness and knowledge (cognitive domain), cultural sensitivity and cultural desire/motivation (affective domain). For example, the first in the Professional Topics course series, Professional Topics I, contained targeted content to address a stated course objective that students will “value and demonstrate patient/client-centered care by integrating relevant Core Values, the principles of effective communication, and the principles of culturally competent care as the core of patient/client interaction,” per the course syllabus (Professional Topics I, 2020, p. 2). In addition to significant reflection and discussion, the Post-Clinical Education I course during Year 1 included a presentation/discussion on “Diversity-LGBT” facilitated by a guest speaker from the university’s LGBT Resource Center, per the course syllabus (Clinical Education I, 2021, p. 1). Depending on the particular content and interaction, this curricular element potentially incorporated cultural awareness and

knowledge (cognitive domain), cultural sensitivity (affective domain), cultural skill (behavioral domain) and cultural encounter (environmental domain).

Proposed Solutions

Due to the complex nature of cultural competence development, a comprehensive strategic solution for revising and updating the DPT curriculum is recommended.

Considering the context of this DIP study within an institution of higher education, a systems-based approach that focuses on strategic organizational alignment can clarify where gaps exist and identify inconsistencies in order to support coherence within the DPT department related to programmatic student outcomes, as well as the greater college and university strategic goals (Bryson, 2011). Additional key components of the proposed solution include targeted efforts to improve recruitment and retention of diverse students, faculty, and staff within the DPT program, development and implementation of a targeted cultural competence curricular thread throughout all three years, and integration of a culminating cultural competence learning project.

Strategic Alignment & Organizational Culture

The university mission, vision, values, strategic plan, and Framework for Inclusion and Equity of the study site reflect efforts to create and support a lasting organizational culture that embraces the development of cultural competence among faculty, staff, and students. An approach that explicitly emphasizes this alignment to key stakeholders within the university provides the foundation for implementation of this evidence-based solution. In addition, alignment of the proposed solution with the mission, vision, values, and strategic goals of the College of Health Professions, the DPT program, and APTA should be emphasized. Clear messaging regarding this strategic

alignment should be repeatedly communicated to DPT students through a variety of mediums and platforms including the program website, new student orientation materials, all course syllabi, and communication from faculty, the DPT program chair, and university administration.

Recruitment and Retention of Diverse Students, Faculty, and Staff

Strategic planning to address organizational goals related to diversity, equity and inclusion (DEI) and cultural competence development should include careful consideration of effective methods for recruitment and retention of diverse individuals. Strategic recruitment of diverse individuals aligns with the APTA's (2020a) position statement in support of the Allied Health Workforce Diversity Act (2019). This proposed federal legislation would provide scholarships and stipends for accredited higher education institutions in the professions of physical therapy, occupational therapy, speech-language pathology, and audiology to recruit diverse qualified students from underrepresented backgrounds, including racial and ethnic minorities, persons with disabilities, and economically disadvantaged students.

Cultural encounter and engagement with diverse individuals are identified as key components within the environmental domain of cultural competence development (Alizadeh & Chavan, 2016; Suh, 2004). Although data on matriculated DPT student cohorts was limited, there is a long-standing paucity of student diversity within the program, based on the reported demographics. A holistic admissions process within the DPT program that prioritizes acceptance of diverse student cohorts is recommended. Furthermore, dedication of necessary resources to effectively recruit, support and retain diverse students should be prioritized.

Successful matriculation and retention of student cohorts made up of diverse individuals in the DPT program will theoretically facilitate cultural competence development within the curriculum by providing increased opportunities for cultural encounter and engagement with diverse individuals (Alizadeh & Chavan, 2016; Kachingwe, 2003; Sharifi et al., 2019; Suh, 2004). Based on the same evidence, recruitment and retention of diverse faculty and staff within the university, and specifically within the DPT department, serves to prioritize and promulgate cultural competence development and may provide an additional mechanism for supporting a more diverse student body.

Cultural Competence Curricular Thread

Based on evidence within the literature and the findings of this DIP study, intentional development of an identifiable, cohesive, curricular thread that is specifically designed, scaffolded, and tracked in order to measurably improve student cultural competence is proposed. As described in Chapter 1, the APTA supports the following definition of cultural competence provided by the CDC: “Cultural competence is the integration and transformation of knowledge about individuals and groups of people into specific standards, policies, practices, and attitudes used in appropriate cultural settings to increase the quality of services; thereby producing better outcomes” (CDC, 2020a, para. 6). Implementation of a cultural competence curricular thread provides a mechanism for increasing students’ cultural awareness and knowledge, and then offers opportunities to integrate and transform this knowledge into specific practices and attitudes within physical therapy clinical practice settings.

Prior to initiation of this DIP, the study site's Curriculum and Assessment Committee within the DPT program identified a lack of intentionality in the presentation and integration of cultural knowledge, awareness, and skill development within the current didactic curriculum. DPT faculty were in consensus that elements of cultural competence are present within the curriculum, but there was variability in what faculty conceptualized as culturally appropriate, and there was a lack of consistency and intentionality in implementation across courses. Additionally, the question has been raised as to whether the current curriculum is optimal for achieving desired student outcomes related to development of cultural competence.

Leveraging Year 1 Curricular Elements

Reflective practice is a foundational curricular element, and intentional coursework that targets self-awareness (cognitive domain) should be embedded within all DPT program courses. Per the results of this DIP study, development of cultural competence was impacted by participation in the Year 1 curriculum. In order to develop an identifiable, cohesive curricular thread, it is recommended that current Year 1 curricular elements that are successful at facilitating cultural competence be identified, maintained, and enhanced. Administration of the IAPCC-R could be helpful to identify specific learning modules or curricular elements that students feel are beneficial in regards to increasing their cultural awareness and improving their knowledge, skills, and desire to further develop their own cultural competence.

Year 1 curricular elements that are identified as positive facilitators of cultural competence development should be built upon within the Year 2 coursework. For example, upon review of the identified Year 2 courses, a module within the Teaching for

Physical Therapists course in the second year was titled “Developing Cultural Competency to Facilitate Teaching.” It is recommended that this module be compared and contrasted with targeted cultural competence materials from Year 1, in order to scaffold content and learning that occurs from year to year. The same strategy is recommended for integration and scaffolding of cultural competence curricular elements in Year 3.

Identification of Target Curricular Thread Courses

In addition, specific courses should be identified within each year of the curriculum that will house the curricular elements intentionally designed to support the curricular thread. Ideally, courses where cultural competence content currently exists can be identified and labeled as a target course to be included in the curricular thread. The specific content to be delivered within each particular course of the curricular thread should be explicitly coordinated and taught by faculty who are educated in cultural competence and delivery of culturally competent physical therapy services, and who are invested in the development of student cultural competence.

Ideally, faculty teaching within a curricular thread course would have primary intercultural orientations of Acceptance (DO scores ~115 to 130) or Adaptation (DO scores ~130 to 145) on the IDC, with an accurate self-perception of their cultural competence (OG scores < 7). However, this may not be feasible or realistic, depending on available faculty members. According to the IDI, on average, 14.65% of people have Acceptance as their primary orientation, whereas, only 1.55% of people, on average, have a primary orientation of Adaptation (Hammer, 2019).

Instructors within each of the courses should collaborate to coordinate an appropriate pedagogical approach that ensures continuity and scaffolding. Target courses that may be particularly suited to be included in the curricular thread are courses that introduce the physical therapy profession and APTA core documents, professional topics courses, courses related to social determinants of health, ethics, teaching, and clinical education, as well as seminar courses built around small group discussions.

Determination of specific target courses and sequencing in which the scaffolded curricular elements will be delivered should be reviewed and approved by the DPT program Curriculum and Assessment committee.

Student Learning Project

In designing and implementing a cohesive curricular thread, a longitudinal student learning project that spans across all three years of the DPT program curriculum is proposed. In keeping with the curricular thread theme, the project would be referred to as the TIED project, which is an abbreviation for Transformation via Intentional Engagement with Diversity. The proposed TIED learning project incorporates each domain and component of cultural competence.

Specifically, the project encompasses students' cultural knowledge and awareness (cognitive domain), cultural sensitivity and desire/motivation (affective domain), cultural skill (behavioral domain), and includes cultural encounters (Alizadeh & Chavan, 2016; Suh, 2004). The TIED project is comprised of the following seven phases:

1. Preparation and introduction
2. Completion of the IDI & formulation of IDP
3. Selection and presentation of a cultural competence focus area

4. Engagement with diverse individuals
5. Reflection and documentation
6. Small group sharing
7. Second completion of the IDI

Each phase should occur within the context of an identified cultural competence curricular thread course. It is proposed that the first two phases be completed in Year 1 of the DPT curriculum. Phases three through five should occur during Year 2, and phases six and seven should be completed in Year 3.

Phase 1: Preparation and Introduction

The proposed learning project should be introduced in Year 1, within a target course within the cultural competence curricular thread. Introduction of the project should precede evidence-based preparatory learning modules that focus on cultural self-awareness and understanding, social identity and intersectionality, personal culture(s), implicit bias, power and privilege, social determinants of health, and presentation of the construct of cultural competence. The introductory phase of the project should include reiteration of the prioritization and alignment of cultural competence development with the mission, vision, values, and strategic objectives within the profession of physical therapy, as well as the university, College of Health Professions, and the DPT department.

Phase 2: Completion of the IDI and Formulation of IDP

The second phase of the learning project should occur towards the end of Year 1 and include presentation of the IDI and the IDC within a curricular thread course. Students should complete the IDI and attend a debriefing session with a QA to review

their IPR and formulate an Intercultural Development Plan (IDP). Course assignments should incorporate completion of the IDI and creation of a personal IDP using materials provided by the IDI. According to the IDI Resource Guide, the IDP is customized based on individual IDI profile results, and provides a guide for individuals to design and implement a systematic way to increase cultural competence (Hammer, 2019).

Phase 3: Selection and Presentation of a Cultural Competence Focus Area

The third phase of the learning project includes selection and presentation of a cultural competence focus area and should occur within a curricular thread course in Year 2. After creation of an individualized IDP during Year 1, students should identify one key area of diversity in which they have had limited or no exposure or engagement. The IDI refers to *intercultural stress points* where individuals are “challenged to be more effective around cultural differences” (IDI, n.d. p. 11). Areas of cultural difference could include gender identity, nationality, race/ethnicity, age/generation, family background, ability/disability, religion/spirituality, educational background, geographic background, sexual orientation, socioeconomic status, or work experience.

Once a target area is identified, students are tasked with researching the focus area to build their personal awareness, knowledge, and sensitivity to that cultural difference. Students are encouraged to use a variety of sources which could include reading relevant journal articles or books, attending training programs or educational classes, visiting a museum, travel to a different geographic region, or engaging with different mediums including theater, film, and the arts. Interpersonal interaction via a personal interview with a diverse individual representing the selected cultural competence focus area should be a required component in this phase of the project.

Students should prepare a short presentation of the findings from their informal research that will be shared with classmates within a target curricular thread course to further their cultural awareness, knowledge, and sensitivity.

Phase 4: Engagement with Diverse Individuals

The fourth phase of the learning project requires engagement with diverse individuals and should be assigned within the same curricular thread course as phase three in Year 2. After researching a self-selected area of cultural competence, students should design and participate in an extended diverse encounter. Students should be challenged to create situations in which they may be pushed outside their comfort zone. For example, this could include participation or engagement in an activity in which they would consider themselves to be in the cultural minority, based on one or more of their social identities. Similarly, this could be a situation in which there is an evident power imbalance, based on current social structures or systems.

Diverse encounters could include attending a festival or rally, participating in a religious service or ceremony, attending an educational lecture, course or conference, volunteering or conducting business with an organization that is owned and operated by individuals who are culturally different than the student. For example, students from a racial minority group may choose to engage individuals from a different religious or ethnic group. Or students from a sexual orientation minority group may choose to engage individuals from a different racial or ethnic group. Prolonged or repeated intentional engagement is required.

Phase 5: Reflection and Documentation

Phase five of the learning project requires students to intentionally reflect on their relevant learning and experiences to date, and document their reflections. This should occur in conjunction with phase four during Year 2. Students should journal their thoughts and feelings before, during, and after engagement with their self-selected focus area of cultural competence. Guiding questions to facilitate metacognition, honest self-awareness and reflective practice should be provided by faculty. Reflective dialogue and discussion with classmates to process their own reactions and insights should be encouraged. Drawing from the IDI, students should intentionally and honestly reflect on the cultural patterns of commonality and difference that were noted during their engagement with diverse individuals.

Phase 6: Small Group Sharing

The sixth phase of the learning project should occur within a target curricular thread course in Year 3. Through faculty-facilitated small group discussions, students should prepare and share specific insights, reflections, opportunities, challenges, or lessons related to their experience and engagement with diverse individuals. Sharing should include presentation of a creative, culminating product that visually represents key learning outcomes identified by the student. Faculty should be intentional about creating a safe, brave space in which humility, vulnerability and confidentiality are acknowledged and honored.

Phase 7: Second Completion of the IDI

The seventh and final phase of the student learning project should occur towards the end of Year 3. This phase requires completion of the IDI for a second time. Upon

completion, students should attend a debriefing session with a QA to review their IPR and be encouraged to review their progress on their IDP. Course assignments with the Year 3 curricular thread course should incorporate completion of the IDI and revision of their personal IDP. Students should review their progress and update their IDP goals, and integrate the information into a professional development plan for use post-graduation.

Supporting Evidence

The comprehensive proposed solution reflects strategic planning via a system-based approach, focused on organizational alignment and addressing the problem on multiple-levels. A case report published by Romanello (2007) outlines the process that one DPT program underwent to integrate cultural competency into the curriculum, starting with the development of a strategic plan amongst faculty who were committed to diversity. Strategic planning within healthcare education has been shown to have a long-term impact on directing organizational culture, with themes conceptualized twenty years prior noted to influence the extant environment (Wiedman & Martinez, 2017).

Incorporation of Key Components

Based on the comprehensive literature review presented in Chapter 2, four primary domains of cultural competence are identified: cognitive, affective, behavioral, and environmental (Alizadeh & Chavan, 2016; Suh, 2004). Although there is variability in semantics and categorization of antecedents and attributes within the literature, several key components of cultural competence are extracted from the identified domains (Alizadeh & Chavan, 2016; Foronda et al., 2016; Kachingwe, 2003; Sharifi et al., 2019; Suh, 2004). The cognitive domain includes cultural awareness and cultural knowledge. The affective domain includes cultural sensitivity and cultural desire/motivation. The

behavioral domain includes cultural skill. The environmental domain includes cultural encounters. The proposed cultural competence curricular thread with the embedded longitudinal TIED learning project incorporates all four domains and six components of cultural competence development. See Appendix G for presentation of the TIED project phases with cultural competence components and domains outlined.

Cognitive Domain.

Cultural Awareness. Reflective practice that fosters accurate self-awareness is a foundational curricular element that is currently embedded within the DPT program. Cultural awareness incorporates an individual's awareness of personal beliefs, views and biases about other cultures, as well as their own (Alizadeh & Chavan, 2016). Findings of this study indicated that DPT students began and remained in the transitional mindset of Minimization on the IDC. The IDI recommends that individuals within this orientation focus on increasing cultural self-understanding and awareness around power and privilege, as well as patterns of cultural difference (Hammer, 2019).

Although Sharifi et al. (2019) identify cultural humility as an antecedent to cultural competence, Foronda et al. (2016) purport that diversity and power imbalance are antecedents to cultural humility. The proposed solution includes integration of early, intentional coursework that targets cultural humility and self-awareness regarding one's own culture within the curricular thread. In addition, awareness of other cultures is incorporated within target course materials and the learning project. Phase four of the TIED learning project involves engagement with diverse individuals, requiring students to practice cultural humility and seek out encounters where power imbalance may exist.

Cultural Knowledge. The proposed solution incorporates building students' cultural knowledge through inclusion in target course materials within the curricular thread. Cultural knowledge refers to the acquisition of information about different cultures (Alizadeh & Chavan, 2016). For individuals with a Minimization orientation, the IDI recommends increasing understanding of cultural frameworks and cultural-specific patterns such as conflict resolution styles. This targeted content should be incorporated into curricular thread learning modules. The TIED project also requires students to research a self-selected area of cultural competence and then share their new knowledge with other peers within their cohort.

Affective Domain.

Cultural Sensitivity. The proposed solution may influence students' cultural sensitivity through inclusion of target course materials within the curricular thread. Cultural sensitivity is widely used within the literature, and generally signifies having respect for cultural difference and demonstrating an accepting attitude (Suh, 2004). The proposed TIED project requires students to research a self-selected focus area of cultural competence and then share their new knowledge with other peers within their cohort. Sensitivity to cultural difference may be enhanced through attainment of novel cultural knowledge and sharing of personal experiences.

Cultural Desire/Motivation. Cultural desire has been defined within the literature as “an individual's motivation or willingness to engage, participate and learn about cultural diversity and to raise his/her cultural awareness, knowledge, and skills” (Alizadeh & Chavan, 2016, p. 122). Drawing on organizational change theory, the proposed solution may increase students' cultural desire/motivation through emphasis on

alignment with professional, university, college, and program goals related to cultural competence (Burke, 2018; Rogers, 2003). In addition, attainment of novel information pertaining to social determinants of health, privilege and oppression, implicit bias and discrimination contained within the target course materials of the curricular thread may incite not only cultural sensitivity, but potentially desire and motivation (Olson & Simerson, 2015). Through exposure to current health inequities, students may demonstrate increased cultural desire/motivation to address the issue. In addition, exposure to diversity through the TIED project may enhance cultural desire and motivation for further engagement.

Behavioral Domain.

Cultural Skill. The proposed solution incorporates building on students' clinical skills obtained throughout the curriculum. Clinical education courses integrated throughout the DPT program provide opportunities for students to practice their clinical skills in a variety of physical therapy settings while under the supervision of a clinical instructor. Target course materials within the curricular thread serve to enhance students' cultural skill by specifically addressing behaviors required for effective intercultural communication, interaction, and health assessment of individuals from diverse cultures (Suh, 2004). The proposed TIED project provides an opportunity for students to develop and demonstrate cultural skill within their self-selected focus area of cultural competence.

Environmental Domain.

Cultural Encounter. Cultural encounter "provides an environment that allows cultural competence to ensue" (Suh, 2004, p. 98). The comprehensive proposed solution

targets increased opportunities for cultural encounters. Strategic alignment and efforts to improve organizational culture providing the foundation, prioritization of recruitment and retention of diverse individuals serves to provide greater opportunity for engagement with cultural difference. The proposed TIED learning project requires students to design and participate in an extended encounter diverse individuals within a self-selected area of diversity.

Facilitated Interculturalization

Kachingwe (2003) identified an inexorable link between diversity, multiculturalism, and conviction which provided the foundation for the resulting model of interculturalization. Application of this model, as described in Chapter 2, suggests that when interculturalization is present within a DPT education program that consists of a diverse student body, a multicultural curriculum, and convicted faculty, the development of student cultural competence is facilitated.

The proposed solution exemplifies interculturalization through incorporation of diversity, multiculturalism, and possibly influencing conviction of the faculty through ongoing education and engagement (Kachingwe, 2003). Strategies to increase diversity within the DPT program are addressed through organizational culture and strategic alignment, as well as recruitment and retention efforts. The proposed TIED learning project within the targeted curricular thread provides additional opportunities for engagement with diverse individuals. Promotion of multiculturalism is embedded within the TIED project in which student research and share knowledge of cultural difference. Faculty conviction may become evident through consistent messaging that prioritizes

cultural competence, as well as modeling through participation in the developmental process themselves.

Health Equity Through Allyship

The aim of this DIP is to improve cultural competence development of DPT students through evidence-based recommendations for curricular reform. The cultural competence model seeks to develop healthcare practitioners that will demonstrate and utilize cultural knowledge, awareness, sensitivity, skills, and motivation/desire to successfully engage with cultural difference and navigate diverse encounters. By developing cultural competence within DPT students, graduates will be better equipped to provide effective, equitable health care to individual clients. In turn, culturally competent physical therapists are better equipped to address health inequities through engagement in allyship, defined as the “active, consistent, and arduous practice of unlearning and re-evaluating in which a person of privilege seeks to operate in solidarity with a marginalized group of people” (Anti-Oppression Network, n.d.). It is by this mechanism that the proposed solutions in this DIP study address the complex, real-world problem of health inequities.

Anticipated Challenges

The goal of the proposed solution is to deliver a didactic curriculum that integrates an identifiable, cohesive cultural competence curricular thread that results in measurable improvements in student cultural competence. Embedded within the curricular thread is the proposed TIED student learning project designed to facilitate development within each domain of cultural competence. Aside from obvious challenges

related to fiscal and human resources, there are several additional challenges anticipated with the proposed solution.

Challenges to Student Learning Project

The embedded TIED project presents a few specific anticipated challenges. Because the project is personally created and carried out by the student, a high degree of variability in outcomes is anticipated. In addition to requiring increased student initiative, the project relies on a necessary degree of self-directed learning and vulnerability on the part of the student. Students are asked to push beyond their psychological comfort zones and may experience distress, frustration, or resentment, particularly if confronted with personal implicit biases. Given that the TIED project may entail students visiting new geographic areas or engaging in novel experiences, physical safety should also be considered.

Possible physical and psychological risks should be anticipated for all individuals involved in the TIED learning project. Maintaining privacy and confidentiality of participants who desire to remain anonymous may be challenging. Issues surrounding privacy and confidentiality should be considered with regard to students, but also in regards to individuals with whom the students interact and engage throughout the TIED project.

The impact on the project partners with whom students engage deserves particular attention. Students with monocultural orientations (Denial and Polarization) on the IDC have decreased awareness of unconscious bias and therefore may engage in communication or behaviors that are discriminatory, regardless of their intentions (Hammer, 2019). Similarly, students within the Minimization orientation may offend or

demonstrate insensitivity through overemphasis on commonalities and disregard of cultural differences. Individuals in earlier stages of intercultural development may be less aware of others diverse lived experiences, community history, and patterns of cultural difference (Hammer, 2019).

Preferred values, beliefs, behaviors, and ways of communicating and interacting are culturally determined and may result in implicit and explicit discrimination of those who do not share the same patterns of the dominant group (Hammer, 2019). Students who come from a privileged majority group may be unaware of patterns of cultural difference, creating situations that call for further education. Requiring students to engage with individuals from diverse backgrounds as a part of the TIED project may intentionally place the burden of education onto individuals who may already be marginalized or oppressed. Project partners may involuntarily find themselves in situations where they may or may not desire to engage in such education. Or worse, students may interact in ways that are offensive or triggering to vulnerable project partners.

The Developmental Process

A key anticipated challenge is facilitating authentic actions from faculty members and other stakeholders. Although the task of incorporating targeted information and curricular elements into a particular course may have its own inherent difficulties, shifting individual thought paradigms in order to garner authentic commitment to cultural competence on the part of faculty requires increased time and illuminates a much less tangible challenge. Acknowledging cultural competence as a developmental process, it is important to understand that individuals within the context of DPT education may be at

very different points along the journey. In reference to the IDI, although the majority of students may be in the Minimization orientation, there are students both above and below the Minimization orientation on the IDC. The same holds true for faculty and staff within the DPT program.

While some individuals may value and support cultural competence development, others may not demonstrate the same level of dedication to the process. Although there is an expectation that the role of faculty is to facilitate growth and development of students, this may not be the case when it comes to the employer-employee relationship in regard to university faculty and staff. Strategies to facilitate cultural competence development can be implemented and clear behavioral expectations can be put in place, but changing underlying thought paradigms and cultural beliefs presents a greater challenge.

Significant difficulties can arise in the arena of diversity, inclusion, and equity when stakeholders do not value diversity (Gillespie et al., 2002; Kai et al., 1999). Similarly, the implications of having faculty who are potentially less culturally competent than their students teaching cultural competence development are not understood and likely problematic.

Critique of the Model

In contrast to thought paradigms that might not fully understand or value the need for increased cultural competency, others may believe that the developmental model of cultural competence development is insufficient or flawed. Proponents of critical race theory (CRT) argue that the cultural competence model is largely ineffective and perpetuates an equality of oppression that minimizes and neglects institutionalized racism (Abrams & Moio, 2009). As stated in Chapter 1, the definition of *diversity* within the

context of physical therapy education is very broad and includes “group/social differences (e.g., race, ethnicity, socioeconomic status, gender, sexual orientation, country of origin, as well as cultural, political, religious, or other affiliations) and individual differences (e.g., age, mental/physical ability, personality, learning styles, and life experiences)” (CAPTE, 2020, p. 18). In light of this, the cultural competence model has the potential to perpetuate a color-blind approach (Abrams & Moio, 2009). Within the cultural competence model, institutionalized racial discrimination is not acknowledged to be separate or different from other forms of discrimination that may not be engrained within structures and systems to the same degree as racism, particularly in the context of the history of the United States of America (Abrams & Moio, 2009; Nixon, 2019).

Implementation

The proposed solution to improve student cultural competence development within a DPT program should include ongoing strategic thinking and planning, with a clear understanding of the context of the current problem, identification of desired outcomes, and a plan for implementation (Bryson, 2011; Martin, 2007; Olsen & Simerson, 2015; Wells, 2011). The results of this DIP study not only serve to clarify the problem, but also provide a deeper understanding of the organizational opportunities for improvement that are reflected within the comprehensive proposed solution.

Timeline

Strategic planning and efforts to recruit and retain diverse students, faculty, and staff should be ongoing and iterative. Annual review of the DPT program admissions policies is recommended, with incorporation of current evidence regarding holistic

review and other strategies to increase diversity. Data tracking of cohort demographics should occur annually, with specific attention paid to the diversity of the applicant pool and admitted student cohorts in comparison and contrast to the general population. Similar strategic efforts should be applied to the processes for recruitment and retention of diverse faculty and staff within the DPT program. Increasing diversity within the DPT program provides greater opportunities for individuals to interact and engage with others from different cultures, and in-turn, reflect on their own cultural identity in relation others and bridge across cultural differences.

The desired outcome is to measurably improve DPT student cultural competence. The proposed solution includes development and delivery of an identifiable, cohesive curricular thread that is intentionally designed and scaffolded. Implementation of this solution should begin at the start of the Fall semester with each new matriculating DPT student cohort. The DPT student orientation should include explicit messaging that emphasizes the program's commitment to cultural competence development, and alignment with the strategic goals of the department, college, university, and profession of physical therapy. Based on review of the current curriculum, targeted content specific to the cultural competence development curricular thread should be developed and integrated into each identified target course within each year of the DPT curriculum.

According to the IDI Resource Guide, in order to move up one full orientation (or more), it takes approximately 30-50 hours of concentrated effort and intentional engagement in the self-reflective process focused on increasing one's capacity to more effectively navigate cultural differences (Hammer, 2019). In addition, loose timing recommendations are provided. It is advised that this process take place over

approximately three to nine months, with weekly to monthly participation in coaching, if coaching is incorporated into the IDP. Given the intensity of the DPT student workload, it is recommended that the embedded TIED learning project be introduced in a targeted curricular thread course during Year 1 and include administration of the IDI. Selection and presentation of a diverse focus area, engagement with diversity, and reflection and documentation should occur during Year 2. Small group sharing and presentation of key learning outcomes, as well as a second completion of the IDI should occur during Year 3. This timeline provides students with greater flexibility and adequate time to create and complete their individualized learning projects.

Resources

Financial and human resource allocation should be considered for successful implementation of the proposed solution. Recognizing the IDI as a key component of the proposed solution, funding for ongoing administration will be required. Specifically, continued funding for university purchase of the IDI license should be included in future budgets. Continued funding at either the college or departmental level for purchase of individual IDI administrations should also be included in the respective budgets. Additional anticipated costs may include use of adjunct faculty to either instruct in the target courses within the curricular thread, or help cover the teaching load of core faculty. Adjunct faculty may be used to facilitate significant focus release or reassigned time for core faculty to prioritize curriculum revision to support the cultural competence development curricular thread. Potential additional costs associated with new curricular materials, stipends for guest speakers, and continuing education for faculty should be

anticipated. Resources should be apportioned based on needs of faculty and the specific courses in which the targeted cultural competence curricular thread is embedded.

The university's Faculty Teaching and Learning Center and Division of Equity and Inclusion should be utilized to implement streamlined processes for faculty to continue personal cultural competence development. Continued administrative support to coordinate the ordering and purchasing of the IDI and subsequent delivery of IPRs and IDPs is recommended. Utilization of additional IDI QAs to provide individual and group debriefing sessions, as well as follow-up coaching to facilitate and guide individual IDPs, is warranted. In addition, utilization of graduate assistants should be considered to assist with establishing a database of potential community partners and resources appropriate for engagement with diverse individuals willing to work with students in the context of the learning project.

Outcome Evaluation

Upon implementation of the targeted curricular thread and completion of the embedded student learning project, it is recommended that data from both administrations of the IDI be utilized. Measurable goals should be established for each incoming matriculated cohort based on initial IDI results. Goals could be established and tracked based on quantitative mean cohort DO and OG scores with methods similar to those used in this DIP study, or based on their categorical developmental orientation on the IDC. Initial IDI results can then be compared with those from the second administration, serving as a pre- and post-test to assess the efficacy of the proposed cultural competence curricular thread and embedded project. As mentioned previously, the IDI states approximately 30-50 hours of concentrated, intentional cultural competence development

work is required to move up one or more orientations on the IDC. In light of this, evaluation at the end of the program should provide a realistic timeline that allows students to dedicate adequate hours toward cultural competence development for measurable improvements to be made.

Use of additional outcome measures and data sources related to development of cultural competence should be considered. The IAPCC-R could be helpful to capture students' perceptions of curricular elements that facilitate development of cultural competence. Data from student feedback on course evaluations, comments from exit interviews, and student surveys post-graduation could be incorporated. Feedback could also be solicited from DPT program graduate employers. Patient satisfaction data as it pertains to delivery of culturally competent care, as well as health outcomes data could be solicited. In regards to the broader, complex real-world problem of health inequities, long-term data tracking of PT health outcomes from under-represented and oppressed patient populations should be analyzed.

Limitations and Strengths

Generalization of these study findings to individuals or places outside of this specific DPT program was not the intent of this DIP study. This is recognized as a delimitation of the study. The results and findings of this DIP study are particular to the established context within the DPT program at a specific midsize, midwestern university, and it cannot be inferred these findings will transfer to other programs within the university, nor to other DPT programs outside the university. However, this study can serve as an illustrative example that provides ideas on how other DPT programs could design and carry out similar studies.

Research Design

The study research design utilizing both cross-sectional and longitudinal data sampling from different DPT student cohorts at different times may be both a limitation and a strength of this DIP study. Cross-sectional sampling from different DPT student cohorts may be a limitation. Samples may not be representative of other DPT student cohorts within the program, outside the timeframe and context of this study. The inherent academic freedom afforded to faculty to deliver program curriculum in a variety of ways and to make course changes year to year cannot be controlled, potentially impacting intervention fidelity. However, cross-sectional design serves as a strength, as it allowed for collection of a larger sample size within the time constraints of the DIP research study. There were 177 total administrations of the IDI, with 55 to 62 students per cohort at each data collection time point. The relatively large sample size (greater than 30 observations) provided ample statistical power and allowed for central limit theorem to be invoked (Field, 2013).

Incorporation of cross-sectional data served as a strength by potentially minimizing the likelihood of instrument reactivity. Instrument reactivity is a concern with repeated administration of the same survey instrument over time, and has the potential to negatively impact validity of the results (Lavrakas, 2008). In contrast, longitudinal data collection from repeated administration of the IDI allowed for identification of patterns and trends over time, serving as a study strength (Babbie, 2017, Creswell & Creswell, 2018).

Data Collection Instrument

Utilization of the IDI for data collection and analysis should be considered when addressing study limitations and strengths. The IDI has been established as a cross-culturally valid assessment of the DMIS model and deemed a reliable and generalizable measure of intercultural competence that can be utilized to address organizational and educational goals (Hammer, 2011; Hammer et al., 2003; Wiley, 2016, 2017). The use of an established survey instrument with strong psychometric properties allows meaningful inferences to be drawn from the results, and serves as a strength of this DIP study (Creswell and Creswell, 2018).

Selection of the IDI as a tool to measure the effect of participation in a professional, clinical doctoral program curriculum on cultural competence development was a strength because of the established reliability and validity of the IDI within the educational setting (Wiley, 2016, 2017). Although four of the five research hypotheses were supported, it is possible that aspects of cultural competence development that are influenced by participation in an integrated DPT program curriculum are not fully captured or reflected within IDI scores, which could be a study limitation.

Administration and reporting of IDI scores did not include data on specific age, gender, or race/ethnicity of students. Demographic data was made available for each student cohort based on self-reported information provided during the DPT program admission process. However, this data was not an exact representation of the study sample, as not all students took the IDI at each time point, nor did all student remain with their cohort throughout the entire program. The lack of demographic data collection at the time of IDI administration presents another potential study limitation.

Use of DO and OG scores in order to operationalize cultural competence development is a study delimitation. Orientation gap (OG) is calculated as the difference between one's perceived orientation (PO) score and developmental orientation (DO) score on the IDI. Given that OG is a function of DO, this could be considered a confounding factor in regards to statistical calculations and viewed as duplicative. In addition, translation of raw data into PO and DO scores is embedded within the IDI and specific calculations are not transparent.

Unique Contextual Factors

Unanticipated changes to curriculum delivery (moving from in-person to virtual learning) and restrictions related to student participation in clinical experiences due to the COVID-19 pandemic serve as potential limitations. Each student cohort transitioned from in-person to virtual learning at the onset of the COVID-19 pandemic, as mandated by government directives. For Cohort A, this occurred during the last half of their final didactic semester, which was the eighth semester of the program, which occurred prior to the T3 data collection time point. For Cohort B, this transition occurred during their fifth semester in the program, and continued during the sixth semester, which occurred prior to the T2 data collection time point. All students were able to complete their clinical education experiences based on the regular clinical education schedule within the program curriculum prior to the T3 data collection time point. For Cohort C, the transition from in-person to virtual learning occurred during their second semester in the program, which occurred prior to the T1 data collection time point and resulted in the cancellation of their first scheduled clinical education experience during the third

semester of the program. These changes to the integrated program curriculum may have influenced the results.

The impact of the COVID-19 pandemic and the ongoing civil rights movement may have also impacted study results. An inability to control for experiences that possibly influenced student development of cultural competence outside of the context of participation in an integrated DPT program curriculum serves as an additional limitation. Multiple unknown personal factors and life experiences unrelated to DPT program curriculum may have also influenced cultural competence development, and present additional study limitations.

Implications

Practical Implications

Use of the cultural competency model as a strategy to address the larger complex, real-world problem of health inequities has implications for those seeking to change structures and systems of inequality. Nixon (2019) proposes the Coin Model of Privilege and Critical Allyship in which the goal is to dismantle systems causing health inequalities. Adapted from the privilege, domination, and oppression scheme presented by Morgan (1996), Nixon's (2019) coin metaphor serves as a framework for understanding social structures (coins) that offer both unearned, advantageous privilege on the top side of the coin, and disadvantageous oppression on the bottom side of the coin. The author states that framing health inequities as unfair consequences of social structures that result in disadvantage without considering the unearned advantages, or privilege, is a barrier to transformative change. Arguably, substantial transformative change is required to address health inequities within the current medical system.

Replication of this study and development of evidence-based, customized solutions could be carried out within other DPT programs that are committed to developing student cultural competence. The proposed cultural competence curricular thread seeks to impact delivery of culturally competent healthcare at an individual level. Through implementation of the student learning project, opportunities for networking can be created. Networking can lead to establishment of community partnerships and critical allyship. In doing so, individuals in privileged positions can more effectively engage in efforts to dismantle oppressive systems causing health inequalities.

Leadership Implications

Reflective Leadership

Reflective practice on the part of both educators and students is a key component for integrating diversity and developing cultural competency across curricula (Copti et al., 2016; Kai et al., 1999; Lattanzi & Pechak, 2012; Palombaro et al., 2015; Romanello, 2007). Leaders who engage in reflection and metacognition demonstrate more accurate self-awareness, personal integrity, and authenticity by recognizing the influence of their own paradigms on decisions and actions (Covelli & Mason, 2017; Olson & Simerson, 2015). Through self-reflection, faculty members can better identify their own privilege, priorities and paradigms as they relate to cultural competence development within the broader context of the university and the profession of physical therapy.

Leadership Through Modeling

A key feature within this proposed solution is that faculty acknowledge personal use of the IDI as a tool to assist in their own process of cultural competence development. Positive modeling is a primary means whereby faculty leaders can develop authentic

student followers, and researchers posit outcomes of authentic leader-follower relationships to include heightened levels of follower trust, engagement, workplace well-being, and veritable, sustained performance (Gardner et al., 2005). In addition, utilization of the IDI to facilitate engagement in a reflective process can equip faculty to draw on their own mindful experiences and gain insights into how their personal thought paradigms may need to shift, and in turn identify what strategies may be successful in facilitating this in students. In doing so, creation of a culture that is authentically inclusive and dedicated to culturally competent development is facilitated (Crenshaw et al., 2011).

Organizational Culture

The optimal context for successful implementation of the proposed solution is within an educational environment committed to cultural competence. Development of cultural competence must be authentically valued by leadership, and perceived as such by students, in order to successfully change the organizational culture (Hsieh & Wang, 2015). Given that evidence-based practice is highly valued within the DPT program, strategic incorporation of research findings and valid data can serve to garner enhanced support from faculty. Significant leadership challenges related to identity and authenticity exist in contexts where organizational values are not endorsed by stakeholders (Fine, 2017; Green, 2017; Ngunjiri & Hernandez, 2017; Tomkins & Nicholds, 2017). Therefore, messaging at each level of the university should communicate dedication to cultural competence development, and ongoing engagement with the process should be prioritized within the DPT program. Regular, dedicated time should be allocated during DPT faculty meetings to dialogue, share successes and struggles, and explore new

opportunities related to implementation of the solution. Faculty should be encouraged to collaborate and share ideas, action steps, and outcomes related to specific curricular elements. Ongoing, iterative dialogue amongst the faculty can serve to promote continued strategic thinking, active participation and engagement, and creation of a sustainable, culturally sensitive environment that fosters cultural competence development (Wehbe-Alamah & Fry, 2014).

Future Research

Attempts to control for internal and external influences that may impact intervention fidelity should be considered in future studies designed to measure development of student cultural competence. For example, as mentioned previously, the use of the IAPCC-R could help pinpoint curricular elements that have more and less impact on cultural competence development, as perceived by the students. In light of the academic freedom allowed to individual course instructors, embedding critical curricular elements pertinent to the cultural competency curricular within the course syllabus of record is advised. In doing so, the curricular thread is maintained and variability between faculty members in regards to content delivery is potentially limited.

With regard to external factors outside the program curriculum, effort should be made to account for experiences that may impact cultural competence development. The IDI Resource Guide indicates that profile results reflect a snapshot in time from when the IDI was completed, and the impact of significant life transitions should be considered (Hammer, 2019). In future interventional studies, researchers should consider development of inclusion and exclusion criteria pertaining to the presence of significant life transitions within the sample population. As mentioned previously, baseline testing of

DPT students at the start of the program arguably occurred during a significant life transition, and may have impacted study results.

In order to better understand cultural competence development, qualitative study designs should be included in future research. Phenomenological studies could provide a deeper understanding of the developmental process from the perspective of DPT students. Purposeful sampling could include students who made significant gains in DO scores on the IDI, in order to better understand factors perceived by the student to have contributed to their cultural competence development. Additional suggested research study designs include a case study or series, narrative analysis, descriptive qualitative study or grounded theory study specifically within the context of a DPT program. Sources of data could include DPT student exit interviews, student course evaluations, interviews with individual DPT students and graduates, focus groups, and survey data from clinical instructors and employers of graduates from the DPT.

To build on the findings of this DIP study, replication of this study within different DPT programs at other universities may provide additional insights. This DIP study was conducted in a predominantly white institution with a relatively homogeneous sample. Exploring the effect of a DPT program curriculum on cultural competence development within more diverse programs with different curricular structure and course sequencing may help further illuminate the impact of specific curricular elements. In addition, future research studies that explore the relationship between specific curricular elements and each of the primary domains within cultural competence development would serve to further inform targeted curricular revision.

Summary of the Dissertation in Practice

The purpose of this DIP study was to examine the effect of an integrated DPT program curriculum on student cultural competence. The aim was to better understand the relationship between these variables in order to develop evidence-based recommendations for DPT program curricular reform in order to improve student cultural competence. Based on evidence within the literature and the findings of this DIP study, intentional development of an identifiable, cohesive curricular thread that is specifically designed and scaffolded to measurably improve student cultural competence is proposed. In addition, a longitudinal student learning project that spans each year of the DPT program curriculum is proposed. The proposed learning project incorporates all four domains (cognitive, affective, behavioral, and environmental) and six components (cultural knowledge, awareness, sensitivity, skills, motivation/desire, and diverse encounter) of cultural competence.

In order to evaluate the outcome of the proposed solutions, IDI scores from pre- and post- participation in the curricular thread and learning project can be utilized to track DPT student cultural competence development. Additional qualitative feedback regarding the proposed solutions and outcomes could be obtained through student course evaluations from target curricular thread courses, comments from student exit interviews, and post-graduation student surveys. This valuable qualitative feedback could be used to inform future curricular revision pertaining to the target curricular thread courses and the embedded project.

The idea that cultural competence is a developmental process should be kept at the forefront when seeking to evaluate proposed solutions and make further

recommendations. Curricular reform targeting the development of student cultural competence should be an iterative process, acknowledging the dynamic context within a complex, organizational system. Through development of increased cultural competence, DPT program graduates are better equipped to advance the physical therapy profession's efforts to meet the health and care needs of diverse clients, and engage in active allyship to reduce health inequities (Lattanzi & Pechak, 2012; Nixon, 2019).

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Appendix A

IDI Qualifying Seminar Certificate of Completion



Appendix B

Intercultural Development Inventory (IDI)[®] Sample Items

Due to the proprietary nature of the IDI, only select items from the instrument are permitted to be reprinted and are presented below.

Denial

- It is appropriate that people do not care what happens outside their country.
- People should avoid individuals from other cultures who behave differently.

Polarization

Defense

- Our culture's way of life should be a model for the rest of the world.

Reversal

- People from our culture are less tolerant compared to people from other cultures.
- Family values are stronger in other cultures than in our culture.

Minimization

- Our common humanity deserves more attention than culture difference.
- Human behavior worldwide should be governed by natural and universal ideas of right and wrong.

Acceptance

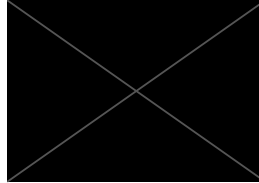
- I have observed many instances of misunderstanding due to cultural differences in gesturing or eye contact.
- I evaluate situations in my own culture based on my experiences and knowledge of other cultures.

Adaptation

- When I come in contact with people from a different culture, I find I change my behavior to adapt to theirs.

Appendix C

Independent Honest Broker Assurance Agreement



Independent “Honest Broker” Assurance Agreement

Study Title: The Effect of a Doctor of Physical Therapy Program Curriculum on Cultural Competence Development Among Students at a Public, Midsize, Midwestern University	IRB#: Click or tap here to enter text.
Principal Investigator (PI): Brianna Chesser	

To be completed by the individual who is obtaining the identifiable data (NOT the PI)

Name: [REDACTED]	Department: [REDACTED]
Email: [REDACTED]	Phone: [REDACTED]
Additional Comments: I am a licensed IDI Qualified Administrator	

By signing below, I agree/certify that:

1. I have reviewed this project with the Principal Investigator (PI) and agree to obtain, de-identify and, if applicable, to maintain linkage code information for data that will subsequently be accessed by the research team.
2. I will not provide, under any circumstances, the PI or any member of the research team with information that would permit the identification of research subjects.
3. I will not intervene or interact with identified human subjects during the conduct of this research project.
4. I will maintain complete confidentiality of research subjects’ private information.

Signature

Date

The original completed form will be kept by the Honest Broker. A copy is provided to the Principal Investigator and is submitted with the Initial IRB Application. This form will be made available to the Registrar’s Office and Office of Institutional Analysis upon request.

Appendix D

IRB Determination Letter from Creighton University



Office of the Provost
Research Compliance

DATE:	30-Nov-2020
TO:	Chesser, Brianna
FROM:	Social / Behavioral IRB Board
PROJECT TITLE:	New Protocol Created for Brianna Chesser on 19-Nov-2020 9:00 AM
REFERENCE #:	2001684-01
SUBMISSION TYPE:	Initial Application
REVIEW TYPE:	External Review
ACTION:	APPROVED
EFFECTIVE DATE:	30-Nov-2020

Thank you for your submission of the Initial Application materials for this project. All items attached to this submission have been reviewed.

Creighton University HS eForm~

It has determined that as per policy, Creighton University may rely on [REDACTED] for ethical oversight of this project.

This project was approved as Not Human Subject Research by [REDACTED]'s IRB, therefore a reliance agreement was not conducted between the two IRBs.

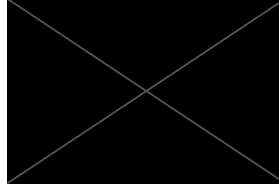
You have satisfied all the conditions required by the Creighton University Institutional External Review policy and therefore you may proceed with this study without Creighton University IRB oversight.

We will retain a copy of this correspondence within our records.

If you have any questions, please contact the IRB Office at 402-280-2126 or email at irb@creighton.edu. Please include your project title and number in all correspondence with this committee.

Appendix E

IRB Determination Letter from Study Site Institution



DATE: July 31, 2020

TO: Brianna Chesser
 FROM: Office of Research Compliance & Integrity
 STUDY TITLE: THE EFFECT OF A DOCTOR OF PHYSICAL THERAPY PROGRAM
 CURRICULUM ON CULTURAL COMPETENCE AMONG STUDENTS AT A
 PUBLIC, MIDSIZE, MIDWESTERN UNIVERSITY

REFERENCE #: 21-021-H
 SUBMISSION TYPE: IRB Initial Submission

ACTION: Not Human Subjects Research Determination
 EFFECTIVE DATE: July 31, 2020
 REVIEW TYPE: Administrative Review

Thank you for your submission of materials for your planned scholarly activity. It has been determined that this project does not meet the definition of research* according to current federal regulations but it does not meet the definition of human subjects**. This project, therefore, does not require further review and approval by the IRB. While performing this project, you are expected to adhere to the institution's code of conduct and any discipline-specific code of ethics.

A summary of the reviewed project and determination is as follows:

The purpose of this research is to examine the effect of an integrated DPT program curriculum on student cultural competence at a public, midsize, midwestern university. Surveys are completed by all DPT students for education purposes, and the research will obtain a de-identified data set from a survey administrator for analysis. There is no research interaction or intervention with students, and the researcher will not have access to any identifiable information. Therefore, this research does not involve human subjects and continuing IRB oversight is not needed.

This determination letter is limited to IRB review. It is your responsibility to ensure all necessary institutional permissions are obtained prior to beginning this project. This includes, but is not limited to, ensuring all contracts have been executed, any necessary Data Sharing Agreements and Material Transfer Agreements have been signed, and any other outstanding items are completed.

If you have any questions, please contact the Office of Research Compliance and Integrity, at [REDACTED]. The office observes all university holidays. Please include your study title and reference number in all correspondence with our office.

**Research* is a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge (45 CFR 46.102 (f)).

***Human subject* means a living individual about whom an investigator (whether professional or student) conducting research: (i) obtains information or biospecimens through intervention or interaction with the individual, and uses, studies, or analyzes the information or biospecimens; or (ii) obtains, uses, studies, analyzes, or generates identifiable private information or identifiable biospecimens (45 CFR 46.102 (e)).

Appendix F

Sample Letter from the DPT Department Chair

DPT Students,

Greetings! I hope that the new semester is off to a good start for you and that you all had a chance to catch your breath for the next part of this journey.

In the next week or so, you will receive information from our Office of Inclusion & Equity (I&E) on campus regarding a survey instrument called the Intercultural Developmental Inventory (IDI). The Department of Physical Therapy faculty is committed to the creation of an inclusive environment for all of its students, faculty, and staff and has established this goal as an integral part of our Strategic Plan. In this regard, we are part of a larger commitment to the values of inclusion and diversity, as established by the highest levels of administration at [the university].

As part of our ongoing curricular review and quality improvement, we are hoping to learn more about what points in the curriculum help our students develop the most meaningful growth in their cultural awareness and sensitivity. To help us determine the answer to that question, we will be assisted in administering the IDI at several points in your progression through the Program. For some of you, this will mean that you will be completing the IDI up to 3 times over 3 years. The Office of I&E will administer the survey and we will only receive corporate scores from the inventory, on a per class basis, and NO individual results will be shared with any member of this faculty. So, your sincere participation and cooperation will be invaluable and appreciated greatly by me and your faculty.

I expect that you will receive the invite from I&E on September 4th. The survey will be available to you from Sept 8-21. Please help us be successful in this assessment by giving prompt attention to the survey. Just so that you are aware, your faculty and staff are participating right along with you in this by engaging in cultural sensitivity training in our College faculty meetings and taking/retaking the IDI as well. This is immensely important to us and, on behalf of the entire DPT faculty, I thank you for your cooperation and assistance in this endeavor.

If you have any questions, please do not hesitate to reach out to me.

Respectfully,

Physical Therapy Department Chair

Appendix G

TIED Project: Cultural Competence Components & Domains

