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## **Doctor of Education in Organizational Leadership**

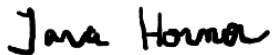


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Date: 11/10/20

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Abilene Christian University  
School of Educational Leadership

Curricular Influence on Professional Formation in Physical Therapy Students

A dissertation submitted in partial satisfaction  
of the requirements for the degree of  
Doctor of Education in Organizational Leadership

by

Chad W. Jackson

December 2020

## **Dedication**

From my youth, God placed a call on my life to serve Him and listen well to the Holy Spirit. This season of learning is a result of listening and answering God's call, so I dedicate to God what is already His. I pray that the result of this education and scholarly work has an impact in God's Kingdom.

## Acknowledgments

To my wife Beth, my support and encourager – each day, I am richly blessed that Jesus has us to journey life together with purpose. Thank you for all of the sacrifices you have made to allow me to complete this season. To Lorelei, Tanner, Reuben, Corinne, and the other children who have been in our home these past few years, I am blessed to have you in my life and to be your father. Thank you for your love, support, encouragement, and sacrifices you have made for me to complete this educational journey. To my Missouri and Texas friends and family, thank you for your encouragement and wisdom preceding and throughout this journey.

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## Abstract

Professionalism is needed from each healthcare professional to meet the needs of patients, society, and the expectation that the profession has for its members. Professionalism comprises many attributes and is developed explicitly and implicitly over time through a variety of influential factors. Professional formation education should be an intentional emphasis in any professional program. However, in the academic preparation of healthcare professionals, including physical therapists, a lack of consistency exists in professionalism curricula. It does not appear there are published studies that have specifically compared the effect of curricular approaches in physical therapy education on students' professional formation. The purpose of this quantitative causal-comparative study was to explore the influence of curricular design on professional formation, including ethical or moral reasoning and civic-mindedness in physical therapy students from two university-based institutions that utilize different curricular approaches. The researcher invited students from the graduating and incoming cohorts at each institution to complete the two online instruments used in this study. The Defining Issues Test (DIT-2) was used to assess moral reasoning. The Civic-Minded Professional (CMP) scale was used to assess the service/civic construct of professional formation in physical therapy students. Nearly half of the students from the four cohorts completed the surveys. The researcher analyzed the data using descriptive statistics and differences between groups (independent  $t$  tests, two-way ANOVA). The results did not show a statistically significant difference between the graduating cohorts in moral reasoning scores and civic-mindedness. However, gender demonstrated a significant main effect between the graduating cohorts. Additionally, gender showed significance between the graduating and incoming cohorts. A programmatic cultural investigation revealed a strong service culture within each physical therapy program. The results indicated that the

curricular type may not be a significant factor in the differences of professional formation found among physical therapists and, potentially, academic programs for health professions. However, male participants were found to have significantly less moral reasoning and civic-mindedness than female participants, indicating a potential need to engage male students differently in the educational process of moral issues and civic opportunities.

*Keywords:* professional formation, health professions, moral reasoning, civic-mindedness, curricular differences



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## Chapter 1: Introduction

Professionalism is needed from anyone who claims to be a part of a profession. However, one does not just choose at will to be a professional, but rather professionalism arrives after much training and apprenticeship (Sullivan, 2005). Health care providers who have demonstrated foundational knowledge through the skills of their specific profession are essential to patient care (S. R. Cruess et al., 2004). However, if not combined with professionalism, evident by a display of empathy, respect, moral reasoning, ethical behavior, service-mindedness, and societal engagement, then less than optimal outcomes exist (Bahaziq & Crosby, 2011; S. R. Cruess et al., 2004; Halpern, 2003; Lutfey, 2005; Sullivan, 2005; Swisher, 2005). The health professions are built upon the defined core values and code of ethics of the specific profession, with most modeled after the longstanding profession of medicine (Applebee, 2006; Swisher, 2005; Wynia, 2008). Even though built upon these values, professionalism in the health professions has not always been clearly defined (Mylrea et al., 2015). However, medicine has led the way in the past 20 years, with many publications exploring the topic with proposals of a widely accepted central definition of professionalism (R. L. Cruess & S. L. Cruess, 2006; S. R. Cruess et al., 2004; Mylrea et al., 2015).

Professionalism needs to be “understood as a public good, a social value, and not the ideology of some special interest” (Sullivan, 2005, p. 160). Even though this should be the case, not all professions have escaped the pursuit of special interest. The societal perception of the lack of professionalism in patient care has led to a substantial shift in medicine to improve professional formation, which led to the competency of professionalism as an accreditation requirement (Carrese et al., 2015; Doukas et al., 2015; Lockspeiser et al., 2016). Exploration of the literature has revealed more studies in recent years from the health professions other than

medicine. These studies have focused on the importance and process of professional formation even though accreditation does not require explicit proof of competency (Black et al., 2010; Furze et al., 2011; Hayward & Li, 2014; Mylrea et al., 2015; Nacasato et al., 2016). For years, educators have updated and changed curricula based on accreditation requirements.

Conceptually, alignment of curricula would occur in the other health professions if accreditation would require curricular competencies such as medicine (Doukas et al., 2015). Regardless if accreditation requires the health professions to have professional formation competencies, the need exists for an elevated emphasis on intentional professional development. A need exists in the health professions and specifically for physical therapy learners to more deeply develop a moral foundation and internalize their professional obligations to fulfill the profession's societal contract (Jensen et al., 2018).

The Carnegie Foundation for the Advancement of Teaching set out in the early 2000s with five studies formally called the Preparation for the Professions Program (Cooke et al., 2010; Jensen et al., 2018). Medicine and nursing, the health professions studied as part of this program, found that all five professions that were studied had a much less educational emphasis on professional identity formation when compared to the specific knowledge identifying each profession (Cooke et al., 2010; Jensen et al., 2018; Sullivan, 2005). Some of the challenges professions and professionals have in today's society is to be profit-centered and efficiency-focused in which everyone needs to do more with fewer resources (Sullivan, 2005). The challenge to live out the values of a true professional and live out the profession's public values is greater now than when many of the professions came into existence (Colby & Sullivan, 2008; Sullivan, 2005). It appears that, because of these contemporary challenges, professions and professionals alike have a need to increase the emphasis on intentional professional formation

education at all levels of career development (Colby & Sullivan, 2008; Jensen et al., 2018; Sullivan, 2005). Specifically, leaders in the physical therapy profession have a call to action to educate students to become deeply engaged as moral agents, become responsible and ethical professionals, and demonstrate advocacy in civic and community issues (Jensen et al., 2018; Jensen, Hack, et al., 2017). A need exists to elevate the professional formation of students and professionals in physical therapy education.

Evidence suggests professional formation occurs through the educational and career development process, regardless of how a particular profession or subset of a profession defines professionalism (Holden et al., 2015; Irby & Hamstra, 2016; Sharpless et al., 2015). Often developed through the formative and adolescent years, the antecedents of positive professional formation in healthcare providers are linked to moral reasoning, altruistic behavior, empathy, and a focus on others (R. L. Cruess et al., 2015). Doukas et al. (2015) advocated for the health professions admission processes to assess applicants for the foundational tenets of professional behavior. Health profession educators who did not examine professionalism in the admission process questioned if or how professionalism education should be included in the curriculum (Irby & Hamstra, 2016; Mylrea et al., 2015; Sharpless et al., 2015). In medicine, the Cruess's have devoted much of their professional work to professional identity formation in medical students. They strongly claim professionalism must be taught versus caught (R. L. Cruess et al., 2015; R. L. Cruess & S. L. Cruess, 2006; S. R. Cruess & R. L. Cruess, 1997). Specific to physical therapy education, Swisher (2005) advocated that because moral behavior is multifaceted, it is most appropriate to teach and evaluate in the context of what learners will encounter in professional practice. Guiding learners to embrace moral obligations and their professional role by personalizing the concepts is needed instead of focusing on abstract



concepts or the professions' general code of ethics (Swisher, 2005). Others have advocated for teaching professionalism and ethical/moral reasoning throughout the didactic program, whereas understanding professional formation goes beyond graduation (Irby & Hamstra, 2016; Shochet et al., 2015; Swisher, 2010). It is well understood that professional formation is ongoing and needs to be intentionally taught in the professional preparation program.

Factors influence the depth of professional formation in learners. Implicit and explicit learning influence the development of professional identity, including ethical/moral reasoning, regardless of when professional formation occurs the most (Balmer et al., 2015; R. L. Cruess et al., 2015; Furze et al., 2011; Goulet & Owen-Smith, 2005; Irby & Hamstra, 2016; Kenny et al., 2003). Reflection throughout the learning process is found to have a significant influence on the professional formation of students in the health professions (R. L. Cruess et al., 2015; Goldie, 2012; Sawatsky et al., 2018; Sharpless et al., 2015). Reflection allows the behavior to be adjusted, so a mindful approach to listening to and caring for the patient can occur (Sharpless et al., 2015).

### **Statement of the Problem**

The physical therapy profession operates from a foundation built on the physical therapy code of ethics, core values, and professional expectations (American Physical Therapy Association [APTA], n.d.). However, a physical therapy professional's role goes beyond just embracing a code of conduct, because a physical therapist will encounter ethical situations that require critical moral reasoning (Swisher et al., 2012). Development of moral/ethical reasoning and professional formation has been found throughout formal education and early in a health professional's career to create a professional consistent with the profession's core values (Irby & Hamstra, 2016; Shochet et al., 2015; Swisher, 2010). However, a lack of consistency exists in

professionalism and ethical/moral reasoning curricula in physical therapy and the health professions with medicine making changes (Gabard et al., 2013; Goulet & Owen-Smith, 2005; Stull & Blue, 2016; Swisher, 2010). This curricular inconsistency has been theorized as a reason for the lower level of ethical/moral reasoning and inconsistent professional formation found in physical therapy students when compared to other health professions (Gabard et al., 2013; Swisher, 2010). Medicine once had professionalism and moral/ethical failures evident in practicing physicians causing societal faith in the profession to be lost (Applebee, 2006; Doukas, 2003). The collective failures led undergraduate and graduate medical accrediting bodies mandate student competencies, which minimized many of the curricular inconsistencies that once existed (Applebee, 2006; Doukas, 2003). Medicine's example highlights what can occur to a profession when needed change is evident; however, collective action is not taken. The need exists to address the problem of curricular inconsistencies in physical therapy curricula and the lack of competencies in accreditation within the realm of professional formation and ethical/moral reasoning (Gabard et al., 2013; Goulet & Owen-Smith, 2005; Stull & Blue, 2016; Swisher, 2010).

The U.S. physical therapy accrediting body describes the varied curricular models in physical therapy education (Commission on Accreditation in Physical Therapy Education [CAPTE], 2017). Specifically, within one of the nation's regional consortia for physical therapy clinical education, some member programs choose to have all explicit, focused curricula related to professionalism preparation over one or two semesters during the graduate program. Others integrate throughout the curriculum. A recent study in the physical therapy profession, modeled on the Carnegie Preparing for Professions Program, revealed excellence in education at six different physical therapy programs with three different curricular models (Jensen, Nordstrom, et

al., 2017). Excellence within different curricula and institutional makeups indicated that values and culture are heavily influential. However, it does not appear that published studies have specifically compared the effect of curricular approaches on students' professional formation. A deeper understanding of the curricular impact on professional formation, including ethical/moral reasoning and civic-mindedness, provided further direction for accreditation standards of professional formation competence.

### **Purpose of the Study**

The purpose of this quantitative causal-comparative study was to explore the influence of curricular design on professional formation, including ethical/moral reasoning and civic-mindedness in physical therapy students from two south-central U.S. university-based institutions that utilize different curricular approaches. Specifically, the study attempted to answer the following two questions. First, what are the similarities and differences of ethical/moral reasoning and service-mindedness in physical therapy students trained with two different curricular approaches? Second, how does a particular curricular design affect ethical/moral reasoning and service-mindedness aspects of professional formation in physical therapy students? The problem statement indicated that curricular inconsistencies might affect the professional formation of physical therapy students. Having clarity on whether or not the curriculum appears to significantly influence professional formation could indicate a need to examine further the need for more accountability in the accreditation standards.

Chapter 3 explains the two instruments used to assess ethical/moral reasoning and civic-mindedness in this study. Specifically, the Defining Issues Test 2 (DIT-2) examined moral reasoning. The Civic-Minded Professional (CMP) scale was used to assess the service/civic construct of professional formation in physical therapy students. The chosen assessment tools

were not the be-all-end-all attempts to measure the specific aspects of professional formation but have been shown in other studies to be valid and appropriate tools (Hatcher, 2008; Palombaro et al., 2018; Swisher et al., 2012).

### **Research Questions**

RQ1: What are the similarities and differences of ethical/moral reasoning and service-mindedness in physical therapy students trained with two different curricular approaches?

RQ2: How does a particular curricular design affect ethical/moral reasoning and service-mindedness aspects of professional formation in physical therapy students?

### **Definition of Key Terms**

**Accreditation.** A process in the United States that all health professions have to undergo to ensure minimum standards for the particular profession are met (CAPTE, 2011).

**Civic-minded.** A civic-minded individual is one who has the desire to use their skills and training to ethically work with others for the common good (Hatcher, 2008).

**Ethical reasoning.** Often described as synonymous with moral reasoning or moral judgment (Edwards et al., 2012). For this dissertation, ethical reasoning will be synonymous with moral reasoning.

**Explicit curriculum.** The curriculum that is defined, formally taught, and assessed (Balmer et al., 2015; Goulet & Owen-Smith, 2005; Lockspeiser et al., 2016).

**Implicit (hidden) curriculum.** Not visible, but learned behavior or influences on learners' experiences and interactions. Also, a curriculum that is not clearly defined and does not have associated programmatic goals (Balmer et al., 2015; Conran et al., 2018; Goulet & Owen-Smith, 2005). For example, students may learn how to treat others through their interactions with faculty, peers, clinical instructors, or the healthcare team.

**Moral reasoning.** The moral reasoning process is applying critical analysis to ethical situations to take action (Swisher et al., 2012).

**Problem based learning (PBL) curriculum.** In this study, the private institution utilizes a PBL curriculum. PBL is a contextually centered curriculum focused on a patient case. Through a tutorial process, faculty guide students through case-based objectives focused on student-centered learning (CAPTE, 2017).

**Professional formation.** A developmental process of moving from a focus on oneself to moral and service considerations to society and a profession (R. L. Cruess et al., 2015).

**Professionalism.** For the physical therapy profession, it includes the following core values: “accountability, altruism, compassion/caring, excellence, integrity, professional duty, and social responsibility” (APTA, 2014, p. 3).

**Traditional curriculum.** In this study, the public institution primarily utilizes a traditional curricular approach. A traditional curriculum usually begins with the basic sciences and then moves to more clinical or discipline-specific sciences or skills (CAPTE, 2017).

## **Summary**

As described in this chapter, professional formation is essential for a healthcare professional to perform effective, ethical, and competent care. Societal confidence in the profession is at stake if professionalism is significantly compromised. Also, a significant amount of healthcare providers’ professional formation is developed through their profession’s formal training program. However, other than medicine, it appears a lack of curricular consistency exists, possibly from the lack of accreditation requirements; hence, there is no uniform accountability. I found no studies that compared different curricular approaches on the effectiveness of professional formation, specifically in the areas of moral/ethical reasoning and

civic-mindedness. Chapter 2 focuses on the literature review exploring the background of professional identity in the health professions, influential factors of professional formation, curricula, and professional formation and accreditation. Additionally, the conceptual framework for the study is detailed.

## **Chapter 2: Literature Review**

The purpose of this quantitative causal-comparative study was to explore the influence of curricular design on professional formation, including ethical/moral reasoning and civic-mindedness in physical therapy students from two south-central U.S. university-based institutions that utilize different curricular approaches. Specifically, the study attempted to answer the following two questions. First, what are the similarities and differences of ethical/moral reasoning and service-mindedness in physical therapy students trained with two different curricular approaches? Second, how does a particular curricular design affect ethical/moral reasoning and service-mindedness aspects of professional formation in physical therapy students?

This literature review explores the following areas: (a) the conceptual framework of the study, which explores the different approaches of professional formation, (b) the historical perspective and the various definitions and frameworks of professionalism in the context of the health and health-related professions, (c) the varied aspects of professional formation, including the curricular influence, and (d) the two tenets of professionalism—moral/ethical reasoning and civic-mindedness—which were both measured in this study. The chapter concludes with a summary of the literature review's important points while connecting to the methodological approach.

### **Literature Search Methods**

The literature search took place over an extended time throughout the doctoral degree and dissertation process. Most of the search took place through the institutional online library. The specific databases searched were Academic Search Complete, CINAHL Complete, Education Source, ERIC, Health Source: Nursing/Academic Edition, MEDLINE, Professional

Development Collection, and the Psychology and Behavioral Sciences Collection. Keywords used in the searches were: *professional formation, health professions, physical therapy, vocation, profession, Defining Issues Test, Civic-Minded Professional scale, professional formation assessment, professional identity formation, professionalism curriculum, health profession curriculum, core values, explicit curriculum, implicit curriculum, and hidden curriculum.*

Besides the library search, I found relevant studies cited in comprehensive studies in the topic area. The original publications were found, read, synthesized and included. I saved and formatted all cited articles and citations in Paperpile.

### **Conceptual Framework Discussion**

Multiple practitioners and researchers have conceptualized professional formation, but Irby and Hamstra (2016) highlighted the three dominant professionalism frameworks relevant to this study. The first is a virtue-based professionalism framework, which was the approach in which medicine originated (Irby & Hamstra, 2016). In this framework, the focus is individual and internal. The physician is focused not on self-interest but rather on upright character, moral reasoning, and exemplifying moral values. The curricular focus for this approach is one of character- and value-building. The second framework is behavior-based professionalism, which focuses on competencies (Irby & Hamstra, 2016). The focus of development and the curricula is to teach behaviors and expected competencies. The third framework is professional identity formation focused on the evolution of personal identity merging into the profession's broader community (Hafferty & Levinson, 2008; Irby & Hamstra, 2016). The faculty development of the learner is focused on progressing the values and identity of the learner into the identity of the profession (Irby & Hamstra, 2016). Regardless of which broad professionalism framework one most aligns with, all require guidance and teaching through the formal educational process.



The conceptual framework of this study aligned more closely with professional identity formation, as described by Irby and Hamstra (2016), as a longitudinal approach to assessing the curriculum's impact. Moral reasoning development is longitudinal and based on the original work of Kohlberg's theory of cognitive moral development, which occurs in stages (Kohlberg & Hersh, 1977; Rest et al., 1974; Swisher et al., 2012). Kegan continued this work in developing the constructive-developmental theory of self, which has five stages of development that Kalet et al. (2017) outlined concerning professional identity formation. There are five stages learners move through. However, students in the health professions primarily move through the following three stages. Stage 2 is the instrumental mind characterized by limited perspectives and an emphasis on obtaining technical skills (Kalet et al., 2017). Stage 3 is a socialized mind that describes the understanding and adopting the professional norms with less focus on oneself (Kalet et al., 2017). Stage 4 is a self-authoring mind characterized by independence in problem-solving and making critical judgments within the professional role (Kalet et al., 2017). Similarly, Stull and Blue (2016) described the three relevant stages from Kegan's theory as the three levels of professional identity—"independent operator, team-oriented idealist, and self-defining professional" (p. 92). Evidence suggested students need to progress through the developmental stages to become the mindful professional that society expects (Brody & Doukas, 2014).

### **Professionalism: History and Definitions**

To best understand professionalism, one should first examine what constitutes a profession. Sullivan (2005) described a profession typically as an occupation consisting of three characteristics:

- (a) specialized training in a specific field of codified knowledge usually acquired through formal education and apprenticeship, (b) public recognition of a certain autonomy on the

part of the community of practitioners to regulate their standards of practice, and (c) a commitment to provide service that goes beyond the economic welfare of the practitioner. (p. 36)

Sullivan (2005) went further and described the practitioners of the specific profession as professionals. However, even with a definition of a profession outlined, the central definition of professionalism and how a practitioner develops qualities of professionalism remains vague.

As discussed further in the literature review, societal expectations of professionalism qualities are tangible actions or behaviors exemplified by the health care professional. However, as stated previously, Sullivan (2005) described what constitutes a profession and the essence of professionalism. For example, physicians have been leaders in their community while embracing the expertise in their specialty. Sullivan (2005) described the leadership and expertise they hold in their community is the basis for the social contract they have with those they serve. This social contract is the core of professionalism (Sullivan, 2005), and is not limited to physicians but other professions that control their specific professional domain. The core of professionalism comes with a high expectation of competence, which leads to a lengthy preparation process (Sullivan, 2005). The expectations and preparation process needed to meet society's needs provides evidence of the importance of the professionalism literature and the educational process.

Professional formation in the health professions has and continues to evolve. Meanwhile, the definition of professionalism in the health professions was difficult to define. The literature provided varying emphases of professionalism; however, most agreed that being professional is essential for a health professional (Dubbai et al., 2019; Irby & Hamstra, 2016; Van De Camp et al., 2004; Wilkinson et al., 2009). Even when not clearly defined, the importance of

professionalism is often evident when a member of a profession lacks professional values and behaviors (Wilkinson et al., 2009).

### ***History and Definitions of Professionalism in Medicine and the Health Professions***

Medicine is the health profession that has embraced the failures and successes of professionalism as part of its identity longer than any other health profession (Applebee, 2006; Kee et al., 2017). The foundation of professionalism in medicine was apparent when, in 1847, the American Medical Association (AMA) wrote and adopted the Code of Medical Ethics (AMA, n.d.). The code at that time described the physician's expectations of ethical conduct and obligations to patients, peers, and the public (AMA, 2017). The code has evolved since then and now includes nine principles of medical ethics (AMA, n.d.). Educators have continued to take steps to increase the focus on professionalism in physicians' training by including competencies in professionalism as part of graduate medical education (Kirk, 2007). The increased focus of professionalism in the curricula and now accreditation came because medicine has had some critical lapses in professionalism (Carrese et al., 2015).

While medicine has continued to take steps in recent years to improve the members' lived values of professionalism, a unified definition remains elusive. Based on their decades of dedication and research in the area of professionalism, S. R. Cruess et al. (2004) provided a working definition of professionalism:

Profession: An occupation whose core element is work based upon the mastery of a complex body of knowledge and skills. It is a vocation in which knowledge of some department of science or learning or the practice of an art founded upon it is used in the service of others. Its members are governed by codes of ethics and profess a commitment to competence, integrity and morality, altruism, and the promotion of the public good

within their domain. These commitments form the basis of a social contract between a profession and society, which in return grants the profession a monopoly over the use of its knowledge base, the right to considerable autonomy in practice and the privilege of self-regulation. Professions and their members are accountable to those served and to society. (p. 75)

This definition includes a commitment to self, peers, patients, and society, which has similar tenets as the Code of Medical Ethics that the AMA originally drafted in 1847.

Other literature provides further descriptions of the tenets of professionalism in medicine. Wilkinson et al. (2009) performed a systematic review of professionalism in the literature and found similar themes as S. R. Cruess et al. (2004) described. Specifically, Wilkinson et al. (2009) examined attributes to describe professionalism and assessment methods. The themes of professionalism found in the literature were ethical practice, effective patient–family interactions, effective peer interactions, reliability, and competence with a commitment to continually improve (Wilkinson et al., 2009). These themes had further subthemes of the qualities of professionalism, such as honesty and moral reasoning as a subtheme of ethical practice. Also included were respect, care, compassion, empathy, and boundaries as subthemes of effective patient/family interactions. The authors also found that reflection was a characteristic needed to develop professionalism, both in the formative and professional practice stages of education and patient care.

Somewhat related, Randall et al. (2016) performed a qualitative assessment of completed questionnaires from medical students and medical school faculty intending to discover how the groups defined professionalism. The authors' justification for their study was that professional and accrediting bodies of medicine have a definition of professionalism based on the “formed”

professional, not for those in professional formation. The response rate to the emailed surveys for students was nearly 30%, and for faculty it was 23%. The findings identified 14 characteristics of professionalism: accountability/responsibility, communication, diligence, emotional maturity, ethical behavior, honesty, integrity, lifelong-learning, patient-first, reliability, respect, service/military professionalism, student-teacher relationship, and teamwork. Their findings seemed to align with Wilkinson et al.'s (2009) thematic and subthematic findings. Furthermore, the findings paralleled S. R. Cruess et al.'s (2004) proposal for a unified definition of professionalism without specifically mentioning society.

Other health and similarly aligned professions' literature described tenets of professionalism similar to medicine. Dubai et al. (2019) performed a systematic literature review to discover the definitions of professionalism and perform a critical analysis of professionalism assessments used in pharmacy education or practice. The literature search revealed 567 sources, with 52 related to professionalism in pharmacy practice. The authors found that while professionalism was necessary for the pharmacy profession, a central definition was lacking, which resulted in vagueness for practitioners. Findings of professionalism in the literature include defined attitudes and behaviors, competencies of knowledge, empathy, effective communication skills, integrity, care/compassion, commitment to excellence, and ethical practice (Dubai et al., 2019). A few of the pharmacy professional organizations arranged a professionalism task force and provided ten essential domains that pharmacists exemplify in their practice: "knowledge and skills of the health profession, service orientation, creativity, innovation and initiative, effective relationships with others, conscience and honesty, commitment to self-improvement through lifelong-learning, ethically sound decision making, leadership, pride in profession, and accountability" (Dubai et al., 2019, p. 4).

Mylrea et al. (2015) searched for a unified definition of professionalism in pharmacy education. They performed an in-depth literature review and described the inconsistency of professionalism in the health profession educational programs and the challenges of defining professionalism, especially in pharmacy education and practice. Additionally, they explored current approaches to the education of professionalism with a focus on pharmacy education. The lack of a defined definition of professionalism for pharmacy education is problematic to bring alignment to students' professional formation. Furthermore, they found much professional formation has to be taught versus "caught" for students and professionals, which was also supported by S. R. Cruess and R. L. Cruess (1997). Mylrea et al.'s (2015) conclusions are that educators should evaluate the curriculum for potential changes and perform a critical analysis of outcomes in the area of professional formation.

Nutrition and dietetics professionals are valued members of the healthcare team. Their profession is also searching for a defined definition of professionalism. Dart et al. (2019) performed a systematic review to hopefully define professionalism and propose a model for education in nutrition and dietetics. Previously in nutrition and dietetics, there had been no peer-reviewed published studies of definitions or conceptualization of professionalism. They explored multiple databases resulting in 198 articles and abstracts. Seven studies and six national competencies met inclusion criteria. Through an interpretive approach, four identified themes helped to develop a conceptual definition of professionalism in their field. The themes were personal qualities, such as integrity and empathy; interpersonal communication, including patient-centered and respectful; approach to practice, including an ethical approach and evidence-based practice; and commitment to lifelong learning. The identified themes are similar

to the findings of the systematic reviews in medicine and other health professions in proposed definitions of professionalism.

### ***History of Professionalism in Physical Therapy***

The history of professionalism in physical therapy did not start as a defined concept in the profession (Ries, 2013). As the profession began, physical therapists functioned in a technician role. However, early on in the profession's history, leaders in physical therapy developed a code of ethics (Neil, 2010). Nevertheless, professionalism in physical therapy as a focus or explicitly written in guiding documents of the professional organization—APTA—was not found before 1999. As the profession of physical therapy evolved, professionalism became one of six elements of APTA's Vision 2020 (Ries, 2013).

Additionally, in 2003, APTA published a document titled "Professionalism in Physical Therapy: Core Values." This statement helped clarify the values needed for the physical therapy profession to become autonomous. Additionally, the expressed values helped pave the way for the physical therapy professional to be viewed as autonomous (Ries, 2013). In 2007, the task force on a strategic plan to achieve Vision 2020 defined professionalism for the physical therapy profession by stating the following:

Physical therapists and physical therapist assistants consistently demonstrate core values by aspiring to and wisely applying principles of altruism, excellence, caring, ethics, respect, communication, and accountability, and by working together with other professionals to achieve optimal health and wellness in individuals and communities. (Bellamy, 2010, "Professionalism" section)

This definition provided the expectation that physical therapists and physical therapist assistants are focused on others more than self and committed to continual learning and growth,

moral behavior, and integrity. The aforementioned tenets of professionalism for the physical therapy profession are similar to the other health and health-related professions. Interestingly, there have been no peer-reviewed published studies of definitions or systematic reviews of conceptualizations of professionalism in the physical therapy profession other than what the professional association has performed. However, specific physical therapy literature surrounding education and ethics has discussed the relevant core attributes of professionalism for physical therapy and the health professions. Swisher (2005) indicated that tenets of professionalism are the ability to make moral judgments, recognize ethical problems, and make sound judgments. Purtillo (2005) argued that professional education programs often train technicians who are highly skilled and believe a professional is created. Instead, educators need to further train emerging professionals on how to first respect oneself and then others while preparing them to meet societal expectations. Her claim suggests, at least in part, that becoming highly skilled, exemplifying respect, and preparing to meet societal expectations are hallmarks of a true professional (Purtillo, 2005). While their study focused on excellence in physical therapy education, Jensen et al. (2018) discussed professional formation. They alluded to professionalism encompassing an obligation to advocate for all healthcare system stakeholders at the individual and societal level while also demonstrating moral courage (Jensen et al., 2018). Professionalism in the physical therapy profession was found to be similar to the attributes of professionalism in the other health professions but seemed to have a deeper focus on meeting the needs of society.

### **Influential Factors of Professional Formation**

Professional formation occurs through various methods and contexts, which is one reason why it is difficult to assess the key factors. Palombaro et al. (2018) examined the role of community engagement service-learning on professional formation and civic engagement in



physical therapy students. Specifically, they utilized a pretest and posttest utilizing the CMP scale in three cohorts of physical therapy students. The analysis included a Friedman's ANOVA with post-hoc testing, which revealed significant increases in all CMP subscales. Palombaro et al. (2018) claimed the significant service-learning emphasis of their program's curriculum influenced the civic-mindedness aspect of professional formation. The takeaway from their findings was that experiential learning influenced professional formation.

Shochet et al. (2015) assessed the medical school learning environment by gathering student's perceptions and developed the Johns Hopkins Learning Environment Scale. They found that the learning environment factors were curriculum, institutional culture, facilities, interaction with staff, faculty, and peers. They assessed ten domains, which seemed to be medical schools' most influential aspects. Specifically, "role models and mentors, support, quality of teaching, exposure to high-impact events, feeling welcomed and valued, engagement-affiliation, autonomy, personal growth, personal contribution, and physical learning space" (Shochet et al., 2015, p. 811). Through statistical analysis, the findings revealed these factors represented the academic, social, and relational factors supporting a medical student's professional formation within the context of the medical school learning environment. The literature revealed the learning environment's relevance to the intentional professional formation activities needed in the curriculum.

Medicine was not the only profession that explored the factors contributing to professional formation and found similar results. Ashby et al. (2016) performed an exploratory study utilizing descriptive statistics to analyze occupational therapy (OT) student's perceptions of professional identity formation in five countries. Specifically, they sought out student's perceptions of the impact of preprogrammatic influences, curricula, and professional practice

experiences in professional identity formation. They sent a cross-sectional design survey through SurveyMonkey to OT programs in the United States, Ireland, Canada, Australia, the United Kingdom, and New Zealand. The response rate was relatively low—319 OT students from five countries completed the survey. Ashby et al. (2016) reported that OT students found value in preprogrammatic influences and curriculum in the role of professional identity formation. However, they found professional practice experiences, and interactions with licensed professionals had a greater implicit role. The takeaway from the study was that various aspects of the student experience contributed to professionalism formation.

Similar to Ashby et al.'s (2016) findings, Sawatsky et al. (2018) found that a professional practice experience made a transformational impact on students and their professional formation. Sawatsky et al.'s (2018) findings emerged from a qualitative study that explored professional formation and transformative learning during a global health elective as part of medical students' residency. The authors utilized a grounded theory approach where they coded 377 student reflections guided by faculty. The global health electives provided the foundational opportunity for a transformative experience because of the challenges to the student's way of thinking. The authors identified the five phases of transformative learning "a disorienting experience, the emotional response, critical reflection, perspective change, and commitment to future action" (Sawatsky et al., 2018, p. 19). Through these stages, the physicians in training learned what it was to be a physician. The main takeaway was that the health elective challenged the residents, resulting in strong emotional responses and deep reflection upon values, which are components of professional identity formation. Their study gave credibility to the importance of explicit learning activities with guided reflection, which can have a significant contribution to professional identity formation.

Whereas Ashby et al. (2016) and Sawatsky et al. (2018) both provided evidence that professional practice experiences have a strong influence on the healthcare provider's professional formation, Black et al. (2010) provided evidence specific to physical therapy that professional formation occurs beyond graduation from the professional program. Black et al. (2010) performed a longitudinal, multiple-site qualitative case study and explored the learning, development, and experiences of physical therapists who had a year or less of clinical practice. Faculty from four different physical therapy educational programs experienced in qualitative research had eleven participants perform reflective journal writing at least once a month. The findings were that the practice environment and the clinical community had a substantial effect on the participant. Mentorship demonstrated a significant positive impact on clinician development as a professional, facilitating learning and growth in confidence. The findings bring an interesting perspective of the challenges and considerations of professional formation influenced by practice challenges within the physical therapy profession when a power differential, for example, the clinical instructor–student relationship, does not exist.

Ethics and health humanities are essential attributes in professional formation. Doukas et al. (2015) provided suggestions to incorporate professionalism education into medical education. An expert panel of those who teach ethics, history, and humanities proposed helpful suggestions. The author's foundational claim was professionalism education needs to be facilitated and assessed within a framework which assesses outcomes in which the current climate of medical education is evolving (Doukas et al., 2015). The authors suggested a scaffold approach to professionalism education starting in the premedical school phase with evident outcomes considered in admissions to medical school and spiraling within the context of medical school and graduate medical education. Doukas et al.'s (2015) summative conclusions were that

professional formation could not occur without medical ethics and the humanities as core foundational components.

### **Influence of Curricula Structure on Professional Formation**

Teaching professionalism with structured learning activities in the curriculum can help students become a professional while assisting emerging professionals in decision making. Irby and Hamstra (2016) compared three different medical school education frameworks for professionalism curricula. They found professionalism involved both the attributes of an individual and the socialization surrounding identity formation. A lingering question was how much professionalism education is enough to facilitate the progression of professional identity in health profession students. Their analysis provided considerations of the various frameworks of professionalism education in the exploration of implicit versus explicit curricula (Irby & Hamstra, 2016).

Similarly, Holden et al. (2015) wrote a descriptive paper with an in-depth literature review defining thoughts about comprehensive professional identity formation. As a result, they developed a framework that helped identify the characteristics and domains involved in professional identity formation. The framework they developed had six domains and 30 subdomains over three developmental phases: undergraduate interest in medicine, medical school and early clinic experiences, and graduating/residency. The domains they developed had clear applicable curricular objectives, which included program and student assessment. Educators may find their framework helpful as it would allow each educational program to apply practical objectives to the professional formation continuum. Furthermore, the framework's domains could be used to calculate the percentage of professional formation activities within a

curriculum. Educators could apply the framework in the various health professions and not just medicine (Holden et al., 2015).

Sharpless et al. (2015) provided further evidence of curricular influence as they examined medical students at various stages of their medical education. They had them share their reflections on questions derived from a literature review of the professional identity formation process. Students provided questions about pretending in medical education, the role of relationships, the impact and suggestions of the formal curriculum in professional identity formation, and the effect of interprofessional relationships and interactions on professional identity formation. Student reflections were gathered, edited, and arranged for clarity. A variety of relationships were vital in the professional identity formation process. Patient relationships helped envision the future professional role, while peer relationships helped hone shared interests and values. Personal experiences among the health professional team helped develop humility as the professional identity role formed. Ultimately, a beneficial curricular design utilizes reflection on action and provides guided opportunities for students to process and give context to the engagement that students have in or outside of the classroom (Sharpless et al., 2015).

Educators have a responsibility to guide students to reflect, which helps to provide meaning to their experiences resulting in a depth of learning. As mentioned earlier, Sawatsky et al. (2018) also provided substantial evidence for the use of guided reflection as they analyzed reflections of over 350 students who completed an international health elective. Through reflection, the experience offered deep meaning and allowed the students to see themselves as professionals. This evidence is compelling for educators to use guided reflections in the curriculum. Loftus and Huggett (2018) shared the need for teachers in physical therapy education to guide students in developing their morals, values, and professional expertise. This professional

formation training should help the students integrate rather than give up their personal and professional values.

Discussed above in this section is the holistic nature of the influences of professional formation and the curricula. Professional formation and the curricula can fit together during all phases of professional preparation. Sullivan (2005) described the three apprenticeships of professionalism education: (1) cognitive or the academic knowledge of the discipline, (2) the skills of the profession, and (3) the shared values of the profession. The apprenticeships are not just three segments of the curriculum, but rather encompass an emphasis of professional education not confined to the academic program (Sullivan, 2005). Jensen et al. (2018) described the three apprenticeships as habits of the head, hand, and heart, respectively. In physical therapy education, the need exists to integrate the three apprenticeships. Based on the work of Jensen et al. (2018) and Sullivan (2005), both concluded the third apprenticeship is lacking in all of the professions studied, including medical education, nursing, and physical therapy. Benner and Purtillo (2018) advocated for professional formation learning, taking an integrated approach of all three apprenticeships to improve the shared values or the habits of the heart. To accomplish this, an educator needs to intentionally sequence the educational process to ensure the learner is ready to engage in the clinical environment and “skillfully embody the moral standards of practice” (Benner and Purtillo, 2018, p. 215). Ultimately, learners need guided practice to learn how to integrate all attributes of professionalism.

Other curricular considerations included intentional activities in professional formation in a long-term approach rather than just professional formation occurring in one semester as part of a class. Stull and Blue’s (2016) findings demonstrated the apparent need for intentional professional formation activities to occur over time. Stull and Blue (2016) explored how first-

year students viewed their profession and other health professions. The study utilized a pretest-posttest design with 864 eligible first-year health profession students at a large university. Stull and Blue (2016) used Kegan's constructive-developmental theory of self to clarify the level a student would be in as they developed in their professional identity formation. They found a statistically significant adverse change in the student's attitudes towards interprofessional education. However, they attributed the negative difference to students being in the second stage of Kegan's professional identity formation. In this stage, students do not yet see the need to collaborate with others because of the perceived threat to their own professional identity. Based on prior literature, the authors hypothesized that students should advance into the third and possibly fourth stage of Kegan's professional identity framework with more time and intentional professional formation activities.

Integrating ethics into the curriculum as part of professional identity formation is essential in the health profession, but knowing when and how to incorporate it best can be challenging for educators. Carrese et al. (2015) explored the opportunities and challenges of medical ethics within the context of accrediting organization expectations. Additionally, they studied teaching methods, goals, objectives, and strategies for assessment. The authors suggested a long-term approach by introducing concepts of ethics and, in a later semester, asked the students to apply the concepts in real life practice. Connecting educational interventions with patient outcomes is needed to help assess ethics in action. Carrese et al. (2015) and Swisher (2005) provided practical guidance to educators with best-practice suggestions for integrating ethics education by building upon prior knowledge, supporting adult learning theory. Swisher (2005) also advocated for ethics education in an integrated manner in the health professions ensuring environmental and social considerations.

The demonstrated urgency of health humanities in health professions' curricula was linked to ethics in the curriculum and the aforementioned professional formation attributes of ethics and the health humanities. Jones et al. (2017) described the growth of humanities in medicine and the health professions, including at the undergraduate level. The focus of the humanities was to connect the knowledge and skill aspects of medicine to attributes of caregiving. Ultimately, the goal of health humanities in the curricula is to use the societal model and shape future healthcare providers' attitudes towards patients. The shift to incorporate more health humanities validates the importance of professional formation in the curricula.

Whereas curricular structural influences and implications of professional formation are exemplified from the literature, teaching and curriculum can have postgraduation effects. Beyond the curriculum, Black et al. (2010) found that professional formation occurs beyond graduation with intentional mentorship. As students prepare for graduation, faculty should consider providing students with a plan to progress in their professional formation.

### **Professional Formation and Accreditation**

As stated earlier, Doukas et al. (2015) described how ethics and health humanities need to be a part of professional formation. They linked this to best-practice guidelines of how to facilitate teaching and assessment of professionalism. Based on their recommendations, educational programs must critically evaluate their current education practice in ethics, humanities, and professionalism. This critical appraisal should also include outcomes compared to accreditation requirements. They concluded with best-practice guidance for medical educators with the link to accreditation requirements (Doukas et al., 2015). By linking with accreditation requirements as medicine has begun to do, an increase in accountability exists.



Specific to physical therapy accreditation implications, Grignon et al. (2014) performed a qualitative study to describe the graduate outcomes of physical therapy programs in the United States. They described the lack of guidelines to determine the graduate outcomes in the physical therapy educational profession, even though CAPTE, the accreditation body for physical therapy, requires each program to have graduate outcomes. Nearly 40% of the accredited programs responded. The researchers utilized a qualitative content analysis using an inductive approach. Ten common themes emerged from the responses (Grignon et al., 2014). Interestingly, half of the thematic findings were professionalism, communication, professional role, social responsibility, professional growth, and development, all of which develop in learners through the implicit and explicit curriculum. The author's conclusion was to suggest uniform program outcomes for programmatic accountability based on the findings of common themes in graduate outcomes (Grignon et al., 2014). Uniformity does not mean each program would be void of influencing the curriculum with their institutional values and culture. The literature review revealed evidence of various attributes of professional formation, which health profession faculty can impact.

### **Ethical/Moral Reasoning and Professional Formation**

Ethical/moral reasoning is a component of professional formation that allows the professional or emerging professional to manage ambiguous situations beyond the focus of self while behaving in a way that society expects (Brody & Doukas, 2014; Kalet et al., 2017). Swisher et al. (2012) described moral reasoning as applying critical analysis to ethical situations for the purpose of taking action. The health care provider is faced with many decisions each day, some interlaced with ethical challenges (Swisher et al., 2012). It is important as a professional to provide critical analysis, so decisions made have the patient's best interest in mind.

The assessment of ethical/moral reasoning has been performed or discussed as part of studies or systematic reviews in several studies within the health professions (Dubbai et al., 2019; Kalet et al., 2017; Swisher et al., 2012; Wilkinson et al., 2009). Specifically, in medicine, Kalet et al. (2017) performed a mixed methods study to bring an intentional process to assess the baseline professional identity formation within the context of the curricular structure. The incoming medical students completed the Defining Issues Test (DIT) to assess moral judgment, which was part of the study's quantitative portion. Kalet et al. (2017) aimed to discover if a more explicit process could be developed to teach and evaluate professional identity formation among medical students. They found most students were at Kegan's stage 3 or 3-4, which is less focused on self and adopting professional norms with progression toward critical analysis. Additionally, through the qualitative analysis, they found individual feedback and mentorship to the student aided in their professional identity formation. The implementation challenges Kalet et al. (2017) found for the identified professional formation framework were the limited number of faculty mentors with an adequate understanding of the professional identity formation framework. Based on these challenges, it appears faculty preparation is essential when integrating professional development into the curriculum.

Swisher et al. (2012) also used the DIT-2 to assess moral reasoning development in physical therapy students following an ethics course. Participating students completed the DIT-2 before and after the six-week intensive ethics course. The researchers found a significant increase in the post-conventional moral reasoning score among the 37 students assessed. Swisher et al. (2012) described the post-conventional schema as a "moral reasoning framework that relies on ethical ideals, societal cooperation, and principles of fairness" (p. 169). The result was the ethics course appeared to positively affect the development of the student's moral reasoning

assessed by the DIT-2. This evidence supports the use of the DIT-2 as a quantitative tool to assess moral/ethical reasoning in students.

### **Civic-Mindedness and Professional Formation**

The aforementioned stated or conceptual frameworks regarding professionalism in the health professions literature implicitly or explicitly focus on the professional seeking interest beyond oneself. Civic-mindedness is an area of professionalism that would have the health care professional involved in activities beyond one's self-interest. Hatcher (2008) developed the CMP scale in an attempt to define and operationalize the professional attributes. Furthermore, she desired to discover how "to measure the knowledge, skills, and dispositions of professionals" (Hatcher, 2008, p. 7). She defined the civic-minded professional as "one who is (a) skillfully trained through formal education, (b) with the ethical disposition as a social trustee of knowledge, and (c) the capacity to work with others democratically, (d) to achieve public goods" (Hatcher, 2008, p. 21). This definition is well-aligned to the physical therapy profession's specific core values—excellence, integrity, altruism/accountability/collaboration, and professional duty/social responsibility (APTA, 2019).

Palombaro et al. (2018) further advanced the connection of the civic-minded professional and the core values of the physical therapy profession by using the CMP scale in evaluation of the physical therapy curriculum related to professional formation. The researchers assessed three cohorts of physical therapy students who all engaged in community learning and service. They found a significant increase in the scores on the CMP scale with each year in the program. Students involved in leadership in a student-run, pro bono health clinic had a significant increase in the scores on the CMP scale compared to their peers who had not served in leadership

(Palombaro et al., 2018). This evidence provides some validity that the CMP scale could be a way to assess some of the tenets of professional formation.

### **Summary**

The literature review explored the conceptual framework of how professional formation occurs in the learner of those in medicine and the health professions. I explored the history and definitions of professionalism literature in both the health professions and medicine. Based on the literature, it appears that medicine has progressed the most in the area of professional formation. However, in recent years, the physical therapy profession has made strides with more focus in the literature of improving professional formation in physical therapy education. The literature containing the influential factors of professional formation revealed the numerous contexts and experiences that help the learner progress from self-identity to professional identity. Finally, I explored moral/ethical reasoning and civic-mindedness, revealing how these two tenets of professionalism could be assessed in students. Three primary takeaways from the literature were evident. First, the literature revealed the varied but similar tenets defining professional formation. Secondly, the curriculum impacts professional formation activities and the emphasis on the education of the health professions. Thirdly, it appears a longer-term approach seems to be an effective method in educating health professionals in professional formation. This approach allows the learner to progress through the three relevant Kegan's stages of professional identity development.

Relevant to chapter 3 and my description of this study's methodological approach, I assessed two tenets of professionalism among physical therapy students from two different programs to examine the curricular influence on professional formation further. One program uses a longitudinal approach to professional formation, and one does not have such an approach,

but implicit factors may exist. A comparison between students entering the program and those preparing to graduate should show if students progress through Kegan's stages of professional identity development.

### **Chapter 3: Research Method**

This chapter explores the study's methods and the specific focus for assessing the professional formation growth in physical therapy students. Before examining the details, I review the purpose and research questions and describe the research design, including the population, sample, power analysis, and the two instruments used in this study. A description of the data collection methods and plans for analysis, including the ethical considerations, are also described. Finally, a summary of my research methods concludes the chapter.

The purpose of this quantitative causal-comparative study was to explore the influence of curricular design on professional formation, including ethical/moral reasoning and civic-mindedness in physical therapy students from two south-central U.S. university-based institutions that utilize different curricular approaches. One program primarily uses a traditional lecture-based approach with the professionalism curricula occurring primarily in the first year of the program but revisited during a later semester. The other program utilizes a problem-based learning approach with a long-term approach to the professionalism curricula, integrated throughout the curricular threads throughout all semesters.

#### **Research Questions**

RQ1: What are the similarities and differences of ethical/moral reasoning and service-mindedness in physical therapy students trained with two different curricular approaches?

RQ2: How does a particular curricular design affect ethical/moral reasoning and service-mindedness aspects of professional formation in physical therapy students?

#### **Hypothesis**

Null Hypothesis: There is no difference between physical therapy students' average scores in the two different physical therapy programs on the Defining Issues Test 2 (DIT-2) and the Civic-Minded Professional (CMP) scale.

Research Hypothesis: Physical therapy students in a curriculum with a long-term approach to professional formation have higher average scores on the Defining Issues Test 2 (DIT-2) and the Civic-Minded Professional (CMP) scale than students who do not have a curriculum with a long-term approach to professional formation.

### **Research Design and Method**

This study was a causal-comparative study that utilized a pre- and postsurvey research design. Terrell (2015) discussed the four major types of quantitative research designs, and causal-comparative was most appropriate based on the preexisting student groups completing the curriculum. Salkind (2010) stated that "a causal-comparative design is a research design that seeks to find relationships between independent and dependent variables after an action or event has already occurred" (p.124). The National Academy of Sciences (NAS) performed a thorough literature review of comparative analysis in the curriculum, which served as a guide in choosing this design because of the significant number of curriculums they evaluated (NAS, 2004). When comparing different curriculums, the contributor's found that a comparative evaluative approach was the best method for the inherent complexities involved (NAS, 2004). Leavy (2017) described the two main survey methods are cross-sectional and longitudinal. The benefit of a longitudinal study compared to a cross-sectional is the measure of change over time (Leavy, 2017). In this study, participants in one cohort at the beginning of the professional program and participants in another cohort at the end of the professional program completed the same survey. The strength of this approach was not as high if a pure multiple time-series experimental

approach was performed with the same cohort throughout the program. However, a causal-comparative approach was the best choice due to the time constraints and, ultimately, this study's design. In the causal-comparative design, I was able to quantitatively examine the curriculum's degree of impact on components of professional formation both within and across the comparative programs (Nishishiba et al., 2013). However, the curriculum was the *intervention* in this study. As a result, I used surveys assessing moral reasoning and civic-mindedness and comparatively analyzed these elements within and between programs.

Specifically, I surveyed the views of physical therapy students from two different south-central U.S. university-based institutions that utilize a different curricular approach using a pre- and postsurvey method during the same timeframe: at the beginning and end of the professional program. Due to the relatively similar prerequisites, the student profiles entering the professional programs are similar. However, the experiences that the participants have during the program shape them into the professionals they have become.

### **Population**

The need for physical therapists to act professionally is needed to provide effective care. The population related to this study were all physical therapy students who were actively pursuing their doctorate degree in physical therapy or had recently graduated. All physical therapy students in this study were from two south-central U.S. university-based institutions. The two institutions utilize a distinctly different curricular approach. The Carnegie classification for one institution's graduate program was "STEM-focused research doctorate" and the classification for the other institution's graduate program was "professionally-focused research doctorate." Inherently, each institution's culture partly influences the implicit curriculum (Anyon, 1980; Conran et al., 2018; Sullivan, 2005). I chose these two institutional programs and



curricular models for the following reasons: (a) the differences in curricular approach, (b) the distinctness in the explicit professional formation nesting in the curriculum, (c) a similar student body demographic, (d) the overlapping use of institutions for clinical education, and (e) the relational connection of the faculty at both programs. Other curricular models in physical therapy education were available for comparison, but the two I chose provided a contrast in the curriculum's explicit focus on professional formation.

Interactions among the faculty members, faculty and students, and student life are all examples of the implicit curriculum. Studies have shown that the implicit curriculum is inherently influential in every program and difficult to account for (Anyon, 1980; Conran et al., 2018). Regardless, the population was appropriate to address the study's problem and purpose because of my assessment they had two distinct curricular approaches.

A deeper look at the culture promoted in each program was accomplished by examining the guiding principles of the program, which were part of the accreditation process in 2019 for each program. I chose to review each program's mission and goals submitted to accreditation because of the intentional process to justify what guides the curriculum. Two faculty members from each program were consulted and asked to describe their program's culture, specifically in student life, faculty collaboration, faculty-student interactions, and professional expectations for students in the program. The reason for the consultation was to validate what occurred in practice.

### ***Public Institution - Traditional Curricular Model***

The public institution involved in this study has a longstanding successful model of physical therapy education, utilizing a primarily traditional approach. The program is housed in a department of physical therapy within a school of health professions. The curriculum consists of

approximately 100 credit hours over nine semesters, including 34 weeks of professional practice education. The program has approximately 40–44 students enrolled in each annual cohort.

### ***Private Institution - Problem Based Learning (PBL) Curricular Model***

The private institution implemented a problem-based curriculum model that had been in existence for about a decade. The school of physical therapy is part of a faith-based teaching university with other health-profession schools. The curriculum consists of approximately 120 credit hours over eight semesters, including 44 weeks of professional practice education. The program has approximately 50–54 students enrolled in each annual cohort.

### **Study Sample**

All participants obtained their undergraduate degree before entering their respective physical therapy doctoral program. Physical therapy students or recent graduates (within two months) from two professional programs with different curricular approaches were invited to participate. One physical therapy program solely utilizes a problem-based learning curricular approach with an integrated long-term approach to professional formation. The other physical therapy program primarily uses a traditional lecture-based curricular approach with the explicit professionalism curricula occurring mostly in the program's first year. Specifically, I assessed students or recent graduates from two different cohorts at each physical therapy program, supporting other comparative designs (NAS, 2004; Palombaro et al., 2018). The incoming cohort students completed the assessment surveys at orientation or within the first two months of starting each professional program. During the same calendar year, the graduating cohort at each university's physical therapy program was assessed within the last month of the professional program or within two months of graduation, but before taking the national board exam. In an attempt to maximize student participation, collaboration with teaching faculty occurred to recruit

participants. Due to the close relationship teaching faculty had at each program, it was anticipated that the sample number in this study would have been approximately 75% of the class. This percentage would have equated to approximately 36 students in one program and 30 in the other. However, actual participation was approximately 50%.

Recruitment of students occurred primarily through electronic communication as I explained the tool, estimated time to complete, and shared the consent and completion instructions. The teaching faculty reinforced the opportunity to participate, and clarified participation was optional and not correlated with a class or a grade. Students from each of the four cohorts had the opportunity to enter a drawing for a \$50 Amazon gift card to encourage student participation in the study. Communication with potential participants occurred every 10 to 14 days to encourage participation.

### ***Power Analysis***

I used G\*Power 3.1 to conduct an a priori power analysis for the difference between two independent groups. A large effect would be needed for the sample size in this study to have sufficient power ( $1 - \beta$  err prob) at a .80 level with the  $p$  value of .05 for a two-tailed  $t$  test. An average sample size was predicted to be around 33 participants from each cohort at the high end. For this sample size or smaller, the Cohen's  $d$  effect size would have to be at least .71. According to Salkind (2017), anything larger than .5 is a large effect. If the results do not show significance between the groups and the effect size is not large, then a difference may exist between the groups that is not statistically evident, or that a type II error exists (Salkind, 2017). Ultimately, a larger sample size would have been more appropriate so that the effect size could have been smaller, but due to the time constraints of the dissertation process, a multiyear study was not feasible.

## **Instruments**

Assessing professional formation has been difficult due to the broad complexities of what it takes to become a professional (R. L. Cruess et al., 2016). Many of the studies performed on professional formation use qualitative methods. However, during my examination of the literature, two quantitative instruments stood out that assess some attributes of professional formation previously used with healthcare professionals and students pursuing higher education (Palombaro et al., 2018; Swisher et al., 2012). The DIT-2 examined moral reasoning. The CMP scale assessed the service/civic construct of professional formation in physical therapy students. The two validated instruments were used to gather students' views of some professional formation constructs in which curriculum attempts to impact. I used both the DIT-2 and CMP to capture a broader view of professional formation than if I had just used one instrument. Furthermore, I chose these two validated tools because professionalism education includes moral/ethical judgment and civic-mindedness.

### ***Defining Issues Test (DIT-2)***

The DIT was initially developed in the early 1970s by Rest et al. (1974) and based on Kohlberg's six developmental stages of moral judgment (Kohlberg & Hersh, 1977; Thoma & Dong, 2014). The goal of the DIT related to this study was to examine how students understood and interpreted moral issues. As students progress through the physical therapy curriculum and perform professional formation activities, their moral and ethical reasoning should develop. As a result, the DIT-2 appeared to be an appropriate measure to test within and between distinct physical therapy programs. It started as a paper and pencil measure (see Appendix A) and now has the option of completing it as a computer-based survey instrument. The DIT-2, in its entirety, consists of five dilemmas designed to activate one of the three developmentally ordered schemas

(Center for the Study of Ethical Development, n.d.; Thoma & Dong, 2014). The five dilemmas are:

(a) a father contemplates stealing food for his starving family from the warehouse of a rich man hoarding food; (b) a newspaper reporter must decide whether to report a damaging story about a political candidate; (c) a school board chair must decide whether to hold a contentious and dangerous open meeting; (d) a doctor must decide whether to give an overdose of pain-killer to a suffering, but frail patient; (e) college students demonstrate against U.S. foreign policy. (Center for the Study of Ethical Development, n.d.)

Following each dilemma, the participant chooses which action they would take. The choices are two opposing actions and a “cannot decide.” The participant has to rank and rate 12 short statements based on their view of moral importance (Center for the Study of Ethical Development, n.d.; Thoma & Dong, 2014). The DIT-2 data is scored by the Center for the Study of Ethical Development after purchasing each completed survey. The DIT-2 data is scored based on the rankings and ratings. The DIT-2 data do not categorize the Kohlberg stages but rather analyze the participant’s preferred schema that is activated when ranking and rating the responses to each dilemma. Specifically, the schemas are personal interests, maintaining norms, and post-conventional (Thoma & Dong, 2014).

The personal interest schema is based on aspects of Kolberg’s stages 2 and 3. This schema’s main concepts are the wins and losses a person may individually experience within a particular moral dilemma (Thoma & Dong, 2014). The maintaining norms schema is based on aspects of Kolberg’s stage 4. This schema’s main concept is societal norms or how society would typically handle the moral dilemma (Thoma & Dong, 2014). The post-conventional schema

compares to Kolberg's stages 5 and 6. This schema has a moral approach of shared beliefs, due process, and protection of basic rights (Thoma & Dong, 2014).

**DIT-2 Scoring.** The Center for the Study of Ethical Development provided the DIT-2 instrument. The instrument can be given in a pencil and paper format or electronically. For this study, the Center provided it in a Qualtrics format. Upon completing data collection, the Center for the Study of Ethical Development received the data file, and the surveys were purchased. Within a week, the Center scored the data and returned the scored data in an SPSS format. The scaled scores revealed how the participants ranked and rated the questions following the five dilemmas. The four developmental indices scores are the personal interest schema, maintaining norms schema, post-conventional schema (P-score), and the N2 (Center for the Study of Ethical Development, n.d.). The personal interest schema score is the proportion of items the participant views through their personal lens instead of societal or shared beliefs within the moral dilemma. The maintaining norms schema score describes the proportion of items the participant views that show a desire to maintain societal norms within the moral dilemma. The post-conventional schema score (P-score) is the proportion of items the participant would view as consensus-building and shared beliefs. The N2 score was developed from DIT researchers in the last 15–20 years and represents the primary index from the DIT-2 (Thoma & Dong, 2014). The N2 score is similar to the P-score as it uses the P-score. However, the N2 score is scaled based on the person's ability to discriminate between personal interest items and post-conventional items. A higher N2 score indicates the participant can perform higher-order moral reasoning. Also noted, the DIT-2 test scoring does have a process to assess if the participant is providing reliable responses and will indicate when a participant's dataset should be purged. In this study, no responses were purged from the dataset.

Dong (2009) published the widely collected DIT-2 norms found in the literature. The four DIT-2 moral reasoning indices' norms provided a comparison of this study's participant scores (Dong, 2009). Table 1 provides the normative means and standard deviations by educational level for the schema and N2 scores.

**Table 1**

*DIT-2 Means and Standard Deviation Schema Scores by Educational Level*

Educational level	Schema Scores											
	Personal interest (Stage 2/3)			Maintain norms (Stage 4)			Post-conventional (P-Score)			N2 scores		
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>
Grades 10-12	27.70	12.60	2285	35.30	13.41	2285	31.64	14.33	2285	30.97	14.83	2284
Vocational/technical/Jr. college	26.32	11.90	986	39.97	13.08	986	27.99	13.72	986	27.20	14.37	986
Undergrad.	25.04	12.36	32989	35.06	13.89	32989	35.09	15.21	32989	34.76	15.45	32974
Graduate	20.61	11.46	15496	34.07	14.36	15496	41.06	15.22	15496	41.33	14.57	15494

*Note.* Adapted from “Norms for DIT2: From 2005-2009,” by Y. Dong, (2009),

<https://ethicaldevelopment.ua.edu/>. Reprinted with permission.

***Civic-Minded Professional (CMP) Scale***

The CMP scale (see Appendix B) was developed by Julie Hatcher in 2008 as part of her doctoral program. The scale can be used to assess professionals who focus on others and work for the common good by examining three related domains: identity, the profession, and civic attitudes, actions, and the public purpose (Hatcher, 2008). “A civic-minded professional is one who is (a) skillfully trained through formal education, with (b) the ethical disposition as a social trustee of knowledge, and (c) the capacity to work with others in a democratic way, (d) to achieve public goods” (Center for Service & Learning , n.d., para. 3). Stated another way, the

scale is used to assess how professionals' experiences are associated with differences in civic-mindedness (Hahn, 2016).

Hatcher performed reliability and validity tests on the tool (Hatcher, 2008). The Cronbach's alpha for reliability across items of the scale was calculated for the instrument's five subsets with the highest coefficient resulting in .93 and the lowest at .74 (Hatcher, 2008). The instrument's validity was assessed and verified in multiple ways, including four hypotheses tested to ensure validity. Construct validity was tested with empirical tests and correlating scores to three other validated tools. The correlations were significant at  $p < .01$  for all five factors of the CMP (Hatcher, 2008). The literature has revealed the CMP scale to be valid (Barry et al., 2017; Palombaro et al., 2017, 2018).

The CMP scale consists of 23 items rated in a seven-point response format (1 = *strongly disagree*; 7 = *strongly agree*). The items are grouped to form the following five factors or subscales: (a) voluntary action, (b) identity and calling, (c) citizenship, (d) social trustee, (e) consensus-building (Hatcher, 2008; Richard et al., 2017). Voluntary action relates to a professional's volunteer activity. Identity and calling provide a measure of a professional's satisfaction and work identity. Citizenship measures a professional's participation in civic activities. Social trustee relates to the value a professional places on education and professional expertise. Consensus-building provides a measure of how successfully the professional works with individuals from diverse backgrounds.

Hatcher (2008) determined the factorial groupings in her original CMP development. Voluntary action consists of the following items:

1. CMP item 13: Others would likely describe me as a person who is well informed about a variety of volunteer opportunities in the community.



2. CMP item 11: I feel very comfortable recruiting others to become more involved in the community.
3. CMP item 20: I am very familiar with a wide variety of nonprofit organizations.
4. CMP item 23: I am aware of many opportunities to use my skills and abilities in community, voluntary, or pro bono service.
5. CMP item 16: I am well connected to a number of people who are active in their communities.
6. CMP item 7: I feel confident in my ability to bring people together to address a community need (Hatcher, 2008, p. 75)

Other factors such as citizenship consist of only four items.

**CMP Scoring.** The 23-item scale has a total score range of 23 to 161. Once the participants completed the scale, the number associated with their answer to each item (1 = *strongly disagree* up to 7 = *strongly agree*) was exported numerically in a Qualtrics export to SPSS. Each item was scored, and a separate variable score was calculated in SPSS for each of the five factors. For example, the factor “voluntary action” consisting of six questions could have a minimum score of 6 and a maximum of 42.

Physical therapy students have shown to have an increase in CMP scores as they progress through the curriculum (Palombaro et al., 2017, 2018). Palombaro et al. (2018) used the CMP and examined three cohorts of physical therapy students’ professional growth as they progressed through the curriculum. The researchers found an increase in all subscales in each cohort at a single institution (Palombaro et al., 2018). Their study provided evidence of the use of the CMP scale in a similar methodological design.

## **Quantitative Data Collection and Analysis Procedures**

### ***Operational Definitions of Variables***

Again, the purpose of this quantitative causal-comparative study was to explore the influence of curricular design on professional formation, including ethical/moral reasoning and civic-mindedness in physical therapy students from two south-central U.S. university-based institutions that utilize different curricular approaches. This section describes the variables associated with this study.

**Independent Variables.** Ultimately, the curriculum was the independent variable and included all aspects of the professional physical therapy program, including the clinical experience in which the student received credit. In this study, the only way I could reasonably assess the curriculum was to examine the attributes of the graduating cohort. The operational independent variables were the participant's gender, age, race/ethnicity, and political views.

**Dependent Variable.** The dependent variable is professional formation, specifically ethical/moral reasoning and civic-mindedness as measured by both instruments' scores. The DIT-2 is the instrument in the study that provided the main N2 score and represents the participant's ability to perform higher-order moral reasoning. The CMP was the other instrument in the study that collectively provided the total CMP score and represents the participant's ability to be civic-minded and engaged.

### ***Data Collection***

The Center for the Study of Ethical Development at the University of Alabama sent me the DIT-2 instrument in a Qualtrics file, which was individually formatted for the study. The Center for Service & Learning at Indiana University–Purdue University Indianapolis (IUPUI) sent me the CMP scale and other resources found through electronic literature searches. I built

the CMP within the DIT-2 Qualtrics survey as the second part of the survey instrument. The questions to gather the demographic and operational independent variables were between the first and second part of the survey instrument.

Students invited to participate were only those graduating and incoming for the year 2020 at each program. Recruitment of participants occurred through an invitation to participate delivered through an email by the teaching faculty. I drafted the invitation based on what the IRB approved. The teaching faculty personalized the message and sent it to eligible participants. All invited cohorts received the clear communication that participation was voluntary, all responses were not identifiable, and there was no connection to coursework or grades. The cohorts also received communication that the survey would take about 30 minutes to complete. At the time of the initial invitation, all participants were students. The graduating cohorts received the opportunity to complete the survey instruments two to three weeks before graduation, but the survey was also available after graduation with multiple invitations to participate. The survey was closed two months after graduation at each institution, but this was before the graduate completed the national board exam and began professional employment. The incoming cohorts received the opportunity to complete the survey instruments before orientation or within two months of the program's start. All participants had the opportunity to complete the survey instruments independently and did not have to complete them in one sitting.

Once the surveys were closed, both DIT-2 and CMP were exported through Qualtrics in a numeric format. The CMP data was separated from the DIT-2 data. The exported DIT-2 data was then sent to the Center for the Study of Ethical Development for scoring. Upon receipt, they invoiced for the number of completed surveys sent. Within a week, the center returned the scored and raw data in an SPSS format. The CMP scale data were reviewed in the SPSS format to

ensure the seven-point Likert scale was converted correctly into a numerical format. The two data sets were then merged into one SPSS file, and the variables were labeled for the analysis. Statistical analysis was performed using SPSS.

### ***Validity***

The plan for data analysis was to use parametric tests. However, validity, reliability, and some degree of normality of the instruments were needed. Researchers have determined that both instruments used in this study have valid and reliable metrics from their developers, and consistency was shown in the prior studies, as already described in Chapter 2.

Internal validity was achieved by following a few appropriate steps. First, I used instruments shown to be valid and reliable. Secondly, the participants in each cohort completed the instruments in a reasonable timeframe. Ten weeks were given to the graduating cohorts to complete the instruments but still before graduates started working in their professional careers. The incoming cohort data collection occurred over six weeks and before the participants substantially completed much of their coursework. Thirdly, all participants completed the instrument anonymously and without any way to identify who did or did not participate. Participants could start the survey and then choose not to complete it without any consequences. The logical assumption would be that participants could be very honest in their answers since there were no identifiable markers. Lastly, I was competent in conducting data collection and analysis, as previously performed. I consulted with a mentor who was an expert in statistics to confirm that the statistical analysis was correct and appropriate for the study.

### ***Analysis Plan***

The data analysis required multiple steps to complete. First, I performed an analysis of participant demographics of the study's participants. Second, the internal reliability was

calculated for the two instrument scales. Third, I performed testing for normality to ensure that appropriate normality exists. Last, I completed testing of group differences. All data were analyzed using SPSS.

The causal-comparative design allowed for the examination of dependent and independent variables for relationships that may exist. With this design, the three most common statistical tests are chi-square, independent paired-sample *t* tests, and ANOVA/ANCOVA (Salkind, 2010).

**Descriptive Statistics.** The definition of descriptive statistics is a description of the dataset's characteristics (Salkind, 2017). The calculations for population and sample descriptions provided the context for the completion percentage. The descriptive statistics were then calculated for each cohort's participants at the two institutions for the independent variables. Specifically, the calculations involved these independent variables: gender, categorical age, ethnicity/race, and political views.

**Reliability.** A Cronbach's alpha was calculated for the DIT-2 and CMP instruments. Muijs (2010) described the internal consistency reliability as the degree of correlation among the variables that comprise a scale, such as the CMP. Furthermore, a high Cronbach's alpha indicates a high level of internal consistency. Cronbach alpha scores at .70 or above are sufficient for research (Muijs, 2010).

**Normality.** The relative normality of the datasets was needed to ensure the planned parametric tests were appropriate. A visual representation of the normal distribution was revealed through a histogram and a normality curve. Ghasemi and Zahediasl (2012) described that a visual representation could be beneficial, but the Shapiro-Wilk normality test found in SPSS is suitable for smaller sample sizes less than 50. I performed the normal distribution tests

for each main outcome variable—N2 and total CMP score—for both the graduating and incoming cohorts.

**Testing Group Differences.** This study's statistical tests were independent *t* tests and two-way analysis of variance (ANOVA). The graduating cohorts at each institution represented the traditional and PBL curriculums. The results from the DIT-2 and the CMP scale were analyzed with the parametric tests of the *t* test to compare the means and explore significance between the two curricular groups. An ANOVA explored any differences between the main effects and interaction effects of different variables within the two institutional cohorts. The effect size was also explored for any findings that were found significant.

The data from the incoming cohorts at each institution were compared using the same statistical tests to explore significance between the two curricular groups. However, the incoming cohorts did not represent the curriculum, but rather the analysis determined a baseline for the intra-institutional cohort comparison.

Lastly, the data from each institution's graduating and incoming cohorts were compared using the independent *t* tests and ANOVA. This comparison followed the causal-comparative research design and helped to answer the second research question. The ANOVA explored any differences between the main effects and interaction effects of different variables within the institutional cohorts. The effect size was also explored for any findings that were found significant.

### **Ethical Considerations**

Participants completed the surveys anonymously and no identifying information was available to me or the teaching faculty. Only one administrative assistant had access to the gift card drawings, which was a separate sign-up. The administrative assistant randomly selected the

drawings' winners, and their identity was not disclosed to anyone else. A primary reason to keep the participant identity confidential was to ensure faculty could not show bias for or against students or graduates because they did or did not participate in the study. All participants had the opportunity to review an online consent form, which the IRB approved. The consent form clarified that participation was voluntary. Additionally, the study's purpose was explained with a description of how the student's participation could help faculty in future curricular decisions, hence, providing a potential benefit to future students. The level of risk was minimal. All data were extracted from Qualtrics. I stored the data on my university-issued password-protected Google cloud server and Qualtrics account. Participants were not asked for any identifying information since they did not complete the same instruments again.

### **Assumptions**

The majority of students in each cohort were originally assumed to choose to participate due to the close relationship the graduating cohort had with teaching faculty and a sense of belonging the incoming cohort had with each program. However, to achieve the approximately 50% completion rate, multiple reminders and encouragement had to be sent. The teaching faculty encouraged participant engagement. The assumption was that each participant would answer the survey instruments with honesty and provide an accurate representation of how they perform in each area. Participants received communication to respond as accurately as possible.

### **Limitations**

A few limitations of this study exist. Over eight curricular models exist in physical therapy education, and this study examined only two curricular approaches (CAPTE, 2017). Additionally, even within the same curricular approach, the makeup of faculty, specific course

design, and the implicit curriculum may be a factor in students' professional formation (Gabard et al., 2013).

A multiple-time series experiment was used in this study. Specifically, participants from one cohort at the beginning of the curriculum and another cohort at the end completed the survey. A more optimal research design would have been to assess the same cohort's growth in moral reasoning and service-mindedness at the beginning and end of the program. However, the study's time constraints did not allow for a pre- and postsurvey with the same cohort resulting in the causal-comparative design.

Another limitation inherent in the study's design was the participant's self-assessment survey. In the discussion of quantitative design survey research, Muijs (2010) described that self-reports are not always accurate compared to reality. For example, students self-reporting their engagement in service activities may not match their actual participation.

The generalizability of the findings has limitations. While I examined professional formation in two established curricular approaches, the implicit curriculum is inherently influential in every program and difficult to account for (Anyon, 1980; Conran et al., 2018). I examined only two of the 250 fully CAPTE-accredited physical therapy programs with average class sizes in the United States, limiting the application of the findings (CAPTE, 2011). Inherently, limitations exist, but accounting for and describing the implications allowed for applicable generalizability to physical therapy education.

### **Delimitations**

The health profession literature does not clearly define professionalism but the literature explored in chapter 2 described common characteristics. Moral reasoning and civic-mindedness



are the two common attributes of professionalism that this study examined. Other attributes of professionalism were not explored as a part of this study.

### **Summary**

This chapter provided details on how I conducted the study to explore the influence of curricular design on professional formation, including ethical/moral reasoning and civic-mindedness in physical therapy students from two south-central U.S. university-based institutions that utilize different curricular approaches. The population, sample, and power analysis description was performed to determine the effect size needed. A comprehensive description of the instruments used in this study was detailed, including the validity described in prior studies. The holistic means and standard deviations for the DIT-2 scale based on educational level provided comparisons. I described the variables' operational definitions to provide clarity. The data collection process detailed the steps to ensure validity. The data analysis plan was detailed, including the descriptive statistics and the specific statistical tests performed for each group comparison. In addition, I described the study's ethical considerations, assumptions, limitations, delimitations. The next chapter reports the results of the analysis.

## **Chapter 4: Results**

This chapter describes the study results, specifically the relationships of the DIT-2 and the CMP scale with the various attributes of the physical therapy students who completed the surveys. Before examining the results, I review the purpose of the study and its research questions. Then the descriptive statistics, effect size, parametric statistical analysis, validity analysis are described. Finally, a summary concludes the chapter and summarizes the significant findings.

The purpose of this quantitative causal-comparative study was to explore the influence of curricular design on professional formation, including ethical/moral reasoning and civic-mindedness in physical therapy students from two south-central U.S. university-based institutions that utilize different curricular approaches. One program uses a traditional lecture-based approach with the professionalism curricula occurring primarily in the first year of the program but revisited during a later semester. The other program utilizes a problem-based learning approach with a long-term approach to the professionalism curricula, integrated throughout the curricular threads throughout all semesters.

### **Research Questions**

RQ1: What are the similarities and differences of ethical/moral reasoning and service-mindedness in physical therapy students trained with two different curricular approaches?

RQ2: How does a particular curricular design affect ethical/moral reasoning and service-mindedness aspects of professional formation in physical therapy students?

### **Survey Instruments**

I utilized two instruments in this study to assess some attributes of professionalism. The DIT-2 assessed moral reasoning, while the CMP scale assessed the service/civic construct of

professional formation in physical therapy students. The two validated instruments provided students' views of professional formation constructs, which the curriculum attempts to impact.

### ***DIT-2***

The Center for the Study of Ethical Development returned the scored data in an SPSS format. The N2 score is similar to the P-score as it uses the P-score. However, the score is scaled based on the person's ability to discriminate between personal interest items and post-conventional items. The higher the N2 score indicates the participant performs higher-order moral reasoning.

### ***Civic-Minded Professional Scale***

The CMP scale consists of 23 items rated in a seven-point response format (1 = *strongly disagree*; 7 = *strongly agree*). When grouped, the items form the following five factors: (a) voluntary action, (b) identity and calling, (c) citizenship, (d) social trustee, (e) consensus-building.

The 23-item scale has a total score range of 23 to 161. Once the participant completed the scale, the number associated with their answer to each item (1 = *strongly disagree* up to 7 = *strongly agree*) was converted in the Qualtrics export to SPSS. I scored each of the items and used SPSS to calculate a separate variable score for each of the five factors.

### **Curricular Model Review**

To best understand the context of results, I have provided a review of the study's two institutional differences.

#### ***Public Institution - Traditional Curricular Model***

The public institution has had a longstanding successful model of physical therapy education, utilizing a primarily traditional approach. The program is housed in a department of

physical therapy within a school of health professions. The program includes approximately 100 credit hours over nine semesters, including 34 weeks of professional practice education. The program has approximately 40–44 students enrolled in each annual cohort. The explicit professionalism curriculum occurs primarily in the first year of the program but is revisited during a later semester.

### ***Private Institution - Problem-Based Learning (PBL) Curricular Model***

The private institution implemented a problem-based learning curriculum model that has been in existence for about a decade. The school of physical therapy is part of a faith-based teaching university with other health profession schools. The program includes approximately 120 credit hours over eight semesters, including 44 weeks of professional practice education. The program has approximately 50–54 students enrolled in each annual cohort. The professionalism curriculum has a long-term approach with various explicit learning activities from the first semester to the last.

## **Descriptive Statistics**

### ***Student Participants***

From the two institutions involved in this study, all Doctor of Physical Therapy (DPT) students were invited to complete both the DIT-2 and the CMP arranged as one electronic survey format through Qualtrics. Nearly half of the students from each institutional cohort completed the survey instruments. Cohort participation data is provided in Table 2. The participants provided their programmatic and demographic information after the DIT-2 instrument but preceding the CMP scale. As a result, I could not collect demographic information from those who started the survey instruments but did not finish. Participants had the choice to provide sex/gender data as male/female/other option. Age was captured as categorical data for simplicity.

Participants were asked about their race/gender categories with an “other” category for participants to input information not listed as a choice. Participants answered questions about how they would identify themselves politically as this is a question from the developers of the DIT-2. All students who came into the professional degree program completed their undergraduate degrees, so the educational level was not a relevant variable. The analyzed results included only completed surveys. All of the participant information is listed in Table 3.

**Table 2**

*Institutional DPT Student Population and Sample Descriptions*

DPT program	Total cohort number	Completed survey number	Total number completed per cohort	Percent completed	Number of incomplete surveys
Traditional curriculum graduating cohort	39	20	46	51%	43*
PBL curriculum graduating cohort	53	26		49%	
Traditional curriculum incoming cohort	44	32	59	73%	32*
PBL curriculum incoming cohort	55	27		49%	
Total	191	105	105	55%	75*

*Note.* \* = Not able to determine if those counted as incomplete surveys later completed it on another device.

**Table 3***Participant Demographics*

Category	Subgroup	Total participant ( <i>N</i> = 105) number / %	Traditional curriculum graduating cohort ( <i>N</i> = 20) number / %	PBL curriculum graduating cohort ( <i>N</i> = 26) number / %	Traditional curriculum incoming cohort ( <i>N</i> = 32) number / %	PBL curriculum incoming cohort ( <i>N</i> = 27) number / %
Gender	Male	40 / 38%	8 / 40%	8 / 31%	12 / 38%	12 / 44%
	Female	65 / 62%	12 / 60%	18 / 69%	20 / 62%	15 / 56%
Age	21–25	64 / 61%	9 / 45%	7 / 27%	28 / 88%	20 / 74%
	26–30	33 / 31%	10 / 50%	17 / 65%	2 / 6%	4 / 15%
	31 or older	8 / 8%	1 / 5%	2 / 8%	2 / 6%	3 / 11%
Ethnic/ Race	Black/ African American	6 / 6%	1 / 5%	1 / 4%	3 / 9%	1 / 4%
	Caucasian (other than Hispanic)	38 / 36%	9 / 45%	9 / 35%	10 / 31%	10 / 37%
	Hispanic	46 / 44%	8 / 40%	12 / 46%	15 / 47%	11 / 41%
	Latino/Latina	2 / 2%	0	1 / 4%	0	1 / 4%
	Middle Eastern/Arab	2 / 2%	0	0	2 / 6%	0
	Asian/Pacific Islander	11 / 10%	2 / 10%	3 / 12%	2 / 6%	4 / 15%
Political views	Very liberal	9 / 9%	1 / 5%	3 / 12%	3 / 9%	2 / 7%
	Somewhat liberal	35 / 33%	6 / 30%	7 / 27%	13 / 41%	9 / 33%
	Neither lib. or conserv.	34 / 32%	5 / 25%	8 / 31%	10 / 31%	11 / 41%
	Somewhat conservative	20 / 19%	7 / 35%	4 / 15%	5 / 16%	4 / 15%
	Very conservative	7 / 7%	1 / 5%	4 / 15%	1 / 3%	1 / 4%

### ***Cronbach's Alpha for Scale Reliability***

For this study, I assessed internal reliability to ensure internal consistency using Cronbach's alpha in SPSS.

**DIT-2.** The literature contains many studies in which the DIT-2 was studied in depth. Rest and Thoma (1997) calculated Cronbach's alpha for the N2 and P-score of 932 participants who completed the DIT. They found the Cronbach's alpha for the N2 was .83, and .78 for the P-score. In this study, the Cronbach's alpha was completed for each of the five stories of the DIT-2 with the following findings: the famine story ( $\alpha = .73$ ), the reporter story ( $\alpha = .83$ ), the school board story ( $\alpha = .95$ ), the cancer story ( $\alpha = .76$ ), and the demonstration story ( $\alpha = .60$ ). The first four stories demonstrated an acceptable level of internal reliability: .73, .83, .95, .76, respectively. The demonstration story had a low level of internal reliability (.60).

**CMP.** Hatcher (2008) demonstrated the validity and reliability of the CMP. She found that, for the original 32-item scale, the Cronbach's alpha for the whole scale was .95. In her study, the CMP scale's five factors ranged from .74 (consensus-building) to .93 (voluntary action) (Hatcher, 2008). Richard et al. (2017) used the CMP to assess civic engagement and it had a Cronbach's alpha of .87 for the whole CMP scale.

For this study, I calculated Cronbach's reliability for the total CMP scale and for each of the five factors. The findings demonstrated a moderate or high level of reliability: the total CMP scale (23 items,  $\alpha = .74$ ); voluntary action (6 items,  $\alpha = .77$ ); identity and calling (5 items,  $\alpha = .81$ ); citizenship (4 items,  $\alpha = .80$ ); social trustee (4 items,  $\alpha = .84$ ); and consensus-building (4 items,  $\alpha = .71$ ). All of the reliability scores were above the threshold for appropriate research use and consistent with the previously mentioned studies. The results indicate that the scale was reliable for the results in this study.

### *Statistical Normality Assessment*

This quantitative causal-comparative study contained statistical tests to describe the relationship of the findings. The decision to use parametric versus nonparametric tests had to be established before choosing the best statistical tests to perform. Salkind (2010) described the need to have a normal distribution to utilize parametric tests. As a result, I performed normal distribution calculations for each main outcome variable for both the graduating and incoming cohorts.

**DIT-2.** The N2 score is the primary index to show that a person can perform higher-order moral reasoning. I examined the N2 scores for normal distribution for both the graduating cohorts and the incoming cohorts. The assessment of the graduating cohorts was analyzed to show any potential impact of the curriculum. The  $p$ -value score for the Shapiro-Wilk test for normality showed a relatively normal distribution for the traditional curriculum graduating cohort (.47) and the PBL curriculum graduating cohort (.12). Any  $p$  value above the .05 level indicates a normal distribution. Figure 1 represents a visual representation of the score distributions. The incoming cohorts demonstrated differences from the graduating cohort. The Shapiro-Wilk test for normality indicated a relative non-normal distribution for the traditional curriculum incoming cohort (.04) but a relatively normal distribution for the PBL curriculum graduating cohort (.91). The traditional curriculum incoming cohort demonstrated a somewhat normal upper-end distribution visual curve in Figure 2 but had a larger grouping in the lower numbers. Due to the  $t$  test and ANOVA's robustness, I chose to use these parametric tests in this study (Salkind, 2017).



Figure 1

*Histogram of N2 Score Distribution of Graduating Cohorts*

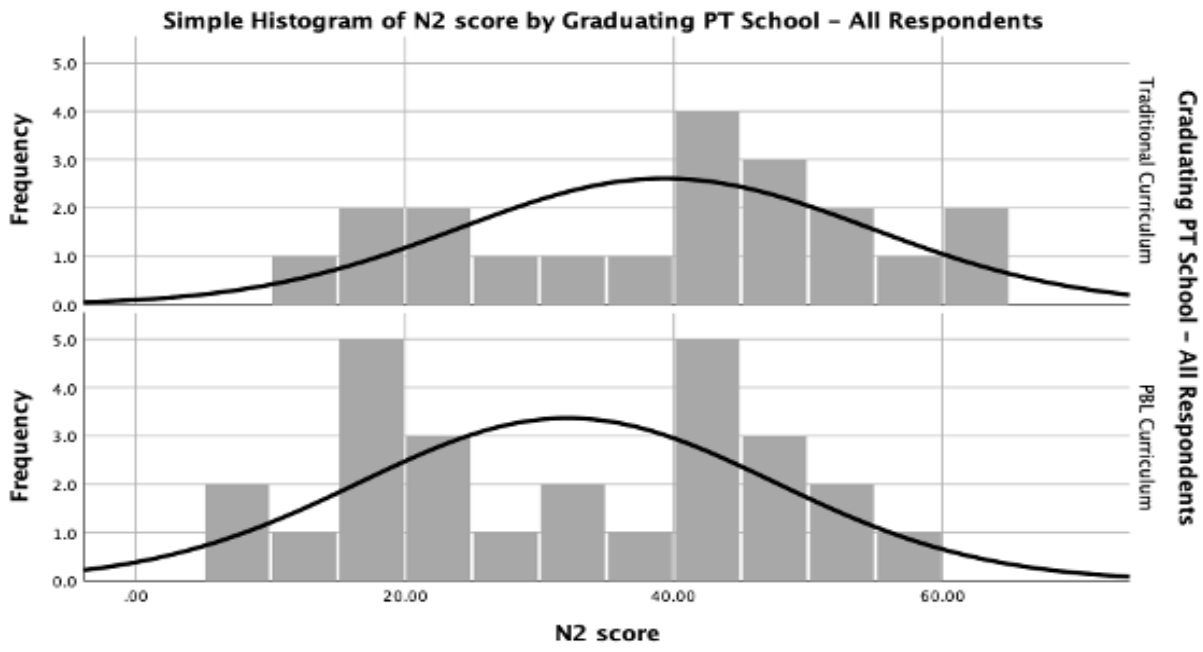
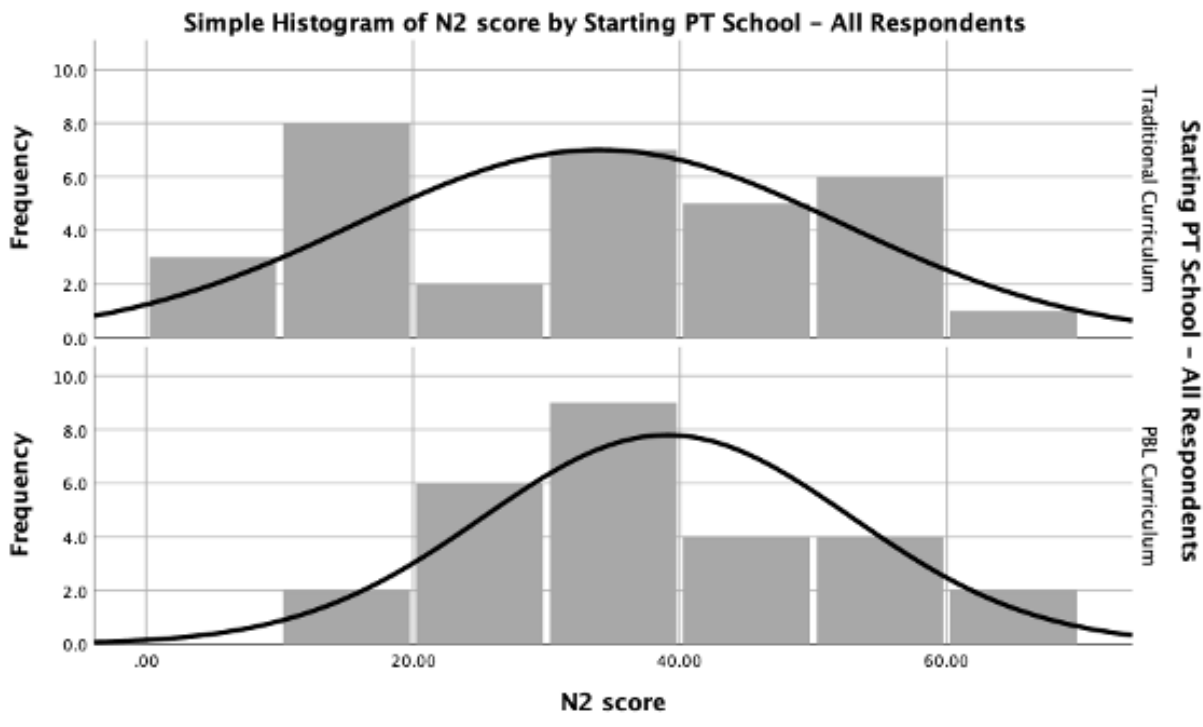


Figure 2

*Histogram of N2 Score Distribution of Incoming Cohorts*

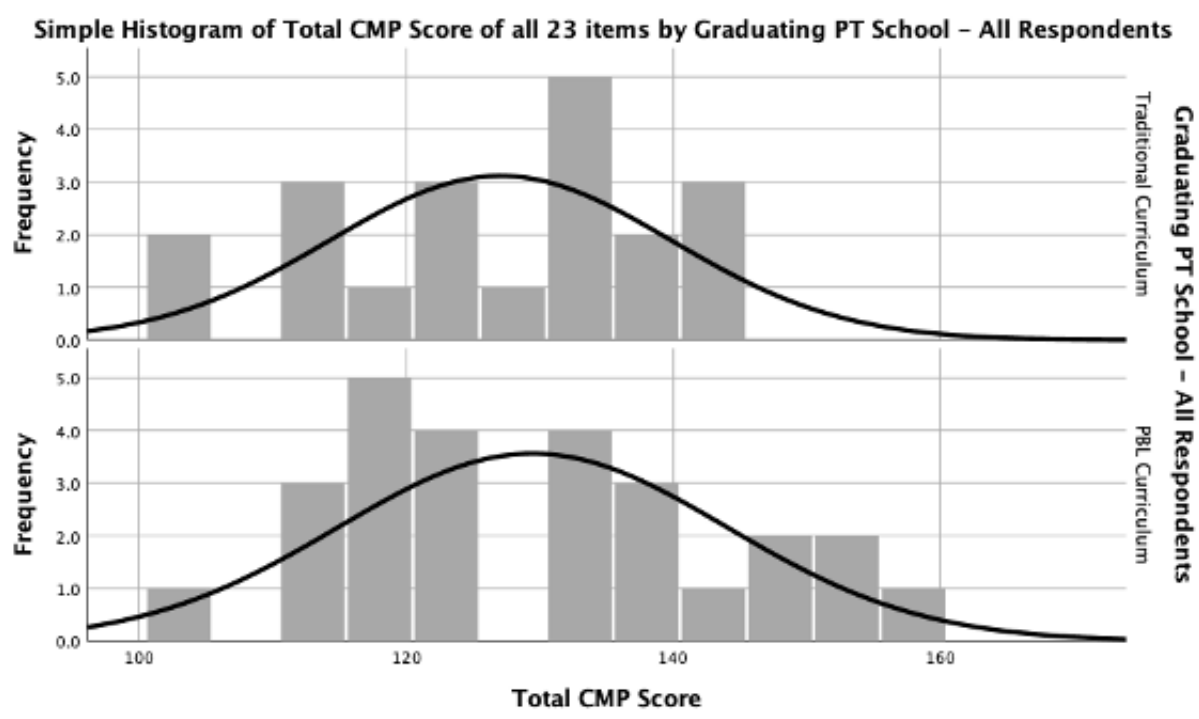


**CMP.** The total CMP score is the sum of all 23 items or the five factors of the scale. The higher the score, the more likely a person is to be civically engaged. The total CMP score was examined for normal distribution for both the graduating cohorts and the incoming cohorts. Like the DIT-2, the assessment of the graduating cohorts was the only comparison to show any potential impact of the curriculum. The *p*-value score for the Shapiro-Wilk test for normality showed a relatively normal distribution for the traditional curriculum graduating cohort (.20) and the PBL curriculum graduating cohort (.36). Figure 3 represents a visual representation of the score distributions.

Like the DIT-2, the incoming cohorts demonstrated differences from the graduating cohort for normal distribution for the CMP scale score. The Shapiro-Wilk test for normality indicated a relative non-normal distribution for the traditional curriculum incoming cohort (.02) but a relatively normal distribution for the PBL curriculum graduating cohort (.52). The traditional curriculum incoming cohort demonstrated a larger number grouping in the lower numbers on the visual curve in Figure 4. Again, due to the robustness of the *t* test and ANOVA, I chose to use these parametric tests in this study (Salkind, 2017).

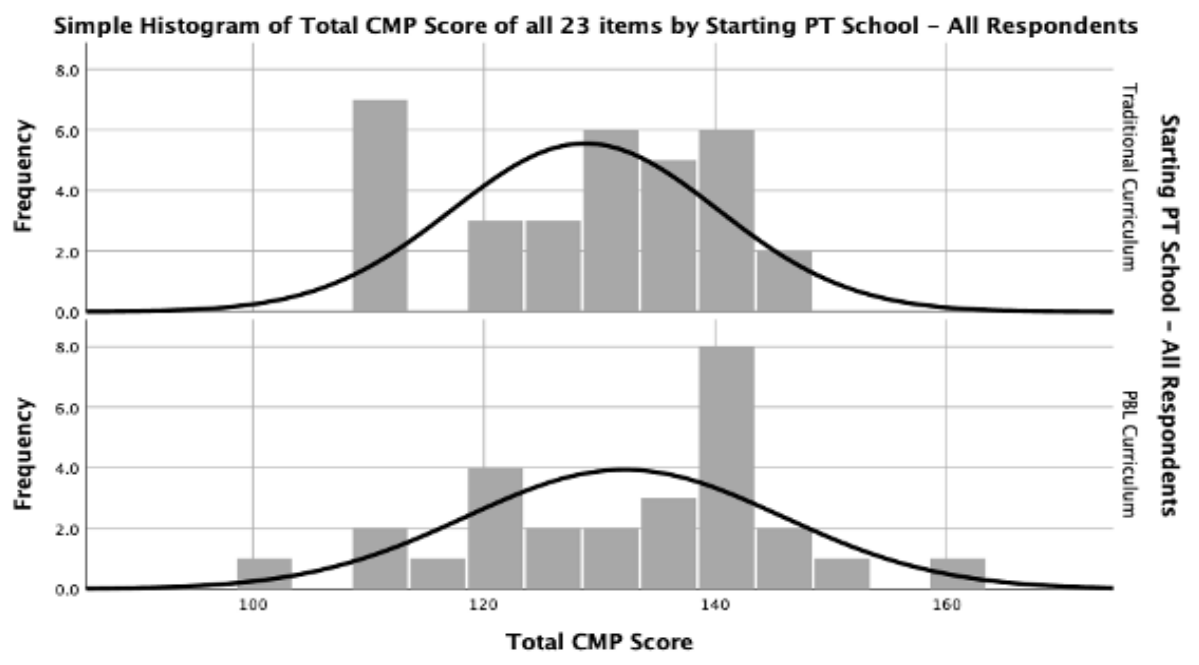
**Figure 3**

*Histogram of Total CMP Score Distribution of Graduating Cohorts*



**Figure 4**

*Histogram of Total CMP Score Distribution of Incoming Cohorts*



## Research Question One

### *Testing Group Differences - Graduating Cohorts*

The first research question was the following: What are the similarities and differences of ethical/moral reasoning and service-mindedness in physical therapy students trained with two different curricular approaches? To help answer this question, I performed a quantitative comparison of the cohorts. The graduating cohort's DIT-2 and CMP results were analyzed with the parametric tests of the *t* test to compare the means and explore significance between the two curricular groups. An ANOVA explored any differences between the main effects and interaction effects of different variables within the two institutional cohorts. I also calculated the effect size for the findings that were found significant.

***t* Tests.** I performed *t* tests for the graduating cohorts to explore differences in the means and explore any significance between them. Table 4 provides the group statistics of all four of the developmental indices of the DIT-2 with the main N2 score first and the total CMP scale score. All of the indices have differences in the means and a large standard deviation and standard error of the mean. The N2 score analysis found a larger mean for the traditional curricular cohort ( $M = 39.12$ ) than the PBL curriculum cohort ( $M = 32.08$ ); however, I did not find significance between the institutional cohorts. The higher N2 score indicates the ability to perform higher moral reasoning.

**Table 4***DIT-2 Score Comparison Between Graduating Cohorts*

Variable	Traditional curriculum ( <i>n</i> = 20)		PBL curriculum ( <i>n</i> = 26)		<i>t</i> (44)	<i>p</i>	Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
N2 score	39.32	15.28	32.08	15.40	1.59	.12	.47
P-score	42.30	15.79	34.31	14.91	1.76	.09	.52
Maintain norms (stage 4)	29.60	14.50	31.92	7.64	-.70	.49	-.20
Personal interest (stage 2/3)	23.30	12.14	28.38	11.17	-1.47	.15	-.44
Total CMP score	127.05	12.80	129.46	14.57	-.59	.55	-.18

**ANOVA.** The ANOVA revealed any main effects or interaction effects that existed between independent variables when assessing the DIT-2 and CMP scores in graduating cohorts. The variables of gender, race/ethnicity, and political views were analyzed with the graduating cohort as the other independent variable with the DIT-2 and CMP to explore group differences between the graduating cohorts and subgroups. Due to the small sample size, I assessed only two independent variables at once to keep the groups from becoming too small.

**Gender.** The graduating cohort's analysis was based on gender, and the results were that the DIT-2 N2 mean scores of the male participants ( $M = 26.49$ ) were significantly ( $p = .002$ ) lower than the scores for the female participants ( $M = 39.89$ ). The demonstrated main effect was that female participants had a higher level of moral reasoning. Similarly, I analyzed the CMP

scale scores for male participants and found that the total CMP mean score of the male participants ( $M = 122.69$ ) was significantly ( $p = .05$ ) lower than the total mean score for the female participants ( $M = 131.47$ ). The results demonstrated that a main effect was that female participants had a higher level of civic-mindedness or civic involvement. Significant differences ( $p = .05$ ) in the P-scores were found between the cohorts when accounting for gender. Table 5 provides the descriptive statistics of the comparison, and Table 6 provides the ANOVA statistical outputs.

**Table 5**

*ANOVA DIT-2 | CMP Score Comparison - Descriptive Statistics of Graduating Cohorts*

Curric.	Gender	n	N2 score		P-score		Maintain norms (stage 4)		Personal interest (stage 2/3)		Total CMP scale	
			M	SD	M	SD	M	SD	M	SD	M	SD
Trad.	Male	8	27.90	14.33	35.25	15.34	32.50	19.50	27.25	12.46	123.38	14.73
	Female	12	46.93	10.71	47.00	14.86	27.67	10.54	20.67	11.70	129.50	11.33
	Total	20	39.32	15.28	42.30	15.79	29.60	14.50	23.30	12.14	127.05	12.80
PBL	Male	8	25.08	14.69	26.00	15.75	32.00	7.86	36.25	10.39	122.00	13.58
	Female	18	35.19	15.06	38.00	13.34	31.89	7.78	24.89	9.85	132.78	14.08
	Total	26	32.08	15.40	34.31	14.91	31.92	7.64	28.38	11.17	129.46	14.57
Total	Male	16	26.49	14.09	30.63	15.76	32.25	14.36	31.75	12.02	122.69	13.70
	Female	30	39.89	14.51	41.60	14.43	30.20	9.06	23.20	10.64	131.47	12.95
	Total	46	35.23	15.61	37.78	15.65	30.91	11.07	26.17	11.75	128.41	13.73

**Table 6***ANOVA DIT-2 Test of Between Subjects - Graduating Cohorts*

DIT-2 variable	Subgroup	$F(1, 42)$	$p$	Partial eta-squared ( $\eta^2$ )
N2 score	Graduating cohort	2.84	.10	.063
	Gender	11.38	.002**	.213
	Graduating cohort by gender	1.07	.31	.025
P-score	Graduating cohort	4.08	.05	.088
	Gender	6.90	.01*	.141
	Graduating cohort by gender	.001	.98	.000
Maintain norms (Stage 4)	Graduating cohort	.28	.60	.007
	Gender	.49	.49	.012
	Graduating cohort by gender	.45	.51	.011
Personal interest (Stage 2/3)	Graduating cohort	3.78	.06	.083
	Gender	6.96	.01*	.142
	Graduating cohort by gender	.49	.49	.012
Total CMP scale	Graduating cohort	.05	.82	.001
	Gender	4.07	.05*	.088
	Graduating cohort by gender	.31	.58	.007

Note. \* $p < .05$ ; \*\* $p < .01$

**Race/Ethnicity.** I also analyzed the graduating cohort's data based on race/ethnicity for moral reasoning and civic-mindedness. Race/ethnicity did not demonstrate any main effect when examining with the dependent variable N2 score,  $F(4, 37) = .21, p = .93$ , or the total CMP score,  $F(4, 37) = 1.47, p = .14$ . The race/ethnicity had five subgroups leading to small subgroup sample sizes. I analyzed from a different approach by sorting each cohort by Hispanic and non-Hispanic.

The ANOVA did not reveal any main effect when examining with the dependent variable N2 score,  $F(4, 42) = .04, p = .85$ , or the total CMP score,  $F(4, 42) = 2.34, p = .13$ .

***Political Views.*** The graduating cohorts were analyzed based on political views for both moral reasoning and civic-mindedness. A participant's political view did not demonstrate any main effect when examining with the dependent variable N2 score,  $F(4, 36) = .19, p = .95$ , or the total CMP score,  $F(4, 37) = 1.04, p = .40$ . The ANOVA analysis examined for interaction effects without any significant findings.

## **Research Question Two**

### ***Testing Group Differences - Incoming Cohorts***

The second research question was the following: How does a particular curricular design affect ethical/moral reasoning and service-mindedness aspects of professional formation in physical therapy students? To help answer this, I performed a quantitative comparison of the incoming cohort with each institution's graduating cohort. Before this comparison, a comparative analysis of the incoming cohorts at each institution explored significant differences in the two incoming classes. The results from the incoming cohorts DIT-2 and CMP scores were analyzed with the parametric tests of the  $t$  test to compare the means and explore significance between the two curricular groups. An ANOVA explored any differences between the main effects and interaction effects of different variables within the two institutional cohorts.

***t Tests.*** I performed  $t$  tests for the incoming cohorts to explore differences in the means and explore any significance between them. Table 7 provides the group statistics of all four of the developmental indices of the DIT-2 with the main N2 score first and the total CMP scale score. Like the graduating cohorts, the incoming cohorts had differences in the means and a large standard deviation and standard error of the mean. Unlike the graduating cohorts, the N2 score



analysis found a larger mean for the PBL curricular cohort than the traditional curriculum cohort; however, I did not find significance between the institutional cohorts. Interestingly, the PBL curriculum incoming cohort had nearly the same N2 score ( $M = 39.05$ ) as the traditional curriculum graduating cohort ( $M = 39.32$ ).

**Table 7**

*DIT-2 Score Comparison Between Incoming Cohorts*

Variable	Traditional curriculum ( $n = 32$ )		PBL curriculum ( $n = 27$ )		$t(44)$	$p$	Cohen's $d$
	$M$	$SD$	$M$	$SD$			
N2 score	33.95	18.22	39.05	13.82	-1.19	.24	-.32
P-score	33.44	17.39	41.11	14.84	-1.80	.08	-.47
Maintain norms (Stage 4)	31.88	14.47	30.22	15.17	.438	.67	.11
Personal interest (Stage 2/3)	27.38	11.98	23.63	12.35	1.18	.24	.31
Total CMP score	128.75	11.50	132.15	13.69	-1.04	.31	-.27

**ANOVA.** A two-way ANOVA identified any main effects or interaction effects that existed between independent variables when assessing the DIT-2 and CMP scores in incoming cohorts. Since gender demonstrated a significant effect for the graduating cohort, gender and the two institutional incoming cohorts were the two independent variables tested with the ANOVA. I chose not to analyze the variables of race/ethnicity and political views as the incoming cohorts' comparison did not directly answer the research question.

**Gender.** The incoming cohort's data analysis based on gender did not reveal a main effect for the N2 score or the CMP. However, the statistical analysis results utilizing the ANOVA of the N2 score with incoming cohorts at each institution demonstrated some

significant ( $p = .03$ ) interaction effect of gender and institutional cohort. Significant differences in the P-scores were found between the cohorts ( $p = .04$ ), which revealed a main effect, and between the cohorts when accounting for gender ( $p = .05$ ), which revealed an interactive effect. However, the P-score follows the N2 score, with the N2 being the primary score to measure higher-level moral reasoning (Thoma & Dong, 2014).

Table 8 provides the descriptive statistics of the comparison, and Table 9 provides the ANOVA statistical outputs. Following the tables, the next analysis compared the incoming and graduating cohort groups at each institution and explored potential differences in the curricular affect comparisons.

**Table 8**

*ANOVA DIT-2 | CMP Score Comparison - Descriptive Statistics of Incoming Cohorts*

Curric.	Gender	n	N2 score		P-score		Maintain norms (stage 4)		Personal interest (stage 2/3)		Total CMP scale	
			M	SD	M	SD	M	SD	M	SD	M	SD
Trad.	Male	12	27.15	19.28	28.50	17.91	37.00	16.90	30.83	10.36	126.00	10.08
	Female	20	38.03	16.72	36.40	16.83	28.80	12.23	25.30	12.65	130.40	12.22
	Total	32	33.95	18.22	33.44	17.39	31.88	14.47	27.38	11.98	128.75	11.50
PBL	Male	12	43.37	12.52	46.17	13.39	26.50	13.41	23.33	12.80	133.67	15.32
	Female	15	35.60	14.23	37.07	15.12	33.20	16.28	23.87	12.43	130.93	12.66
	Total	27	39.05	13.82	41.11	14.84	30.22	15.17	23.63	12.35	132.15	13.69
Total	Male	24	35.26	17.93	37.33	17.90	31.75	15.85	27.08	12.01	129.83	13.28
	Female	35	36.99	15.53	36.69	15.89	30.69	14.06	24.69	12.39	130.63	12.22
	Total	59	36.29	16.42	36.95	16.59	31.12	14.69	25.66	12.19	130.31	12.56

**Table 9***ANOVA DIT-2 Test of Between Subjects - Incoming Cohorts*

DIT-2 variable	Subgroup	<i>F</i> (1, 55)	<i>p</i>	Partial eta-squared ( $\eta^2$ )
N2 score	Incoming cohort	2.64	.11	.046
	Gender	.135	.72	.002
	Incoming cohort by gender	4.84	.03*	.081
P-score	Incoming cohort	4.63	.04*	.078
	Gender	.02	.89	.000
	Incoming cohort by gender	3.98	.05*	.068
Maintain norms (Stage 4)	Incoming cohort	.62	.44	.011
	Gender	.04	.85	.001
	Incoming cohort by gender	3.69	.06	.063
Personal interest (Stage 2/3)	Incoming cohort	1.89	.18	.033
	Gender	.59	.45	.011
	Incoming cohort by gender	.87	.35	.016
Total CMP scale	Incoming cohort	1.49	.23	.026
	Gender	.06	.81	.001
	Incoming cohort by gender	1.13	.29	.020

Note. \* $p < .05$ .

***Testing Group Differences - Graduating and Incoming Cohorts - Traditional Curriculum***

I analyzed the comparisons of the incoming and graduating cohorts to help answer the second research question. It is worth noting that the graduating and incoming cohorts were not the same participants, but rather a subgroup of each class.

**Traditional Curriculum – *t* Tests.** The *t* tests were calculated for each institution's graduating and incoming cohorts to explore differences in the means and explore any

significance between them. The group statistics of all four of the developmental indices of the DIT-2 with the main N2 score first and the total CMP scale score are listed in Table 10 for the traditional curriculum cohorts. Similar to the graduating and incoming cohorts described above, the comparisons of the traditional curriculum's graduating and incoming cohorts did not reveal a significant difference. The traditional curriculum's graduating cohort revealed a higher N2 score and P-score than the incoming cohort, which indicated a higher moral reasoning ability. Still, the *p* value did not show significance between the two groups.

**Table 10**

*DIT-2/CMP Score Comparison Between Traditional Curriculum's Graduating and Incoming Cohorts*

Variable	Graduating ( <i>n</i> = 20)		Incoming ( <i>n</i> = 32)		<i>t</i> (50)	<i>p</i>	Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
N2 score	39.32	15.28	33.95	18.22	1.10	.28	.32
P-score	42.30	15.79	33.44	17.39	1.85	.07	.66
Maintain norms (stage 4)	23.30	12.14	31.88	14.47	-.55	.58	-.64
Personal interest (stage 2/3)	29.60	14.50	27.38	11.98	-1.19	.24	.17
Total CMP score	127.05	12.80	128.75	11.50	-.50	.62	-.14

**Traditional Curriculum - ANOVA.** The ANOVA identified any main effects or interaction effects that may exist between independent variables when assessing the DIT-2 and CMP scores for the incoming and graduating cohort. Gender, race/ethnicity, and political views variables were analyzed with the institutional cohorts as the other independent variable with the DIT-2 and CMP to explore group differences between the graduating cohorts and subgroups.

Due to the small sample size, only two independent variables were assessed at once to keep the groups from becoming too small.

***Traditional Curriculum - Gender.*** The traditional curriculum cohort (graduating and incoming) analysis based on gender revealed the following results. The DIT-2 N2 mean scores of the male participants ( $M = 27.45$ ) and female participants ( $M = 41.37$ ) demonstrated significance ( $p = .002$ ) between the groups with a moderate effect size (Muijs, 2010; Salkind, 2017). This main effect demonstrated that female participants in this group had a higher level of moral reasoning. Similarly, I analyzed the total CMP scale score and found that the CMP mean scores of the male participants ( $M = 124.95$ ) was lower than the scores for the female participants ( $M = 130.06$ ) but did not demonstrate significance ( $p = .14$ ). The analysis revealed no main effect with gender comparisons or graduating and incoming cohort comparison for the CMP. Table 11 provides the ANOVA statistical outputs.

**Table 11***ANOVA DIT-2 Test of Between Subjects - Traditional Curriculum Cohorts*

DIT-2 variable	Subgroup	$F(1, 48)$	$p$	Partial eta-squared ( $\eta^2$ )
N2 score	Trad. curric. cohorts	1.08	.30	.022
	Gender	10.40	.002**	.178
	Trad. curric. by gender	.77	.38	.016
P-score	Trad. curric. cohorts	3.26	.08	.064
	Gender	4.18	.05*	.080
	Trad. curric. by gender	.16	.69	.003
Maintain norms (stage 4)	Trad. curric. cohorts	.45	.51	.009
	Gender	2.42	.13	.048
	Trad. curric. by gender	.16	.69	.003
Personal interest (stage 2/3)	Trad. curric. cohorts	1.39	.24	.028
	Gender	3.03	.09	.059
	Trad. curric. by gender	.023	.88	.000
Total CMP scale	Trad. curric. cohorts	.25	.62	.005
	Gender	2.26	.14	.045
	Trad. curric. by gender	.06	.81	.001

Note: \* $p < .05$ ; \*\* $p < .01$ .

**Traditional Curriculum - Race/Ethnicity.** The traditional curriculum cohorts (graduating and incoming) were analyzed based on race/ethnicity for moral reasoning and civic-mindedness. Race/ethnicity did not demonstrate any main effect when examining with the dependent variable N2 score,  $F(4, 43) = .15, p = .96$ , or the total CMP score,  $F(4, 43) = .89, p = .48$ . Additionally, no interaction effect was found for cohorts by race. The race/ethnicity had five subgroups leading to small subgroup sample sizes. I analyzed from a different approach by sorting each

cohort by Hispanic and non-Hispanic. The ANOVA did not reveal any main effect when examining ethnicity with the dependent variable N2 score,  $F(1, 48) = .59, p = .45$ , or the total CMP score,  $F(1, 48) = 1.45, p = .23$ . No interaction effect was found for cohorts by ethnicity.

***Traditional Curriculum - Political Views.*** The institutional cohorts were analyzed based on political views for both moral reasoning and civic-mindedness. A participant's political view did not demonstrate any main effect when examining with the dependent variable N2 score,  $F(4, 42) = 1.50, p = .22$ , or the total CMP score,  $F(4, 42) = 1.17, p = .34$ . The ANOVA analysis examined for interaction effects without any significant findings.

### ***Testing Group Differences - Graduating and Incoming Cohorts - PBL Curriculum***

Similar to above, the PBL curriculum cohorts were analyzed to help answer the second research question in exploring how a particular curricular design affects ethical/moral reasoning and service-mindedness aspects of professional formation in physical therapy students. Like the traditional curriculum, the graduating and incoming cohorts were not the same participants, but rather a subgroup of each class.

**PBL Curriculum – *t* Tests.** The *t* tests were calculated for the institution's graduating and incoming cohorts to explore differences in the means and discover any significance between them. The group statistics of all four of the developmental indices of the DIT-2 with the main N2 score first and the total CMP scale score are listed in Tables 12 for the PBL curricular cohorts. Similar to the graduating cohorts and the incoming cohorts described above, the comparisons of the graduating and incoming cohorts within each institution did not reveal a significant difference. The PBL curricular graduating cohort had a lower N2 score and P-score than the incoming cohort, which indicated a lower moral reasoning ability in the graduating cohort. Still, the *p* value did not show significance.

**Table 12***DIT-2/CMP Score Comparison Between PBL Curricular Graduating and Incoming Cohorts*

Variable	Graduating ( <i>n</i> = 26)		Incoming ( <i>n</i> = 27)		<i>t</i> (51)	<i>p</i>	Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
N2 score	32.08	15.40	39.05	13.82	-1.74	.09	-.48
P-score	34.31	14.91	41.11	14.84	-1.67	.10	-.46
Maintain norms (stage 4)	31.92	7.64	30.22	15.17	.51	.61	.14
Personal interest (stage 2/3)	28.38	11.17	23.63	12.35	1.47	.15	.40
Total CMP score	129.46	14.57	132.15	13.69	-.69	.49	-.19

**PBL Curriculum - ANOVA.** The ANOVA identified any main effects or interaction effects that existed between independent variables when assessing the DIT-2 and CMP scores for both the institutional incoming and graduating cohort. I analyzed the variables of gender, race/ethnicity, and political views with the institutional cohorts as the other independent variable with the DIT-2 and CMP to explore group differences between the graduating cohorts and subgroups. Due to the small sample size, only two independent variables were assessed at once to keep the groups from becoming too small.

**PBL Curriculum - Gender.** The PBL curricular cohort (graduating and incoming) analysis based on gender revealed the following results. The DIT-2 N2 mean scores of the male participants ( $M = 36.05$ ) and female participants ( $M = 35.38$ ) did not demonstrate a significance in the main effect between the gender groups. However, a main effect for a significant difference ( $p = .03$ ) of the PBL curricular cohorts was observed with a small to modest effect size:  $\eta^2 = .096$  (Muijs, 2010; Salkind, 2017). Additionally, a significant interaction effect ( $p = .03$ ) was found among between gender and each cohort with a small effect size:  $\eta^2 = .016$ . A closer look at



the differences in the groups, the gap between the male participants in the incoming versus graduating cohort would explain the differences. The incoming cohort had a higher mean for the male participants ( $M = 43.37$ ) than female participants ( $M = 35.60$ ). However, for the graduating cohort, male participants had a lower N2 score ( $M = 25.08$ ) than the female participants ( $M = 35.19$ ).

Similarly, I analyzed the total CMP scale score and found that the CMP mean scores of the male participants ( $M = 129.00$ ) were lower than the scores for the female participants ( $M = 131.94$ ) but did not demonstrate significance ( $p = .32$ ). Calculations revealed no main or interaction effect with gender comparisons with the graduating and incoming cohort comparison for the CMP. Table 13 provides the ANOVA statistical outputs.

**Table 13***ANOVA DIT-2 Test of Between Subjects - PBL Curricular Cohorts*

DIT-2 variable	Subgroup	$F(1, 48)$	$p$	Partial eta-squared ( $\eta^2$ )
N2 score	PBL curric. cohorts	5.22	.03*	.096
	Gender	.08	.78	.002
	PBL curric. by gender	4.78	.03*	.016
P-score	PBL curric. cohorts	5.52	.02*	.101
	Gender	.13	.73	.003
	PBL curric. by gender	6.65	.01*	.119
Maintain norms (stage 4)	PBL curric. cohorts	.36	.55	.007
	Gender	.90	.35	.018
	PBL curric. by gender	.96	.33	.019
Personal interest (stage 2/3)	PBL curric. cohorts	4.52	.04	.084
	Gender	2.73	.11	.053
	PBL curric. by gender	3.29	.08	.063
Total CMP scale	PBL curric. cohorts	1.51	.23	.030
	Gender	1.01	.32	.020
	PBL curric. by gender	2.85	.10	.055

Note. \* $p < .05$ .

***PBL Curriculum - Race/Ethnicity.*** I analyzed the PBL curricular cohorts (graduating and incoming) based on race/ethnicity for moral reasoning and civic-mindedness. Race/ethnicity did demonstrate a main effect when examining with the dependent variable N2 score,  $F(4, 43) = 2.68, p = .04, \eta^2 = .200$ , but did not for the total CMP score,  $F(4, 43) = 2.08, p = .10$ . No interaction effect was found for cohorts by race. The race/ethnicity had five subgroups leading to small subgroup sample sizes. I analyzed from a different approach by sorting each cohort by

Hispanic and non-Hispanic. The ANOVA did not reveal any main effect when examining ethnicity with the dependent variable N2 score,  $F(1, 49) = 3.06, p = .09$ , or the total CMP score,  $F(1, 49) = .74, p = .39$ . No interaction effect was found for cohorts by ethnicity.

***PBL Curriculum - Political Views.*** The institutional cohorts were analyzed based on political views for both moral reasoning and civic-mindedness. A participant's political view did not demonstrate any main effect when examining with the dependent variable N2 score,  $F(4, 43) = .96, p = .44$ , or the total CMP score,  $F(4, 43) = .71, p = .59$ . The ANOVA examined for interaction effects without any significant findings.

### **Institutional Physical Therapy Programmatic Culture**

Chapter 3 described the plan to take a deeper look at each program's culture to gain a deeper insight into the implicit curriculum. This section describes the findings from the review of the mission and goals submitted to accreditation. Additionally, I share the information gathered from the conversation with two faculty members at each program. Specifically, the faculty shared their thoughts regarding student life, faculty collaboration, faculty-student interactions, and professional expectations for students in the program.

#### ***Public Institution - Traditional Curricular Model***

The Carnegie classification for this institution's graduate program is "STEM-focused research doctorate." The physical therapy department is housed in a school of health professions. The program had an apparent value of service expressed in the goals for the faculty and students. The collective faculty's guiding principles are their university's mission focused on excellence in education, research, and community engagement. The school where their department resides has a mission of advancing both the science and the health professions' practice. The specific physical therapy department has service as an explicit value and stated in its mission a desire to

advance physical therapy practice. Specific student and faculty goals and graduate outcomes are focused on being an advocate of service for the community and profession. Another consistent focus in the stated goals and outcomes for the faculty, students, and graduates was the engagement in personal and professional development.

The discussion with the faculty brought clarity to the lived values of the program. The explicit professional formation occurs within their professionalism classes, and written in the syllabi are professional behavior expectations. Each student has an assigned advisor for their time in the program. Students formally meet with their respective advisor each semester as a small student group and individually. Any student's professional behavioral issues are dealt with by the instructor of record for the particular class or associated class. Repeated issues require the student to meet with the faculty advisor specifically to address behaviors. Faculty are intentional when discussing and addressing any student issues twice a semester at a student progress meeting.

The department mandates that students perform 20 total service hours each semester, including on- and off-campus activities. This service culture started about ten years ago and has continued to be a strong, lived value. Prior to COVID-19, one faculty took students to volunteer at a local homeless shelter, collaborated with primary care practitioners, and provided monthly pro bono physical therapy services. The modeling of professional service also included faculty presenting at conferences and inviting students to be involved in attending and, in some cases, collaborating with faculty. Class leaders also attend faculty meetings where faculty and student interactions occur, including listening to faculty accolades. Faculty also shared that the student culture is one of helping each other out to be successful, and that it is not a culture of competition.

### ***Private Institution - Problem Based Learning (PBL) Curricular Model***

The Carnegie classification for this institution's graduate program is "professionally-focused research doctorate" that has allowed the larger university's mission statement to guide its cultural emphasis. The foundational statements submitted to accreditation revealed the university has a spirit of Christian service and is focused on educating students who are engaged in social justice and community issues. The program's mission focuses on preparing lifelong learners who are mindful physical therapists that can practice as generalists. Additionally, the faculty is committed to serving underserved populations. The graduate objectives and programmatic goals are rooted in the faith-inspired, service-focus of the founding religious organization. In many ways, it seemed the founding mission of faith-inspired, compassion-focused, service expression guided the implicit curriculum and programmatic culture.

The discussion with faculty members corroborated the information submitted to the accreditors. One faculty member described the learning activities throughout the curriculum designed to engage the student's affective domain to prepare students for moral practice and engagement in social justice. Another faculty member described the intentional focus on student success and development of the whole person following the founding institutional focus of recognizing God's presence in each person. Faculty shared that, even though the mission is faith-inspired, the institution and the program welcomes people of all backgrounds and faith or those without faith. The encouragement is for each person to learn how to become a mindful and skilled entry-level practitioner while discovering how to meet societal needs. Both faculty members described the strong collaborations both within the program faculty and outside of the program with university faculty. The collaborative spirit also extends to students, and the faculty described an open relationship with students with intentional availability to students both during

and outside of office hours. The faculty stated they seek out students who may need some correction or coaching.

The faculty model service by engaging with local community groups and collaborating with other health professionals for pro bono service outside of the onsite pro bono physical therapy clinic. Faculty supervise scholarly capstone groups and encourage or invite many of them to present their findings at a local, state, or national conference. Faculty view this as a small way to model professional involvement. Lastly, the faculty shared that students often comment that their peer groups are like family and that they receive much support from one another. Alumni have often shared that faculty and their classmates were and, in many cases, still are their second family.

## **Major Findings**

### ***Research Question 1***

The statistical analysis results related to the first research question did not reveal a statistically significant difference in the means between the two programs' graduating cohorts in moral reasoning scores and civic-mindedness. A significant main effect ( $p = .002$ ) was found in gender as female participants have a significantly higher moral reasoning N2 score and CMP score than male participants within both institutions. While female participants demonstrated a higher mean score than the male participants at each institution, there was no significant interaction effect with gender and the two different programs.

### ***Research Question 2***

The statistical analysis results utilizing the ANOVA of the N2 score with incoming cohorts at each institution demonstrated some significant ( $p = .03$ ) interaction effect of gender and institutional cohort. However, the incoming cohorts only represented the baseline in the

causal-comparative design. Curricular design differences cannot be concluded by statistically comparing the two incoming cohorts.

Comparing the graduating and incoming cohorts provided the data to answer the second research question of each curricular design's effect on moral reasoning and civic-mindedness. The ANOVA analysis of the DIT-2 N2 scores of the traditional curriculum cohorts demonstrated significance ( $p = .002$ ) in the main effect of gender with the male participants ( $M = 27.45$ ) having significantly lower means than the female participants ( $M = 41.37$ ) with a moderate effect size:  $\eta^2 = .178$  (Muijs, 2010; Salkind, 2017). The ANOVA analysis of the DIT-2 N2 scores of the PBL curricular cohorts revealed a main effect for a significant difference ( $p = .03$ ) of the PBL curricular cohorts with a small to modest effect size:  $\eta^2 = .096$ . Additionally, the results revealed a significant interaction effect ( $p = .03$ ) between gender and each cohort with a small effect size:  $\eta^2 = .016$ . Differences were explained by examining the large difference of higher mean N2 scores of the male participants in the incoming cohort with the much lower mean N2 score of the male participants in the graduating cohort.

### ***Programmatic Culture***

My investigation of the cultures of each physical therapy program revealed a strong service culture within each. The service focus exists in both programs, even though the traditional curriculum program is part of a research institution. The PBL curriculum program is part of a service and teaching-focused faith-based institution. The faculty corroborated in our discussions that the written information provided to the accrediting institution is lived out within their programs.

## Chapter 5: Discussion, Conclusions, and Recommendations

Physical therapy education has a variety of curricular approaches (CAPTE, 2017). However, a lack of consistency exists in the educational curricula of physical therapy and the health professions concerning professionalism and ethical/moral reasoning (Gabard et al., 2013; Goulet & Owen-Smith, 2005; Stull & Blue, 2016; Swisher, 2010). The purpose of this quantitative causal-comparative study was to explore the influence of curricular design on professional formation, including ethical/moral reasoning and civic-mindedness in physical therapy students from two physical therapy programs using different curricular models. The participants came from two institutions in the same general geographical area. One program is part of a public institution with a primarily traditional curricular model. The other program is part of a private institution with a case-based, PBL model. An electronic survey method was used to collect data from the graduating and incoming cohorts from each of the two programs within a single year. The survey consisted of the DIT-2, which measures moral reasoning, and the CMP scale, which represents the participant's ability to be civic-minded and engaged. The participants provided the independent variables data with their responses to the survey. The most notable limitations of the study were the following: (a) only two curricular approaches were examined, (b) only two of 250 physical therapy programs in the United States were surveyed, (c) lack of a true repeated measure due to time constraints, (d) reliance on the participant's self-assessment, (e) the implicit curriculum cannot be easily accounted for, and (f) COVID-19 stress and changes may have altered the accuracy of the participants' self-assessments.

This chapter provides a discussion of the study's findings relative to the previous literature. Presented first is a summary of the results, and then a discussion based on the two research questions. The study's limitations are then discussed. Ultimately, the application to the



problem area brings relevance to the findings and recommendations for future research. Final remarks conclude this chapter.

### **Summary of Results**

The purpose of this quantitative causal-comparative study was to explore the influence of curricular design on professional formation, including ethical/moral reasoning and civic-mindedness in physical therapy students from two physical therapy programs using different curricular models. I collected data from the DIT-2 scale, the CMP scale, and participants' variables from the graduating and incoming cohorts at each institution. After completing the data gathering, the Center for the Study of Ethical Development scored and returned the DIT-2 data in an SPSS format. The study's data analysis was performed in SPSS. I calculated the CMP scores and then grouped them according to the five factors of the scale and calculated a total CMP scale score. I labeled the independent variables and grouped them according to cohort.

The DIT-2 scale has four scores representing the level of moral reasoning for the participants based on Kohlberg's developmental stages of moral judgment (Thoma & Dong, 2014). The personal interest score represents the participant's focus on how a dilemma may personally affect them. The maintaining norms score represents generally how society may handle the moral dilemma. The post-conventional or P-score represents a moral approach of shared beliefs, due process, and basic rights protection. The N2 score is similar to the P-score as it uses the P-score. However, the score is scaled based on the person's ability to discriminate between personal interest items and post-conventional items. A higher N2 score indicates the participant can perform higher-order moral reasoning (Thoma & Dong, 2014). Throughout the statistical analysis of this study, I focused on the N2 score analysis since it represents the ability to perform higher-order moral reasoning.

The CMP scale consists of 23 items rated in a seven-point response format (1 = *strongly disagree*; 7 = *strongly agree*). The grouped items form the following five factors or subscales: (a) voluntary action, (b) identity and calling, (c) citizenship, (d) social trustee, (e) consensus-building (Hatcher, 2008; Richard et al., 2017). These subscales, added together, form a total CMP scale score. The higher the score, the more a person may have the ability to be civic-minded and engaged. The statistical analysis of this study focused on the total CMP score.

### ***Testing Group Differences - Graduating Cohorts***

The *t*-test N2 score analysis,  $t(44) = 1.59, p = .12$ , found a larger mean for the traditional curricular cohort ( $M = 39.12$ ) than the PBL curriculum cohort ( $M = 32.08$ ). However, I did not find significance between the institutional cohorts as each group had a large standard deviation. An ANOVA with the dependent N2 score and independent variables of gender and each graduating cohort revealed a significant main effect of gender,  $F(1, 42) = 11.38, p = .002$ . When assessing the means, the male participant's N2 scores ( $M = 26.49$ ) were significantly lower than the female participant's scores ( $M = 39.89$ ). There was no significant interaction effect between the two cohorts representing the different curricula with gender for the N2 score.

The *t*-test CMP score analysis,  $t(44) = .59, p = .55$ , did not reveal significance and the means for the traditional curricular cohort ( $M = 127.05$ ) were fairly close to the PBL curriculum cohort ( $M = 129.46$ ). An ANOVA with the dependent CMP score and independent variables of gender and each graduating cohort revealed a significant main effect of gender,  $F(1, 42) = 4.07, p = .05$ . When assessing the means, the male participant's CMP scores ( $M = 122.69$ ) were significantly lower than the female participant's scores ( $M = 131.47$ ). As with the N2 score, there was no significant interaction effect between gender and the two cohorts representing the different curricula for the CMP score. Additionally, there were no significant main or interaction effects with race/ethnicity or political views on the N2 or CMP scores.

### ***Testing Group Differences - Traditional Curriculum Cohorts***

The *t*-test N2 score analysis,  $t(50) = 1.10, p = .28$ , found a larger mean for the graduating cohort ( $M = 39.32$ ) than the incoming cohort ( $M = 33.95$ ); however, I did not find significance. An ANOVA with the dependent N2 score and independent variables of gender and each graduating cohort revealed a significant main effect of gender,  $F(1, 48) = 10.40, p = .002$ . When assessing the means, the male participant's N2 scores ( $M = 27.45$ ) were significantly lower than the female participant's scores ( $M = 41.37$ ) with a moderate effect size. There was no significant interaction effect between gender and the two cohorts representing the different cohorts for the N2 score.

The *t*-test CMP score analysis,  $t(50) = -.50, p = .62$ , did not reveal significance and the means for the graduating cohort ( $M = 127.05$ ) were fairly close to the incoming cohort ( $M = 128.75$ ). An ANOVA with the dependent CMP score and independent variables of gender and each cohort found mean scores of the male participants ( $M = 124.95$ ) was lower than the scores for the female participants ( $M = 130.06$ ) but did not demonstrate significance ( $p = .14$ ). As with the N2 score, there was no significant interaction effect between the two cohorts representing the different curricula with gender for the CMP score. Additionally, there were no significant main or interaction effects with race/ethnicity or political views on the N2 or CMP scores.

### ***Testing Group Differences - PBL Curriculum Cohorts***

Unlike the traditional curriculum, the *t*-test N2 score analysis,  $t(51) = -1.74, p = .09$ , found a smaller mean for the PBL graduating cohort ( $M = 32.08$ ) than the PBL incoming cohort ( $M = 39.05$ ); however, I did not find significance. An ANOVA with the dependent N2 score and independent variables of gender and each graduating cohort revealed a significant main effect of PBL curriculum cohorts,  $F(1, 48) = 5.22, p = .03$ , with a modest effect size:  $\eta^2 = .096$ . The

results also revealed a significant interaction effect ( $p = .03$ ) between gender and each cohort with a small effect size:  $\eta^2 = .016$ . The gap between the male participants in the incoming versus graduating cohort explained the differences. The incoming cohort had a higher mean for the male participants ( $M = 43.37$ ) than female participants ( $M = 35.60$ ). However, for the graduating cohort, male participants had a lower N2 score ( $M = 25.08$ ) than the female participants ( $M = 35.19$ ).

The  $t$ -test CMP score analysis,  $t(51) = -.69, p = .49$ , did not reveal significance and the means for the graduating cohort ( $M = 129.46$ ) were fairly close to the incoming cohort ( $M = 132.15$ ). An ANOVA with the dependent CMP score and independent variables of gender and each cohort found mean scores of the male participants ( $M = 129.00$ ) was lower than the scores for the female participants ( $M = 131.94$ ) but did not demonstrate significance ( $p = .32$ ). There was no significant interaction effect between the two cohorts representing the different curricula with gender for the CMP score. Additionally, there were no significant main or interaction effects with race/ethnicity or political views on the N2 or CMP scores.

## **Discussion of Findings to Past Literature**

### ***Discussion - Research Question 1***

The first research question was to see if there were similarities and differences of ethical/moral reasoning and service-mindedness in physical therapy students trained with two different curricular approaches. This study's findings did not reveal a statistically significant difference between the two graduating cohorts in either moral reasoning or civic-mindedness. The power analysis revealed that a large effect size would be needed to reliably demonstrate that differences truly do not exist if significance was not found with the available sample size. However, the results revealed only a moderate effect size (Cohen's  $d = .47$ ). While the analysis revealed no significance between the two curricular groups, differences may exist.

The ANOVA results did not reveal any significant interaction effects for gender, race/ethnicity, or political views when assessing those independent variables with the moral reasoning (N2 scores) and civic-mindedness (total CMP score) dependent variables. However, the results revealed a significant main effect when examining gender separately with N2 and CMP scores. There were no differences between the two curricular approaches. Rather, female participants had a significantly higher moral reasoning ability for the graduating cohorts and were more civic-minded than their male peers.

This study's conceptual framework aligned closely with the professional identity formation described by Irby and Hamstra (2016), with a staged and formative process with intentionality over time. Literature has shown that the development of moral reasoning development is long-term and based on Kohlberg's original work on cognitive moral development theory, which occurs in stages (Kohlberg & Hersh, 1977; Rest et al., 1974; Swisher et al., 2012). This study's results do not provide evidence that either of the two curricular approaches I examined is more effective for students' professional formation. In this study, the PBL curriculum had intentional, long-term, explicit learning activities associated with professional formation in each semester of the curriculum. The traditional curriculum had intentional time for explicit professional formation in the curriculum, although less of an explicit long-term approach. Civic engagement/service was an aspect of each program's culture, and influenced both students and faculty. In each program, faculty met with students regularly for guidance in the area of professional growth and service, which seemed influential to their professional formation. The faculty engagement with students in this realm spoke to the implicit curriculum that seemed positive and supportive of student growth at each institution. The lack of significant differences between the two programs for moral reasoning and civic-mindedness is parallel to the findings in the Jensen, Hack, et al. (2017) study of excellence among six

institutionally different physical therapy programs with three different curricular models. The parallel is the commonality of each academic programs' aspects of excellence, even among different curricula and the similar findings between the two curricula in this study.

The gender difference in the development of professional formation, regardless of the curricular approach, was significant. With an ANOVA analysis, the graduating cohorts demonstrated a significant main effect of gender, with female participants demonstrating significantly higher scores for higher-order moral reasoning and civic-mindedness. The difference raises the question: What are the contributing factors for female students and professionals to progress to a higher level in both moral reasoning and civic-mindedness?

Prior literature revealed similar differences with female participants having higher scores in the DIT-2 N2 scores and the CMP scores. In a DIT-2 pretest-posttest of students completing a doctorate in pharmacy, Latif (2009) found female students demonstrated a much higher level of higher-order moral reasoning. Behar-Horenstein and Tolentino (2019) found similar findings in dental students, with female students having higher scores than male students for higher-order reasoning. However, Geddes et al. (2009) did not reveal gender differences in the DIT scores assessing higher-level moral reasoning in bachelor-level occupational and physical therapy students in their study. Female students consistently demonstrated higher scores in the civic-minded professional scale in a recent study with physical therapy students in a similar graduate program as this study (Palombaro et al., 2018). A large study with university alumni demonstrated that female participants were more likely ( $p = .001$ ) to participate in a service-learning course than male participants (Hahn, 2016).

The literature revealed differences between gender in the professionalism attribute of empathy. Fields et al. (2011) and Hojat et al. (2002, 2009) found that women demonstrated a significantly higher score on the Jefferson Scale of Physician Empathy, which confirmed their

literature search findings. Specific to physical therapy students, Bayliss and Strunk (2015) found that their study's outcomes revealed women scored significantly higher than men on the Jefferson Scale of Empathy-Health Care Provider Student version. The authors of these studies indicated that women scored significantly higher due to women having more caring behaviors than men. Caring and service are related to being involved in the affairs of those outside one's self. However, are caring behaviors related to moral reasoning?

It is apparent from related studies that female participants tend to score higher in these professional behaviors. Specific to this study, it is possible that female participants scored higher than the male participants due to their engagement in patient care and service experiences. However, I did not collect data about the number of service experiences each student had engaged in and the depth of their engagement. Regardless, the differences between the female and male participants in this study were significant and concerning—male participants seem to exhibit significantly less moral reasoning than female participants at the conclusion of their academic, professional preparation.

### ***Discussion - Research Question 2***

The second research question was to explore how a particular curricular design may affect ethical/moral reasoning and service-mindedness aspects of professional formation in physical therapy students. The findings revealed some differences between the two different curricular structures when comparing the graduating and incoming cohorts at each institution. However, similar to the graduating cohort comparison between the two graduating institutional programs, the results revealed significance in gender.

**Traditional Curricular Cohorts.** The incoming traditional curriculum cohort had lower DIT-2 N2 scores than the graduating traditional curriculum cohort. However, the results were not statistically significant. When comparing to a very large compiled sample that Dong (2009)

provided (Table 1), the trajectory of undergraduate to graduate DIT-2 N2 scores were similar. Interestingly, the incoming cohort had a slightly higher average CMP score (128.75) when compared to the graduating cohort's average CMP score (127.05). The result is far from significant ( $p = .62$ ) and attributed to the small sample size. Another potential reason for the lack of an increase in the CMP scale score as the students went through the professional program was recency bias. Experience from interviewing students for the professional program revealed many incoming students who spoke of their service to their community and others as something they enjoyed. However, students in the program and at graduation often reported the program's intensity did not allow them time to participate in service activities. As a result, the recency of their service and civic involvement may be less than when they came into the professional program.

The ANOVA analysis revealed a significant main effect of gender in the traditional curriculum cohorts. This finding was similar to the graduating cohorts, who also showed the significant main effect of gender. Female participants demonstrated significantly higher scores for higher-order moral reasoning. This difference raises the question of what may be the contributing factors for female students and professionals to progress to a higher level in moral reasoning. The aforementioned literature has substantial evidence that female students and professionals generally exhibit higher scores in moral reasoning and caring behaviors than their male peers.

**PBL Curricular Cohorts.** Interestingly, the incoming PBL curriculum cohort had higher DIT-2 N2 and CMP mean scores, 39.05 and 132.15, respectively, than the graduating traditional curriculum cohort's N2 and CMP mean scores: 32.08 and 129.46, respectively. However, the results were not statistically significant:  $p = .09$  and  $p = .49$ , respectively. The cohort comparison



did not follow the trajectory that Dong (2009) described, which was that the N2 scores were higher in graduate students when compared to the undergraduate students. The small sample size was a likely contributor to both the N2 and CMP scores with this cohort. Additionally, the small sample size contributed to a lack of power in the study. That the students' CMP scores did not increase throughout the program could be because recency bias existed, as described above for the traditional curricular cohort.

The ANOVA analysis in the PBL curricular cohorts did not reveal a significant main effect of gender. However, a significant ( $p = .03$ ) interaction effect was found between cohorts by gender with a small to modest effect size. This finding did not seem to have significance from a practical standpoint because the differences were due to higher mean scores of male participants in the incoming cohort when compared to the low mean scores of male participants in the graduating cohort.

### ***Discussion - Collective***

The mean DIT, N2, and CMP scores for the graduates in this study were examined in comparison to the referenced mean N2 scores of graduate students in Dong's (2012) study and the CMP scores of physical therapy graduates exemplifying the values and social roles in Palombaro et al.'s (2017) study. The latter two studies had higher scores, which indicated more emphasis on the student's professional formation. Swisher (2010) provided N2 scores of physical therapists in different practice areas, all with substantially higher mean N2 scores than those in this study. Since all the physical therapists were practicing therapists, it provides some hope that professionals will grow in their engagement as moral agents. However, entry-level physical therapy educators should not be complacent in the need to enhance their intentional effort in professional formation. Sullivan (2005) shared the third apprenticeship or, as Jensen et al. (2018)

defined—the habits of the heart. In essence, both are referring to the “attitudes, ethical standards, social roles, and professional responsibilities that mark the professional” (Jensen et al., 2018, p. 20). Jensen et al. (2018) also described centers of excellence in their study of physical therapy education. A common theme was the lack of intentional emphasis on the third apprenticeship (habits of the heart). The results of this study, coupled with the results of the aforementioned studies, indicated that physical therapy education must change and place more emphasis on the habits of the heart to best meet the professional responsibilities.

### **Limitations**

There were a few limitations identified in this study. First, a large effect size was needed for the study to have sufficient power due to the available sample size. Since I did not find a large effect size, there was insufficient power to draw conclusions that differences did not exist in the curricular types.

Second, the study’s causal-comparative design had limitations in that the independent variables could not be manipulated. Furthermore, a true pre- and postsurvey among the same students would have created a stronger study. However, the time constraints of the study did not allow for data collection within the same cohort.

Third, it was assumed that all participants provided true and valid responses. It is possible that the participants did not answer the self-assessment questions honestly. The DIT-2 scoring does have a process to assess if the participant is providing reliable responses or to indicate when a participant’s dataset should be purged. (I did not have to purge any datasets.) The surveys were completely anonymous, which should have aided in allowing students to respond honestly.

Fourth, the length of the survey was likely a limiting factor in the participants’ completion rate. It is not fully known how many participants started the survey and did not finish

completing it later on a different device. Regardless, some started and did not finish even after being informed it would take 20–30 minutes to complete. The gift card drawing per cohort was an incentive but did not reduce the time of completion.

Fifth, COVID-19 altered U.S. society nearly six weeks before the graduating cohorts were first invited to participate. The graduating cohorts were in the middle of their final professional practice experiences and looking forward to graduation. However, most students had their professional practice experiences canceled, and along with all in-person activities around graduation. Students participated virtually in all capstone classes and presentations. Many of the students in the incoming cohorts were finishing their undergraduate experiences. Most student involvement in service halted due to COVID, which caused a feeling of disengagement. Ultimately, significant life disruption occurred for all participants during the time of data collection. The stress and life change associated with living with the virus may have affected how participants answered the questions.

Finally, it was difficult to account for the implicit curriculum in this study. Inherently, each academic program has an implicit curriculum that influences students, faculty, and, as discussed in this study, professional formation. It was informative to examine each program's values and objectives and listen to a couple of faculty members describe their programmatic culture. However, the survey approach did not investigate the factors that contributed to the differences.

## **Recommendations**

Even though I did not find significant differences in moral reasoning and civic-mindedness between the two curricular approaches, important recommendations are still evident from the study.

### ***Recommendations for Practical Application***

This study's major finding was the significant differences between male and female participants in moral reasoning and civic-mindedness. I recommend that educators place an intentional effort throughout the explicit and implicit curriculum on the male student's professional formation while they are in the program. Affective domain activities have been shown to improve moral reasoning and CMP scores (Palombaro et al., 2018; Swisher et al., 2012). Discussing the gender differences within the context of learning activities with reflection could allow male students to have more awareness of the inclination to exhibit a lower level of professionalism than female students. Also recommended is that academic and clinical faculty should both model service and reflectively navigate the moral dilemmas that practitioners encounter to enhance the professional formation of emerging professionals.

### ***Recommendations for Future Research***

A recommendation for further research in this area is investigating the factors which influence professional formation, specifically moral reasoning and civic-mindedness in both male and female students and professionals. Focus groups with emerging professionals using a qualitative approach would be a logical progression to discover the *why* behind the differences and the influential factors of identity as a professional. Performing a focus group study at multiple physical therapy academic programs that utilize various curricular formats could provide richness in the various attributes of the curriculum contributing to professional formation. Furthermore, a beneficial study would be to design one focused on discovering what aspects of the curriculum physical therapy academic and clinical faculty believe most influence professional formation or the habits of the heart. Also, beneficial would be to have faculty

identify which aspects of professional formation are needed in the professional curriculum but currently do not explicitly exist.

### **Conclusions**

This study's purpose was to discover if a curricular style influenced students' professional formation in the area of moral reasoning and civic-mindedness. The health professions' literature supports a long-term approach to professional formation (Carrese et al., 2015; Irby & Hamstra, 2016; Stull & Blue, 2016). The research questions came from the problem of the current practices of health professionals, including an anemic level of professional formation of physical therapy students (Colby & Sullivan, 2008; Jensen et al., 2018; Sullivan, 2005). While the two curricular styles in this study did not reveal significant differences in the professional formation and civic-mindedness of physical therapy graduates, opportunities exist to improve professional preparation, especially in male students and professionals. Also, the results of the study, as shown by the DIT-2 and CMP scores, provide further evidence that physical therapy professional education should have a more intentional, explicit focus on professionalism preparation to improve the habits of the heart so the future physical therapists can be fully prepared to embrace the profession's societal obligations.

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## Appendix A: Defining Issues Test (DIT-2)

# DIT-2

Defining Issues Test

Version 3.1

*University of Minnesota*

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*University of Alabama*

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Center for the Study of Ethical Development

### Instructions

This questionnaire is concerned with how you define the issues in a social problem. Several stories about social problems will be described. After each story, there will be a list of questions. The questions that follow each story represent different issues that might be raised by the problem. In other words, the questions / issues raise different ways of judging what is important in making a decision about the social problem. You will be asked to rate and rank the questions in terms of how important each one seems to you.

This questionnaire is in two parts: one part contains the **INSTRUCTIONS** (this part) and the stories presenting the social problems; the other part contains the questions (issues) and the **ANSWER SHEET** on which to write your responses.

Here is an example of the task:

#### Presidential Election

Imagine that you are about to vote for a candidate for the Presidency of the United States. Imagine that before you vote, you are given several questions, and asked which issue is the most important to you in making up your mind about which candidate to vote for. In this example, 5 items are given. On a rating scale of 1 to 5 (1=Great, 2=Much, 3=Some, 4=Little, 5=No) please rate the importance of the item (issue) by filling in with a pencil one of the bubbles on the answer sheet by each item.

Assume that you thought that item #1 (below) was of great importance, item #2 had some importance, item #3 had no importance, item #4 had much importance, and item #5 had much importance. Then you would fill in the bubbles on the answer sheet as shown below.

---

GREAT	MUCH	SOME	LITTLE	NO	<b>Rate the following 12 issues in terms of importance (1-5)</b>
●	②	③	④	⑤	1. Financially are you personally better off now than you were four years ago?
①	②	●	④	⑤	2. Does one candidate have a superior moral character?
①	②	③	④	●	3. Which candidate stands the tallest?
①	●	③	④	⑤	4. Which candidate would make the best world leader?
①	●	③	④	⑤	5. Which candidate has the best ideas for our country's internal problems, like crime and health care?

---

Further, the questionnaire will ask you to rank the questions in terms of importance. In the space below, the numbers 1 through 12, represent the item number. From top to bottom, you are asked to fill in the bubble that represents the item in first importance (of those given you to choose from), then second most important, third most important, and fourth most important. Please indicate your top four choices. You might fill out this part, as follows:

---

**Rank which issue is the most important (item number).**

Most important item    ● ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫    Third most important    ① ② ③ ● ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫  
 Second most important    ① ② ③ ④ ● ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫    Fourth most important    ① ● ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

---

Note that some of the items may seem irrelevant to you (as in item #3) or not make sense to you—in that case, **rate** the item as “No” importance and do not **rank** the item. Note that in the stories that follow, there will be 12 items for each story, not five. Please make sure to consider all 12 items (questions) that are printed after each story.

In addition you will be asked to state your preference for what action to take in the story. After the story, you will be asked to indicate the action you favor on a three-point scale (1 = strongly favor some action, 2 = can't decide, 3 = strongly oppose that action).

In short, read the story from this booklet, and then fill out your answers on the answer sheet. Please use a #2 pencil. If you change your mind about a response, erase the pencil mark cleanly and enter your new response.

*[Notice the second part of this questionnaire, the Answer Sheet. The Identification Number at the top of the answer sheet may already be filled in when you receive your materials. If not, you will receive instructions about how to fill in the number. If you have questions about the procedure, please ask now.]*

*Please turn now to the Answer Sheet.]*

---

**Famine— (Story #1)**

The small village in northern India has experienced shortages of food before, but this year's famine is worse than ever. Some families are even trying to feed themselves by making soup from tree bark. Mustaq Singh's family is near starvation. He has heard that a rich man in his village has supplies of food stored away and is hoarding food while its price goes higher so that he can sell the food later at a huge profit. Mustaq is desperate and thinks about stealing some food from the rich man's warehouse. The small amount of food that he needs for his family probably wouldn't even be missed.

*[If at any time you would like to reread a story or the instructions, feel free to do so. Now turn to the Answer Sheet, go to the 12 issues and rate and rank them in terms of how important each issue seems to you.]*

---

**Reporter— (Story #2)**

Molly Dayton has been a news reporter for the *Gazette* newspaper for over a decade. Almost by accident, she learned that one of the candidates for Lieutenant Governor for her state, Grover Thompson, had been arrested for shop-lifting 20 years earlier. Reporter Dayton found out that early in his life, Candidate Thompson had undergone a confused period and done things he later regretted, actions which would be very out-of-character now. His shop-lifting had been a minor offense and charges had been dropped by the department store. Thompson has not only straightened himself out since then, but built a distinguished record in helping many people and in leading constructive community projects. Now, Reporter Dayton regards Thompson as the best candidate in the field and likely to go on to important leadership positions in the state. Reporter Dayton wonders whether or not she should write the story about Thompson's earlier troubles because in the upcoming close and heated election, she fears that such a news story could wreck Thompson's chance to win.

*[Now turn to the Answer Sheet, go to the 12 issues for this story, rate and rank them in terms of how important each issue seems to you.]*

---

### School Board— (Story #3)

Mr. Grant has been elected to the School Board District 190 and was chosen to be Chairman. The district is bitterly divided over the closing of one of the high schools. One of the high schools has to be closed for financial reasons, but there is no agreement over which school to close. During his election to the school board, Mr. Grant had proposed a series of “Open Meetings” in which members of the community could voice their opinions. He hoped that dialogue would make the community realize the necessity of closing one high school. Also he hoped that through open discussion, the difficulty of the decision would be appreciated, and that the community would ultimately support the school board decision. The first Open Meeting was a disaster. Passionate speeches dominated the microphones and threatened violence. The meeting barely closed without fist-fights. Later in the week, school board members received threatening phone calls. Mr. Grant wonders if he ought to call off the next Open Meeting.

*[Now turn to the Answer Sheet, go to the 12 issues for this story, rate and rank them in terms of how important each issue seems to you.]*

---

### Cancer— (Story #4)

Mrs. Bennett is 62 years old, and in the last phases of colon cancer. She is in terrible pain and asks the doctor to give her more pain-killer medicine. The doctor has given her the maximum safe dose already and is reluctant to increase the dosage because it would probably hasten her death. In a clear and rational mental state, Mrs. Bennett says that she realizes this; but she wants to end her suffering even if it means ending her life. Should the doctor give her an increased dosage?

*[Now turn to the Answer Sheet, go to the 12 issues for this story, rate and rank them in terms of how important each issue seems to you.]*

---

### Demonstration — (Story #5)

Political and economic instability in a South American country prompted the President of the United States to send troops to “police” the area. Students at many campuses in the U.S.A. have protested that the United States is using its military might for economic advantage. There is widespread suspicion that big oil multinational companies are pressuring the President to safeguard a cheap oil supply even if it means loss of life. Students at one campus took to the streets, in demonstrations, tying up traffic and stopping regular business in the town. The president of the university demanded that the students stop their illegal demonstrations. Students then took over the college’s administration building, completely paralyzing the college. Are the students right to demonstrate in these ways?

*[Now turn to the Answer Sheet, go to the 12 issues for this story, rate and rank them in terms of how important each issue seems to you.]*

# DIT-2 Answer Sheet

University of Minnesota  
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IDENTIFICATION NUMBER

0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9

Please read story #1 in the INSTRUCTIONS booklet.

## Famine -- (Story #1)

What should Mustaq Singh do? Do you favor the action of taking the food? (Mark one.)

- ① Should take the food    ② Can't decide    ③ Should not take the food

GREAT  
MUCH  
SOME  
LITTLE  
NO

Rate the following 12 issues in terms of importance (1-5)

- |           |  |
|-----------|--|
| ① ② ③ ④ ⑤ | 1. Is Mustaq Singh courageous enough to risk getting caught for stealing?                        |
| ① ② ③ ④ ⑤ | 2. Isn't it only natural for a loving father to care so much for his family that he would steal? |
| ① ② ③ ④ ⑤ | 3. Shouldn't the community's laws be upheld?   |
| ① ② ③ ④ ⑤ | 4. Does Mustaq Singh know a good recipe for preparing soup from tree bark?                       |
| ① ② ③ ④ ⑤ | 5. Does the rich man have any legal right to store food when other people are starving?          |
| ① ② ③ ④ ⑤ | 6. Is the motive of Mustaq Singh to steal for himself or to steal for his family?                |
| ① ② ③ ④ ⑤ | 7. What values are going to be the basis for social cooperation?                                 |
| ① ② ③ ④ ⑤ | 8. Is the epitome of eating reconcilable with the culpability of stealing?                       |
| ① ② ③ ④ ⑤ | 9. Does the rich man deserve to be robbed for being so greedy?                                   |
| ① ② ③ ④ ⑤ | 10. Isn't private property an institution to enable the rich to exploit the poor?                |
| ① ② ③ ④ ⑤ | 11. Would stealing bring about more total good for everybody concerned or wouldn't it?           |
| ① ② ③ ④ ⑤ | 12. Are laws getting in the way of the most basic claim of any member of a society?              |

Rank which issue is the most important (item number).

Most important item	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫	Third most important	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫
Second most important	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫	Fourth most important	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

Now please return to the Instructions booklet for the next story.

## Reporter -- (Story #2)

Do you favor the action of reporting the story? (Mark one.)

- ① Should report the story    ② Can't decide    ③ Should not report the story

GREAT  
MUCH  
SOME  
LITTLE  
NO

Rate the following 12 issues in terms of importance (1-5)

- |           |   |
|-----------|---|
| ① ② ③ ④ ⑤ | 1. Doesn't the public have a right to know all the facts about all the candidates for office?   |
| ① ② ③ ④ ⑤ | 2. Would publishing the story help Reporter Dayton's reputation for investigative reporting?  |
| ① ② ③ ④ ⑤ | 3. If Dayton doesn't publish the story wouldn't another reporter get the story anyway and get the credit for investigative reporting?   |
| ① ② ③ ④ ⑤ | 4. Since voting is such a joke anyway, does it make any difference what reporter Dayton does?   |
| ① ② ③ ④ ⑤ | 5. Hasn't Thompson shown in the past 20 years that he is a better person than his earlier days as a shop-lifter?                        |
| ① ② ③ ④ ⑤ | 6. What would best serve society?   |
| ① ② ③ ④ ⑤ | 7. If the story is true, how can it be wrong to report it?  |
| ① ② ③ ④ ⑤ | 8. How could reporter Dayton be so cruel and heartless as to report the damaging story about candidate Thompson?                        |
| ① ② ③ ④ ⑤ | 9. Does the right of "habeas corpus" apply in this case?  |
| ① ② ③ ④ ⑤ | 10. Would the election process be more fair with or without reporting the story?  |
| ① ② ③ ④ ⑤ | 11. Should reporter Dayton treat all candidates for office in the same way by reporting everything she learns about them, good and bad? |
| ① ② ③ ④ ⑤ | 12. Isn't it a reporter's duty to report all the news regardless of the circumstances?  |

Rank which issue is the most important (item number).

Most important item	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫	Third most important	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫
Second most important	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫	Fourth most important	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

Now please return to the Instructions booklet for the next story.

PLEASE DO NOT WRITE IN THIS AREA

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**School Board -- (Story #3)**

*Do you favor calling off the next Open Meeting?*

- ① Should call off the next open meeting    ② Can't decide    ③ Should have the next open meeting

GREAT  
MUCH  
SOME  
LITTLE  
NO

*Rate the following 12 issues in terms of importance (1-5)*

- ① ② ③ ④ ⑤ 1. Is Mr. Grant required by law to have Open Meetings on major school board decisions?
- ① ② ③ ④ ⑤ 2. Would Mr. Grant be breaking his election campaign promises to the community by discontinuing the Open Meetings?
- ① ② ③ ④ ⑤ 3. Would the community be even angrier with Mr. Grant if he stopped the Open Meetings?
- ① ② ③ ④ ⑤ 4. Would the change in plans prevent scientific assessment?
- ① ② ③ ④ ⑤ 5. If the school board is threatened, does the chairman have the legal authority to protect the Board by making decisions in closed meetings?
- ① ② ③ ④ ⑤ 6. Would the community regard Mr. Grant as a coward if he stopped the open meetings?
- ① ② ③ ④ ⑤ 7. Does Mr. Grant have another procedure in mind for ensuring that divergent views are heard?
- ① ② ③ ④ ⑤ 8. Does Mr. Grant have the authority to expel troublemakers from the meetings or prevent them from making long speeches?
- ① ② ③ ④ ⑤ 9. Are some people deliberately undermining the school board process by playing some sort of power game?
- ① ② ③ ④ ⑤ 10. What effect would stopping the discussion have on the community's ability to handle controversial issues in the future?
- ① ② ③ ④ ⑤ 11. Is the trouble coming from only a few hotheads, and is the community in general really fair-minded and democratic?
- ① ② ③ ④ ⑤ 12. What is the likelihood that a good decision could be made without open discussion from the community?

*Rank which issue is the most important (item number).*

- Most important item    ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫    Third most important    ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫  
 Second most important    ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫    Fourth most important    ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

*Now please return to the Instructions booklet for the next story.*

**Cancer -- (Story #4)**

*Do you favor the action of giving more medicine?*

- ① Should give Mrs. Bennett an increased dosage to make her die    ② Can't decide    ③ Should not give her an increased dosage

GREAT  
MUCH  
SOME  
LITTLE  
NO

*Rate the following 12 issues in terms of importance (1-5)*

- ① ② ③ ④ ⑤ 1. Isn't the doctor obligated by the same laws as everybody else if giving an overdose would be the same as killing her?
- ① ② ③ ④ ⑤ 2. Wouldn't society be better off without so many laws about what doctors can and cannot do?
- ① ② ③ ④ ⑤ 3. If Mrs. Bennett dies, would the doctor be legally responsible for malpractice?
- ① ② ③ ④ ⑤ 4. Does the family of Mrs. Bennett agree that she should get more painkiller medicine?
- ① ② ③ ④ ⑤ 5. Is the painkiller medicine an active heliotropic drug?
- ① ② ③ ④ ⑤ 6. Does the state have the right to force continued existence on those who don't want to live?
- ① ② ③ ④ ⑤ 7. Is helping to end another's life ever a responsible act of cooperation?
- ① ② ③ ④ ⑤ 8. Would the doctor show more sympathy for Mrs. Bennett by giving the medicine or not?
- ① ② ③ ④ ⑤ 9. Wouldn't the doctor feel guilty from giving Mrs. Bennett so much drug that she died?
- ① ② ③ ④ ⑤ 10. Should only God decide when a person's life should end?
- ① ② ③ ④ ⑤ 11. Shouldn't society protect everyone against being killed?
- ① ② ③ ④ ⑤ 12. Where should society draw the line between protecting life and allowing someone to die if the person wants to?

*Rank which issue is the most important (item number).*

- Most important item    ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫    Third most important    ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫  
 Second most important    ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫    Fourth most important    ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

*Now please return to the Instructions booklet for the next story.*

PLEASE DO NOT WRITE IN THIS AREA

**Demonstration -- (Story #5)**

*Do you favor the action of demonstrating in this way?*

- ① Should continue demonstrating in these ways    ② Can't decide    ③ Should not continue demonstrating in these ways

GREAT  
MUCH  
SOME  
LITTLE  
NO

**Rate the following 12 issues in terms of importance (1-5)**

- ① ② ③ ④ ⑤ 1. Do the students have any right to take over property that doesn't belong to them?
- ① ② ③ ④ ⑤ 2. Do the students realize that they might be arrested and fined, and even expelled from school?
- ① ② ③ ④ ⑤ 3. Are the students serious about their cause or are they doing it just for fun?
- ① ② ③ ④ ⑤ 4. If the university president is soft on students this time, will it lead to more disorder?
- ① ② ③ ④ ⑤ 5. Will the public blame all students for the actions of a few student demonstrators?
- ① ② ③ ④ ⑤ 6. Are the authorities to blame by giving in to the greed of the multinational oil companies?
- ① ② ③ ④ ⑤ 7. Why should a few people like Presidents and business leaders have more power than ordinary people?
- ① ② ③ ④ ⑤ 8. Does this student demonstration bring about more or less good in the long run to all people?
- ① ② ③ ④ ⑤ 9. Can the students justify their civil disobedience?
- ① ② ③ ④ ⑤ 10. Shouldn't the authorities be respected by students?
- ① ② ③ ④ ⑤ 11. Is taking over a building consistent with principles of justice?
- ① ② ③ ④ ⑤ 12. Isn't it everyone's duty to obey the law, whether one likes it or not?

*Rank which issue is the most important (item number).*

Most important item    ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫  
 Second most important    ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

Third most important    ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫  
 Fourth most important    ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

**Please provide the following information about yourself:**

1. Age in years:

0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

2. Sex (mark one):     Male     Female

3. Level of Education (mark highest level of formal education attained, if you are currently working at that level [e.g., Freshman in college] or if you have completed that level [e.g., if you finished your Freshman year but have gone on no further].)

- Grade 1 to 6
- Grade 7, 8, 9
- Grade 10, 11, 12
- Vocational/technical school (without a bachelor's degree) (e.g., Auto mechanic, beauty school, real estate, secretary, 2-year nursing program).
- Junior college (e.g., 2-year college, community college, Associate Arts degree)
- Freshman in college in bachelor degree program.
- Sophomore in college in bachelor degree program.
- Junior in college in bachelor degree program.
- Senior in college in bachelor degree program.
- Professional degree (Practitioner degree beyond bachelor's degree) (e.g., M.D., M.B.A., Bachelor of Divinity, D.D.S. in Dentistry, J.D. in law, Masters of Arts in teaching, Masters of Education [in teaching], Doctor of Psychology, Nursing degree along with 4-year Bachelor's degree)
- Masters degree (in academic graduate school)
- Doctoral degree (in academic graduate school, e.g., Ph.D. or Ed.D.)
- Other Formal Education. (Please describe: \_\_\_\_\_)

4. In terms of your political views, how would you characterize yourself (mark one)?

- Very Liberal
- Somewhat Liberal
- Neither Liberal nor Conservative
- Somewhat Conservative
- Very Conservative

5. Are you a citizen of the U.S.A.?

- Yes     No

6. Is English your primary language?

- Yes     No

**Thank You.**

PLEASE DO NOT WRITE IN THIS AREA

**Dilemma #6**

*Do you favor the action?*

① Strongly Favor   ② Favor   ③ Slightly Favor   ④ Neutral   ⑤ Slightly Disfavor   ⑥ Disfavor   ⑦ Strongly Disfavor

GREAT  
MUCH  
SOME  
LITTLE  
NO

*Rate the following 12 issues in terms of importance (1-5)*

① ② ③ ④ ⑤ 1. \_\_\_\_\_

① ② ③ ④ ⑤ 2. \_\_\_\_\_

① ② ③ ④ ⑤ 3. \_\_\_\_\_

① ② ③ ④ ⑤ 4. \_\_\_\_\_

① ② ③ ④ ⑤ 5. \_\_\_\_\_

① ② ③ ④ ⑤ 6. \_\_\_\_\_

① ② ③ ④ ⑤ 7. \_\_\_\_\_

① ② ③ ④ ⑤ 8. \_\_\_\_\_

① ② ③ ④ ⑤ 9. \_\_\_\_\_

① ② ③ ④ ⑤ 10. \_\_\_\_\_

① ② ③ ④ ⑤ 11. \_\_\_\_\_

① ② ③ ④ ⑤ 12. \_\_\_\_\_

*Rank which issue is the most important (item number).*

Most important item   ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

Second most important   ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

Third most important   ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

Fourth most important   ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

**Dilemma #7**

*Do you favor the action?*

① Strongly Favor   ② Favor   ③ Slightly Favor   ④ Neutral   ⑤ Slightly Disfavor   ⑥ Disfavor   ⑦ Strongly Disfavor

GREAT  
MUCH  
SOME  
LITTLE  
NO

*Rate the following 12 issues in terms of importance (1-5)*

① ② ③ ④ ⑤ 1. \_\_\_\_\_

① ② ③ ④ ⑤ 2. \_\_\_\_\_

① ② ③ ④ ⑤ 3. \_\_\_\_\_

① ② ③ ④ ⑤ 4. \_\_\_\_\_

① ② ③ ④ ⑤ 5. \_\_\_\_\_

① ② ③ ④ ⑤ 6. \_\_\_\_\_

① ② ③ ④ ⑤ 7. \_\_\_\_\_

① ② ③ ④ ⑤ 8. \_\_\_\_\_

① ② ③ ④ ⑤ 9. \_\_\_\_\_

① ② ③ ④ ⑤ 10. \_\_\_\_\_

① ② ③ ④ ⑤ 11. \_\_\_\_\_

① ② ③ ④ ⑤ 12. \_\_\_\_\_

*Rank which issue is the most important (item number).*

Most important item   ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

Second most important   ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

Third most important   ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

Fourth most important   ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

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○ ○ ○ ○ ○ ● ○ ○ ○ ○ ○ ● ○ ○ ○ ○ ○ ● ○ ○ ○ ○ ○

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Note. The DIT-2 instrument was provided by the Center for the Study of Ethical Development at the University of Alabama, 2020. (<https://ethicaldevelopment.ua.edu/about-the-dit.html>). Reprinted with permission.

## Appendix B: Civic-Minded Professional Scale (CMP)

### Civic-Minded Professional Scale

Please read each statement and decide to what extent it describes you. You will probably agree with some of the statements and disagree with others. There is no right or wrong answer. Please describe yourself as you really are, not as you would like to be. Please indicate your level of agreement with each of the following items using the following scale:

**1 = Strongly Disagree; 2 = Disagree; 3 = Disagree Slightly; 4 = Neither Agree or Disagree;  
5 = Agree Slightly; 6 = Agree; 7 = Strongly Agree**

1. Others I work with would likely describe me as someone who listens to conflicting opinions before reaching decisions.
  
2. I would describe myself as a politically active and engaged citizen.
  
3. I keep very well informed about current issues of social justice.
  
4. Others I work with would likely describe me as someone who is at ease working with people from diverse ethnic backgrounds.
  
5. When I look at myself in the mirror, I am very satisfied in reflecting on the work that I do.
  
6. I think that all professionals should give a portion of their time to community, voluntary, or pro bono service.
  
7. I feel confident in my ability to bring people together to address a community need.
  
8. I feel that my level of education places an additional responsibility upon me to serve others.

9. I keep very well informed about current public policy that directly relates to the type of work that I do.
10. I often feel a deep sense of purpose in the work that I do.
11. I feel very comfortable recruiting others to become more involved in the community.
12. Others would likely describe me as someone who is very passionate about my work.
13. Others would likely describe me as a person who is well informed about a variety of volunteer opportunities in the community.
14. I feel a strong sense of connectedness to others, even if they are quite different than me.
15. The education and knowledge that I have gained should be used to serve others.
16. I am well connected to a number of people who are active in their communities.
17. I often gain a deep sense of satisfaction from the work that I do.
18. I am very interested in current events.

19. My personal values and beliefs are well integrated and aligned with my work and career.
20. I am very familiar with a wide variety of nonprofit organizations.
21. I think that professionals have a civic responsibility to improve society by serving others.
22. I have a strong ability to come to consensus with others through dialogue and compromise.
23. I am aware of many opportunities to use my skills and abilities in community, voluntary, or pro bono service.

Note. From Skills, Ethics and Capacity, by the IUPUI Center for Service and Learning, 2020

([https://indiana.sharepoint.com/sites/msteams\\_92d57a/Shared%20Documents/Forms/AllItems.aspx?id=%2Fsites%2Fmsteams%5F92d57a%2FShared%20Documents%2FGeneral%2Fcs1%2Eiupui%2Eedu%2FTeaching%20and%20Research%2Fcivic%2Dminded%2Dprofessional%2Dscale%2Epdf&parent=%2Fsites%2Fmsteams%5F92d57a%2FShared%20Documents%2FGeneral%2Fcs1%2Eiupui%2Eedu%2FTeaching%20and%20Research&p=true&originalPath=aHR0cHM6Ly9pbmRpdW5hLnNoYXJlcG9pbmQuY29tLzpiOi9zL21zdGVhbXNfOTJkNTdhL0VSTjBCekNJS3FsTG03LTZfMjBLanhVQjJHdEhCS2ZILXpzaUpzTTN2V0E3dWc\\_cnrpbWU9T3VtM2Y0ZUQyRWc](https://indiana.sharepoint.com/sites/msteams_92d57a/Shared%20Documents/Forms/AllItems.aspx?id=%2Fsites%2Fmsteams%5F92d57a%2FShared%20Documents%2FGeneral%2Fcs1%2Eiupui%2Eedu%2FTeaching%20and%20Research%2Fcivic%2Dminded%2Dprofessional%2Dscale%2Epdf&parent=%2Fsites%2Fmsteams%5F92d57a%2FShared%20Documents%2FGeneral%2Fcs1%2Eiupui%2Eedu%2FTeaching%20and%20Research&p=true&originalPath=aHR0cHM6Ly9pbmRpdW5hLnNoYXJlcG9pbmQuY29tLzpiOi9zL21zdGVhbXNfOTJkNTdhL0VSTjBCekNJS3FsTG03LTZfMjBLanhVQjJHdEhCS2ZILXpzaUpzTTN2V0E3dWc_cnrpbWU9T3VtM2Y0ZUQyRWc)). In the public domain.

## Appendix C: Institutional IRB Approval Letter

### ABILENE CHRISTIAN UNIVERSITY

*Educating Students for Christian Service and Leadership Throughout the World*

Office of Research and Sponsored Programs  
320 Hardin Administration Building, ACU Box 29103, Abilene, Texas 79699-9103  
325-674-2885



April 13, 2020

Chad Jackson  
Department of Organizational Leadership  
Abilene Christian University

Dear Chad,

On behalf of the Institutional Review Board, I am pleased to inform you that your project titled "Curricular Influence on Professional Formation in Physical Therapy Students",

(IRB# 20-041 ) is exempt from review under Federal Policy for the Protection of Human Subjects.

If at any time the details of this project change, please resubmit to the IRB so the committee can determine whether or not the exempt status is still applicable.

I wish you well with your work.

Sincerely,

*Megan Roth*

Megan Roth, Ph.D.  
Director of Research and Sponsored Programs