Development of professional identity in the physical therapist assistant

by

Randall E. Leighton

B.G.S., University of Kansas, 1989
M.S. PT, University of Kansas, 1991

AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the requirements for the degree

DOCTOR OF PHILOSOPHY

Department of Adult Learning and Leadership
College of Education

KANSAS STATE UNIVERSITY
Manhattan, Kansas

2020

Abstract

Appropriate professional identity (PI) is a critical component in the make-up of a health care worker. Many different forces influence how the individual sees themselves as a professional including experience, upbringing, education and interactions with individuals in the chosen field. This mixed-methods research used an explanatory sequential research design to explore the forces which help create professional identity through education and into professional work. In the quantitative portion of the study, four groups composed of a) physical therapist assistant students (SPTAs) in their first year of school, b) SPTAs in their second year of school, c) novice physical therapist assistants (PTAs) with three or less years of practice and d) experienced PTAs with more than three years of practice were surveyed. The SPTAs completed the modified professional identity five-factor scale (mPIFFS) (Tan et al., 2017), a 26-question survey utilizing a five-point Likert scale to measure aspects of PI and overall strength of PI. PTAs completed the modified professional identity and values scale (mPIVS) (Eason et al., 2018; Healey & Hays, 2012), a 20-question survey utilizing a six-point Likert scale which explored aspects of PI in the practicing PTA. In the intermediate phase, the two surveys were analyzed for strength of PI and themes amongst the items to inform semi-structured interview questions for the qualitative portion. The qualitative portion consisted of three interviews of individuals in each of the four study groups for a total of 12 interviews. The data from these interviews was used in conjunction with survey results to draw conclusions. Forces affecting PI for the student and practicing PTA were largely the same, including experience, the PTA/PT relationship, role models, and behavioral observation. The most notable difference between the two groups was breadth of experience. This data suggests the implementation of early clinical experience, intentional mentoring, and formalized education in PI.

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Approved by:

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Appropriate professional identity (PI) is a critical component in the make-up of a health care worker. Many different forces influence how the individual sees themselves as a professional including experience, upbringing, education and interactions with individuals in the chosen field. This mixed-methods research used an explanatory sequential research design to explore the forces which help create professional identity through education and into professional work. In the quantitative portion of the study, four groups composed of a) physical therapist assistant students (SPTAs) in their first year of school, b) SPTAs in their second year of school, c) novice physical therapist assistants (PTAs) with three or less years of practice and d) experienced PTAs with more than three years of practice were surveyed. The SPTAs completed the modified professional identity five-factor scale (mPIFFS) (Tan et al., 2017), a 26-question survey utilizing a five-point Likert scale to measure aspects of PI and overall strength of PI. PTAs completed the modified professional identity and values scale (mPIVS) (Eason et al., 2018; Healey & Hays, 2012), a 20-question survey utilizing a six-point Likert scale which explored aspects of PI in the practicing PTA. In the intermediate phase, the two surveys were analyzed for strength of PI and themes amongst the items to inform semi-structured interview questions for the qualitative portion. The qualitative portion consisted of three interviews of individuals in each of the four study groups for a total of 12 interviews. The data from these interviews was used in conjunction with survey results to draw conclusions. Forces affecting PI for the student and practicing PTA were largely the same, including experience, the PTA/PT relationship, role models, and behavioral observation. The most notable difference between the two groups was breadth of experience. This data suggests the implementation of early clinical experience, intentional mentoring, and formalized education in PI.

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Acknowledgements

As anyone who has undertaken a doctoral dissertation knows, it requires a great deal of effort and perseverance. As anyone who has ever been around or loved anyone who has undertaken such a project knows, it takes a great deal of effort and perseverance on their part as well. To put it mildly, doctoral students can be difficult to be around. They are often absent even when present. There is whining, complaining and duties left undone. Many dissertations are left undone and I suspect there are few if any dissertations which were not almost abandoned, this one at least twice. Because of these reasons it is appropriate to acknowledge those who made significant contributions to the completion of this dissertation. I could not have gotten here without you.

I would like to acknowledge the support of my parents Larry and Martha Leighton, both emotionally and financially. Without their support I would not have achieved my educational or life goals.

I would like to acknowledge family, friends and co-workers too many to name without leaving out important contributions. They have endured my rantings, ravings, listen to me talk excessively about topics they are not interested in, excused my absence and picked up my slack.

I would like to thank my committee, led by my major professor, Dr. Royce Ann Collins. They include Dr. Favor, Dr. Liang, Dr. Craft and Dr. Kidd. Without their help and support not only would the quality have suffered, but the research would have likely gone uncompleted. I would like to especially thank Dr. Collins, who was a source of endless advice and encouragement, her Doctoral Student Meetings (Support Group) were invaluable, she repeatedly calmed me down, and reasoned me out of quitting.

I would like to apologize to anyone who asked me, “How is your dissertation going?” I am certain you learned more than you wanted to know.

Most of all I would like to acknowledge the contributions of my wife, Meganne. I have been blessed with her in my life for twenty-eight years. She is the most patient person I know. She has suffered through every minute with me. I am sure she heard more about the lows than the highs, but she continued to support me, uplift me and pray for me. Thank you.

Dedication

This research is dedicated to my wife, Meganne and sons Andrew, James and Lucas who have endured this process by offering words of encouragement, excusing my absence (even when present), and picking up my slack. To my mother Martha Leighton, father Larry Leighton, and sister Cindy Leighton who always supported my educational goals no matter what they were and a special thanks to Cindy for her enthusiastic transcription assistance and encouragement.

This research is dedicated to the myriad of educators in my family who are and have dedicated their careers to making a difference in the lives of others.

This research is dedicated to all of those in physical therapy and education who have positively influenced my journey and contributed to my own professional identities.

Finally, this research is dedicated to all of those who participated in this researcher, either as participants, mentors, proofreaders or emotional support. Thank you so much for giving up your valuable time to support me. I am certain I do not say, “Thank you” enough, so, “Thank you”.

Preface

Truth walks toward us on the paths of our questions. As soon as you think you have the answer, you have closed the path and may miss the vital new information. Wait awhile in the stillness, and do not rush to conclusions, no matter how uncomfortable the unknowing.

--Jacqueline Winspear (2003, p. 26)

This research was borne out of several issues which arose in my own journey into education from the world of physical therapy. I was asked in my interview for a full-time teaching position if I had any teaching experience. I replied, “Although the ‘class’ size is smaller I have been teaching my entire career. That is what PT’s do, they teach.” While this may be true the transition was not an easy one. For the first several years when people asked me, “What do you do?” I would say, “I am a physical therapist.” The follow up question was inevitably, “Where do you practice?”; “Oh, I teach full time.” After several years of teaching the answer is, “I am a teacher.” Now, the follow up question is, “What do you teach?”; “Oh, I teach physical therapy, I am also a physical therapist.” This shift was somewhat painful and required a significant change in my professional identity (PI). For twenty years my PI and to some extent my self-worth was tied to being a physical therapist and I had very little assistance in making the transition.

After becoming a teacher, I began to recognize my job was not just to provide information and facts about physical therapy, but to help cultivate a PI in future PTAs which would help students acclimate to their new roles. At first, as I began thinking about how to best assist the students, I believed there was no downside to a strong PI. My belief was, “The stronger the better”. At the same time, I began to research PI development and more specifically PI for

the student physical therapist assistant. I quickly realized three things, 1) the topic was much more complicated than I had anticipated 2) there can be a downside to strong PI and 3) there was a notable lack of research on the subject. These realizations inspired this research to better understand my own journey, to be a better mentor to my students and to contribute to the body of research on PI.

The opening quote, from a fictional detective, sat above my desk as I wrote and resonated with me throughout this process. I often hurry and draw conclusions based on my own common sense, anecdotal evidence, or incomplete data. While there is still a great deal to learn about PI, I believe I made strides in all three areas. If this process has taught me nothing else, it is patience. I will continue to ask questions, try not to close the paths and be more comfortable with the unknowing. My hope is this research helps you better understand your PI and possibly give you some ideas on how to instill it in others.

Chapter 1-Research Overview

Introduction

This research explored professional identity (PI) development as individuals move through the continuum from admission to A physical therapist assistant (PTA) program to practicing professional. Forces impacting the formation of PI were looked at as well as the potential application for educators. This chapter provides background on the concept of professional identity, its formation, and why more research is appropriate. Moreover, this chapter discusses the research problem, the research questions and some of the forces believed to affect changes in professional identity.

Professional Identity

Despite playing a critical role in professional development and practice readiness, professional identity remains without an agreed upon definition or implementation process (Crigger & Godfrey, 2014; Wilson, Cowin, Johnson, and Young, 2013). Hensel, Middleton and Engs (2014) identify professional identity as the primary difference between the novice and the seasoned practitioner. Regarding professional identity, Moss, Gibson, and Dollarhide (2014) state, "Contemporary definitions of professional identity revolve around three themes: self-labeling as a professional, integration of skills and attitudes as a professional, and a perception of context in a professional community" (p. 21). Once recognizing the importance of professional identity in becoming a professional, it is necessary to understand when and how a learner develops professional identity. This information could allow educators to develop curriculum to impact PI formation, to assist the student's acclimatization to the profession, and ultimately to contribute to positive patient outcomes.

Multiple authors have proposed definitions of professional identity (PI). In their review of literature, Goltz and Smith (2014) identify at least four different definitions of PI. These definitions include characteristics of self-concept as a professional, motive, belief systems, professional competence, commitment, and connectedness (Goltz & Smith, 2014). Wald (2015) describes the development of PI as a transformative journey integrating knowledge, skills, values and behaviors. Sharpless et al. (2015) appear to be a little more ethereal, stating the overall goal of professional identity formation is developing "new ways of being" (p. 785). This research utilizes the definition, "Understanding a chosen profession in conjunction with one's own self-concept, enabling an individual to articulate their role, philosophy, and approach to others within and outside of their chosen field" (Healey & Hays, 2012, p. 9). To utilize this definition the future professional must not only understand the concepts and behaviors required in their chosen profession but must also integrate this new professional self with their previous self-concept and professional knowledge, transforming them into a competent health care understanding worker.

A Need for Professional Identity

Ultimately, the goal of the health care worker and subsequently health care education is positive patient outcome. As health care costs increase, staffing numbers decrease, and health care continues to compartmentalize, it becomes increasingly important for health care workers to be practice ready at graduation; and have the ability to work in a team to pool their collective knowledge to foster positive outcomes (Adams, Hean, Sturgis & Clark, 2006; Buring et al., 2009; Kamal & Cox, 2018; Mickan, 2005; Thistlethwaite, Jackson, & Moran, 2013). For the pre-professional or novice health care clinician to participate in the team and contribute to this goal, he/she must not only learn a specific skill set associated with his/her profession, but must also understand and fulfill a role on the health care team (Adams et al., 2006; Mickan, 2005). While

the importance of working as a team may seem intuitive, there are barriers in health care. Barriers to effective teamwork include profession specific training and regulations, power differences, a desire to protect professional boundaries, and drive for status which may be personal or professional (DeMatteo, Reeves, & Li, 2013). Educators must foster appropriate PI to allow the graduate to be ready to practice and to participate on the team. To accomplish these goals a new professional must develop a professional identity.

More Than Professional Skill

Developing profession specific skills is a critical component of any academic professional program. However, becoming a professional requires more than just a skill set, "textbooks can teach me how to diagnose problems, not necessarily how to handle them" (Sharpless et al., 2015, p. 715). "Handling" a problem requires individual knowledge, competent interaction with the patient and the rest of the health care team (Plack, 2006; Sharpless et al., 2015). More emphatically, Cooke, Irby, and O'Brien (2010) write, "We believe the transformation of identity should be the highest purpose of medical education" (p. 65). These statements indicate the professional must possess not only knowledge, but less tangible skills, for instance ethics, empathy, values, beliefs and others as related to a specific profession and these skills are demanded from the novice clinician (Holden et al., 2015; Plack, 2006).

Thistlethwaite and Dallest (2014) remind us: "Competencies expected of graduating health professionals include: teamwork; understanding of each profession's roles, and responsibilities, communication; reflection on practice; patient- or client-centred care, and ethical behavior" (p. 556). The question remains: how does the novice clinician gain these intangible skills? Developing a professional identity is a key component to becoming a professional and acquiring these skills (Holden et al., 2015; Wald, 2015). The dynamic and changing nature of

these intangible skills throughout the educational process makes teaching and assessing them difficult (Wald, 2015).

Gaining Professional Identity

For full integration into a profession an individual must understand their role in their chosen profession and how their profession fits into the health care team, to do so the novice must understand their professional identity (Holden et al., 2015; Wald, 2015). Simple questions with complex answers include: How or when does a pre-professional gain a fully integrated professional identity? Having potentially never considered the concept of professional identity, how does an individual's concept of self and their definition of professional identity through the fluid continuum of novice student to practicing professional change? With a variety of different definitions of professional identity, as noted above, it is apparent there will not be a definition at the front of the book when the pre-professional begins training, to be recited memorized and put into practice. It is also unlikely the student will enroll in an introductory course titled "Professional Identity 101". Keeping in mind, the creation of professional identity is much too fluid for a simple definition and implementation. A logical next step would be to look at how a student develops professional identity and the forces impacting its development.

Multiple authors address the origin of professional identity for the new student (Cooke et al., 2010; Holden, Buck, Clark, Szauter, & Trumble, 2012; Wilson et al., 2013). Because the pre-professional most likely did not pick their profession randomly out of a hat, researchers suggest professional identity begins prior to the student attending their first class (Holden et al., 2015; Sharpless et al., 2015; Wald, 2015). Speaking specifically regarding physicians, Sharpless et al. (2015) point out, "To this process students bring prior identities, ideas about physician role and image, and vision for their future" (p. 713). In the case of physicians, this beginning of

professional identity may extend back into adolescence (Wilson et al., 2013) beginning with the individuals first contacts with a physician. If this is truly the case, pre-professionals likely, begin the process of laying the groundwork for their professional identity as soon as they have knowledge of the profession, regardless if this is the profession they plan to enter. In part, due to this very insidious beginning to the establishment of professional identity and the varied backgrounds of individuals coming to a profession the depth of development of the new student will be varied. Hensel et al. (2014) conclude in their research, the values and beliefs students arrive with may be more ingrained into students' professional identity than educators assume, and it is not just a process completed during professional education. The idea professional identity begins prior to entry into professional education is complicated by the belief it extends through education, into practice and throughout the professional's entire career (Sharpless et al., 2015; Wald, 2015; Wilson et al., 2013). The complexity of what makes up professional identity and the longitudinal nature of its creation makes PI acquisition difficult to study.

Despite its complexity, if professional identity is a significant component of what makes one a professional, it is critical to better understand when and how it is developed by the learner. Better understanding of how definitions and self-concepts of the professional evolves throughout the educational process and into the beginning of practice will allow educators to impact the formation of professional identity. A clearer understanding of professional identity leads to a better understanding of the individual role on the health care team and should ultimately cause more positive patient outcomes.

Statement of the Problem

As the complexity of health care continues to increase, the need for teamwork and an understanding of the less tangible pieces of PI become more important than ever. Despite the

importance of professional identity, it is rarely addressed in the academic setting (Plack, 2006). "Even when problematic [PI], academic faculty often hesitate to address these issues because they are considered personal and too subjective" (Plack, 2006, p. 37). Plack (2006) additionally states, "It is often expected that the attitudes, values, and beliefs underlying professional behaviors will be acquired through clinical interaction" (p. 37). Something this important cannot be left to chance. Understanding how perceptions of professional identity evolve throughout the continuum of education and intentional teaching can improve educational approaches and outcomes.

There has been research completed on professional identity. Cowin, Johnson, Wilson and Borgese (2013) administered five different psychometric surveys, validated to measure professional identity, to first and third year nursing students. Cowin et al. (2013) found all five measures did not perform as well as reported by the original authors, in addition, results of four of the five surveys showed a drop in professional identity ratings from the first to the third year. These results seem more remarkable considering the wide demographics of students when considering age, previous experience, and race reported by the authors (Cowin et al., 2013). Additionally, in research with multiple health care students Adams et al. (2006) similarly found drops in ratings of PI during the educational process. Assuming these tools are indeed valid, the findings would suggest perception and definition of professional identity changes through the educational process as new knowledge, experience, and skill are acquired. After researching professional identity in first year health care students, Adams et al. (2006) conclude,

> Research is therefore needed to explore the development of professional identity, as students' progress through their programmes of study, enter practice and begin their

careers, to investigate how this professional identity may impact on practice and, ultimately, on patient care (p. 65).

With the need to instill professional identity to produce practice ready clinicians, it is important to understand how these perceptions and definitions change through the educational process and on into practice.

Unfortunately, when looking at development of professional identity in the field of Physical Therapy, Hayward and Li (2014) note few studies look at the development of identity in the doctoral physical therapist student and fewer studies consider the development of identity in the novice physical therapist. Hayward and Li's (2014) literature review does not reference any studies involving the physical therapist assistant (PTA), at any level, regarding professional identity. A literature search in multiple databases including EBSCOhost Multi, ProQuest: Nursing & Allied Health Database, and ERIC did not identify any research in this area regarding the student physical therapist assistant. With the American Physical Therapy Association's (APTA) mandating the entry level for a PT at the doctorate level, the disparity in educational level between the PT and PTA potentially creates a significant gap in the professional identities of these related professions. The scant studies looking at development of professional identity in the Doctoral Physical Therapist student should not be generalized to the Physical Therapist Assistant student (SPTA). This gap in the literature of professional identity warranted this research.

Purpose Statement

The purpose of this research was to explore how individuals in distinct phases of the educational process and their professional careers define professional identity the forces influencing its development and how individuals make meaning of their role as a Physical

Therapist Assistant (PTA). Based on the purpose of the research the following research questions were formulated:

Primary Research Question

What forces impact the development of professional identity in student physical therapist assistants (SPTAs) and physical therapist assistants (PTAs), and do these forces vary from education to professional practice? Quantitative data collection for SPTAs was collected with the professional identity five-factor scale (mPIFFS) created by Tan, Van der Molen, & Schmidt ((2017), while quantitative data for PTAs was collected utilizing the modified professional identity and values scale (mPIVS) initially created by Hays (2009) and modified by Eason, Mazerolle, Denegar, Burton and McGarry (2018).

Quantitative Research Questions

1. Is there a statistically significant difference in the rating of professional identity, utilizing the modified professional identity five-factor scale (mPIFFS), between first year SPTAs and second year SPTAs?
2. Is there a statistically significant difference in the ratings of professional identity (PI) utilizing the modified professional identity and values scale (mPIVS) between novice clinicians with three or less years of experience and PTAs with more than three years of experience?

Quantitative Research Hypotheses

The Null Hypotheses for the quantitative portion:

1. There will be no statistically significant difference in the PI ratings on Tan et al.'s (2017) modified professional identity five-factor scale between the first year PTA student and the second year PTA student.

2. There will be no statistically significant difference in the ratings of PI on the modified professional identity and values scale (mPIVS) (Healey, 2009; Healey & Hays, 2011) between novice clinicians with three or less years of experience and experienced PTAs with more than three years of experience.

Alternate Hypotheses:

1. Strength of professional identity, measured by the mPIFFS, will be greater in second year SPTAs than in first year SPTAs.
2. Strength of professional identity measured by the mPIVS will be greater in PTAs with more than three years of professional practice experience when compared to those with three or less years of experience.

Qualitative Research Questions

1. How is professional identity (PI) defined by SPTAs, novice PTAs and experienced PTAs?
2. What forces do SPTAs and PTAs identify as shaping the development of PI?
3. What are the differences between the forces shaping PI development in the SPTA and the PTA?

Population

The quantitative portion of the research involved a survey of 124 individuals (49 SPTAs and 75 PTAs) out of ~250-300 reached. The qualitative portion consisted of individual interviews with three individuals in each of four groups in the field. In both the quantitative and qualitative portions of the research participants were divided into four groups; (a) students in their first formal year of PTA school (first-year students); (b) students in their second year of PTA school (second-year students); (c) licensed PTA's practicing for three or less years (novice

clinicians); and (d) licensed PTA's with more than three years of practice (experienced clinicians).

According to the Commission on Accreditation in Physical Therapy Education (CAPTE) currently there are 12,970 physical therapist assistant students in the educational process in the United States (CAPTE, n.d.) attending 371 accredited programs ("Number of PT and PTA Programs as of July 12, 2019 02:20 Pm, 2019). This research was conducted in a metropolitan area of a midwestern city where there are two public institutions and one proprietary PTA school with a total of approximately 80 graduates each year. Program directors from the three schools in the research area agreed to allow their students to participate. A request to participate in the quantitative mPIFFS was emailed to all students in these three programs, approximately 120 students. This email also included a link where the student could volunteer to participate in the qualitative interview process, and they could opt out of both sections of the research as well.

According to the Bureau of Labor and Statics (Bureau of Labor and Statistics, 2016), there are approximately 85,580 licensed PTAs in the United States. In this metropolitan area there are approximately 940 PTAs (Bureau of Labor and Statistics, 2019). There is not a mechanism to reach all PTAs in this metropolitan area. A local alumni Facebook pages and PTA alumni email lists were utilized to reach PTAs to request participation in completing the mPIVS survey and to participate in the interview process.

Research Design

This mixed methods research utilized an explanatory sequential design (Creswell & Clark, 2017). In an explanatory sequential design, the quantitative portion of the research is completed prior to the qualitative portion, with the intent of using qualitative data to explain the

quantitative results (Creswell & Clark, 2017). The modified professional identity five-factor scale (mPIFFS) (Tan et al., 2017) and modified professional identity and values scale (mPIVS) (Eason et al., 2018; Healey & Hays, 2011) resulted in a number corelating with "strength" of professional identity in SPTAs and PTAs respectively. This research was not only interested in how strongly the SPTA and PTA rate their PI (survey results) but was also interested in whether the SPTA and PTA have similar ideas of what PI is and the forces they believe impact their development of PI at different points in their career. In other words, are some forces more influential in the development of PI at different times? Utilizing the explanatory sequential design, the research attempts to explain the results of PI ratings by different groups of participants. As noted above, previous research on strength of PI has found conflicting results including a dip in PI in the midst of education and also no changes in PI throughout education (Barbour & Lammers, 2015; Cowin et al., 2013; Tan et al., 2017). By utilizing the explanatory sequential design, the results of these outcomes can be explored in more detail with specific questions regarding PI development created after the results of the surveys have been examined. In this explanatory sequential design, the results of the survey were utilized to determine qualitative interview questions to seek explanation of similarities or differences in the results of strength professional identity.

Participant Recruitment

Each student participant was emailed a request to participate in the research. For practicing professionals, a request to participate was made available through a private alumni Facebook page of one of the participating colleges, PTAs in two local health care systems were contacted, and through email to the three participating PTA school alumni lists. The Facebook request had two links as did the email requests. One link connected the participant to the mPIFFS

or mPIVS which took the participant to the appropriate survey, (either the mPIFFS or the mPIVS) where they completed the survey anonymously. Another link allowed the participant to provide contact information to volunteer to be interviewed through the interview enrollment questionnaire (Appendix A) in the quantitative portion of the research. The link to participate in the interview did not link survey results to the contact information. Those individuals who volunteered for the survey did not have their survey results linked to their contact information, so all survey data was anonymous.

In the qualitative section of the research, three individuals in each educational cohort along with three novice PTAs (with three or less years' experience) and three experienced PTA's (with more than three years' experience) were interviewed. These interviews explored how these individuals define professional identity, the role of the PTA, how the PTA fits into the health care team, and the forces influencing those perceptions. These interviews were recorded, transcribed and analyzed through values coding and theming coding as described by Saldaña (2016) and Braun and Clarke (2006), looking for common themes and changes in perception and definitions of professional identity.

Data Analysis

Data was subjected to multiple forms of analysis. A sample size calculator ("Sample Size Calculator," n.d.) was used to assess sample size and to calculate a margin of error. Initial data analysis included calculating a mean PI for each individual by averaging the participants ratings of each item utilizing Microsoft® Excel® for Office 365. The data was then loaded into IBM's SPSS version 26 for additional analysis. A Kaiser-Meyer-Olkin Measure of Sample Adequacy (KMO) and a Bartlett's Test of Sphericity where calculated to determine if the data was appropriate for factor analysis. Once appropriateness for factor analysis was determined factor

analysis was completed for both the mPIFFS and the mPIVS. The results of the surveys were analyzed by one-way ANOVA to look for significant difference between the groups. Results of the statistical analysis were utilized to determine appropriate questions used in semi-structured qualitative interviews

Assumptions

This research has several assumptions:

1. Participants were honest with their answers on both the survey and during interviews.
2. Participants were participating in this research purely to assist in the contribution of knowledge to the field of physical therapy and education. They did not participate for an alternate gain, such as status, favoritism or future favors.
3. While inclusion in the research was through convenience and snowball sampling, the criteria allow for more general conclusions to be drawn.
4. The survey tools validated for assessing professional identity in a general population are valid tools for use with PTA students and graduates.
5. The sample size was limited and confined to a specific locale. Although not ideal, Norman (2010) points out many assumptions about sample sizes are erroneous. Group sizes as small as five can be utilized to show statistical significance (Norman, 2010). “Of course, small samples require larger effects to achieve statistical significance... [however] If it’s significant, it’s significant. A small sample size makes the hurdle higher, but if you’ve cleared it, you’re there” (Norman, 2010, p. 628). Despite a calculated margin of error of between 10 and 11% findings can be reported keeping in mind the possibility of error. While the argument was made the sample size is adequate, a larger survey sample size would decrease the margin of error. Additionally, a larger sample size or even a

nationwide sample would increase the likelihood the conclusions drawn would be more universally applicable.

Limitations

This research has several limitations:

1. Although assuming students and new graduates were honest about their perceptions of professional identity and their perceived role on the treatment team, participants may not have been completely honest.
2. Time constraints prevented this research from being longitudinal and while a longitudinal study may offer a look at changes in an individual this research looked for trends and themes repeated among participants.
3. For some participants there was a relationship between the researcher and a participant as instructor or colleague. This relationship may have affected answers; the anonymous aspect of the survey and looking for trends will help mitigate this effect.
4. The semi-structured interview was utilized to give more leeway for the researcher to explore topics as they arose and to give the interview a less formal feel (Longhurst, 2003; Merriam & Tisdell, 2016). While the semi-structured interview likely accomplished those two goals the format also allows the participants and researcher to get off topic and explore interesting areas. One potential downside of the semi-structured interview is there may be only one sample of the novel data if similar questions were not asked of other participants limiting the validity of conclusions drawn from a single sample.
5. It is not possible to know what, if any, impact the COVID-19 crisis had on this research. Although unlikely, it is possible it had no impact; all 12 participants denied the current situation lessened their desire to participate in health care. However, it is possible

potential quantitative research subjects did not participate because the benefits associated with the participation in research were outweighed by concerns related to COVID-19. Of those who did participate, new concerns for health care workers related to the virus may have altered answers on the surveys. Likewise, several potential qualitative interview subjects were not available, if COVID-19 was a reason for withdrawing, their thoughts on PI were not considered. It is also possible answers in qualitative portions of the research were altered without the participants awareness. If potential participants in either portion of the research did not participate due to concern with COVID-19 their voices were not heard and may have altered these results.

6. Two separate surveys were used for this research. The mPIFFS (Tan et al., 2017) for SPTAs and the mPIVS (Eason et al., 2018; Healey & Hays, 2012). These surveys were utilized because a single survey appropriate for assessing PI in both groups was not found. While qualitative questions spanned both groups, using two separate surveys prevents direct comparison between students and clinicians ratings of overall strength of PI. Additionally, while both surveys ostensibly explored PI, the mPIVS also looked specifically at values as well which were not explored in the mPIFFS.
7. There are detractors to mixed method research, especially in health care. Giddings and Grant (2007) argue mixed-methods research too easily succumbs to the influences of politics and personal belief pulling it away from the neutrality required for research, especially in health care. Giddings and Grant (2007) suggested the researcher in mixed methods can inappropriately use qualitative data to explain quantitative data in a way that is incongruent with quantitative results in order to meet a specific agenda. In a study of the use of mixed-methods research in occupational therapy, Mortenson and Oliffe (2009)

do not argue against mixed-methods but argue qualitative research is considered lesser than quantitative research and even when mixed-methods are used the qualitative portion is given less legitimacy calling in to questions why it was employed. This subservience of qualitative research to quantitative research devalues the results of mixed methods research (Mortenson & Oliffe, 2009).

8. There are also limitations to the explanatory sequential approach of mixed methods research. Because the quantitative portion is completed and analyzed prior to qualitative data collection, there is a time gap. For this research, up to 12 weeks may have passed between an individual completing the survey and participating in the interview. This time gap has multiple potential effects. The individual may have developed new ideas about PI based on items in the survey. The individual may have had a significant experience between participating in the survey and interview which could have changed their views on multiple items related to the survey.

It is typical in the explanatory sequential method to compare quantitative data to qualitative data for an individual (Subedi, 2016). Maintaining participant anonymity was a high priority in this research, to do so there was no link between quantitative and qualitative data in this research impacting potential insights this kind of link could contribute. Additionally, because there was no link between the two data sources for individuals, it is possible one or more interviewees did not participate in the quantitative portion of the research, reflecting views not captured in the quantitative data. The time gap and the potential for interviewing participants whose data was not collected in quantitative portion could contribute to the incongruencies in the data as Giddings and Grant (2007) warned.

Delimitations

1. There are many professions in the health care field. The PTA population is specifically chosen because of a paucity of research on this group (Pratt, M.G., Rockmann, & Kaufmann, 2006; Vivekananda-Schmidt et al., 2015).
2. This research was limited to students and professionals in the Midwest. Conclusions may not be extrapolated to PTAs and SPTAs in other locales.

Positionality

To frame this research, it is appropriate to begin by looking at the lenses through which it was approached. The first lens is positionality.

> Positionality refers to the stance or positioning of the researcher in relation to the social and political context of the study—the community, the organization or the participant group. The position adopted by a researcher affects every phase of the research process" (Rowe, 2014, p. 2).

Despite all attempts to eliminate bias, this research is being completed and interpreted by an individual who is a physical therapist and physical therapist assistant educator which may have influenced the conclusions drawn.

"Who am I?" is a very complex question with many potential answers. If proposed to the researcher, the answer may range from the general "a man, father, spouse, athlete, woodworker" to the occupational, "an educator, physical therapist or program director", or to the more ethereal "a good person, a leader, a friend". How individuals answer the question may be contextual; are we discussing who I am at work, at play or at home? The answer will vary depending on the individual and what identities are important to the individual in the context of the situation (Thatcher & Greer, 2008). Thatcher and Greer (2008), define identity comprehension "as the

degree to which the relative importance of one's identities is recognized by important others" (p. 6). In addition, to understand the individual one should not just look at what is important to their identity but what is not (Thatcher & Greer, 2008). Looking specifically at work satisfaction and function inside a team; a higher level of identity comprehension, reduces absenteeism and increases creativity as rated by an outside observer (Thatcher & Greer, 2008).

Interest in this topic began with a disorienting event; a move from full time work as a physical therapist (PT) to work as a full-time educator. "What do you do for a living?" was often met with a short silence and an uncomfortable conversation. "I am a PT." "Where do you work?" "Well, I teach full time." After more than 20 years of answering "PT", it was several years before the answer became, "I teach." The shift in professional identity from PT to educator was slow, not smooth and incomplete. After recognition of my own PI experience as an educator research was begun on PI. After reading more about PI, I believed it was important for me to not just wrestle with my identity as an educator, to not just be a positive role model for my students, but to work to instill an appropriate professional identity (PI) in my students for reasons noted below. After intentionally watching for signs of PI status and development in my students it was clear students started in different places and ended in different places as well. After these personal observations and literature searches It was clear additional research was needed to better understand PI development in the PTA to aid educators, mentors and supervisors in assisting in the development of PI in SPTAs and PTAs.

Significance of Research

This research contributes to the body of knowledge regarding how individual students' definition and concepts of professional identity change as they advance through the educational process and into a career of being a Physical Therapist Assistant (PTA). The results of this

research have the potential to inform decision regarding policy and curriculum made to affect change in professional identity at various stages of the development of the PTA. This research may also inform the appropriateness of the seasoned educator attempting to instill professional identity with a potentially biased identity as shaped by their experiences in practice. This research also contributes to the field of practice by providing findings related to how the novice clinicians' professional identity differs from seasoned professionals, when attempting to assist the new practitioner in integrating into the physical therapy team and the larger health care team.

This research provides information regarding the ways in which instructors and supervisors can influence the development of professional identity in distinct phases of the educational process and into practice. Finally, better understanding of how the student PTA defines professional identity will help the field gain insight into the perceived role of the PTA in the profession of Physical Therapy and the efficacy of the field in engendering a professional identity.

In the context of health care, identity comprehension, as defined by Greer an Thatcher (2008) above, can be related to professional identity where "important others" (p. 6) are patients and/or the health care team. The intent of this research was to add to the body of literature regarding what impacts the definition and development of professional identity (PI) of the physical therapist assistant (PTA) as they move through the educational process and into the profession.

Ultimately, this research's significance lies in its exploration of forces and experiences which impact the development of PI. There is a reported dearth of research on the subject of PI (Pratt, M.G., et al., 2006; Vivekananda-Schmidt et al., 2015). Despite the lack of research,

developing a strong PI is recognized as necessary for the novice health care professional (Holden et al., 2015; Trede, Macklin, & Bridges, 2012). “Physiotherapists [equivalent to a physical therapist in U.S.A.] who develop strong professional identities which embrace a concept of lifelong learning and a willingness for appropriate adjustment throughout their professional life will be better prepared for change” (Lindquist, Engardt, Garnham, Poland, & Richardson, 2006, p. 274). The result of appropriate PI development affects many aspects of the individual’s career, which will be discussed below (Barradell et al., 2018; Healey & Hays, 2011; Lindquist et al., 2006; Miles-Tapping, Rennie, Duffy, Rooke, & Holstein, 1992). Additionally, appropriate PI can positively impact the quality of patient care (Buring et al., 2009) and positive PI can increase job satisfaction (Horton, Tschudin, & Forget, 2007). For the above reasons it is important to understand how PI is developed, not only by the student but also how professional practice affects PI as well.

Until recently the formation of PI has largely been left to chance and does not have a unifying theory for creation (Holden et al., 2012; Niemi, 1997). Experiential Learning Theory (ELT) argues much of learning for adults is through experience, followed by the adults interpretation and integration of those experiences (D. Kolb, 1984). This research looked at the experiences of learners and clinicians as they develop and grow in their professional identity. Through a better understanding of how PI is developed educators will have additional tools to intentionally influence the creation of appropriate PI.

Definitions of Terms and Acronyms

Clinical Instructor (CI): An individual assigned to supervise a student physical therapist assistant during a clinical internship during school. This individual may be a PT or a PTA.

Experienced Physical Therapist Assistant: A Physical Therapist Assistant who has been practicing for more than three years.

Novice Physical Therapist Assistant: A Physical Therapist Assistant who has been practicing for three or less years.

Profession: "A calling requiring specialized knowledge and often long and intensive academic preparation. A principal calling, vocation, or employment; the whole body of persons engaged in a calling" ("Merriam-Webster Dictionary," n.d.).

Professional Identity: "Understanding a chosen profession in conjunction with one's own self-concept, enabling an individual to articulate their role, philosophy, and approach to others within and outside of their chosen field" (Healey & Hays, 2011, p. 9).

Professionalism: The enactment of a profession as related to scholarly activity, standards of performance, conduct and achievement ("Professionalism," 2003)

Physical Therapist Assistant (PTA): An individual whom has graduated from a Commission on Accreditation in Physical Therapy Education (CAPTE) accredited PTA program, has passed the licensing exam to become a licensed PTA and is currently practicing as a PTA.

Student Physical Therapist Assistant (SPTA): A student enrolled in a CAPTE accredited Physical Therapist Assistant program.

Chapter Summary

Despite professional identity being of significant importance to a clinician's development, there is little consensus on how it acquired. The complexity of PI leads to a paucity of research. There is not currently any available research on the acquisition of professional identity in PTAs and SPTAs. For this research a definition has been chosen and important

terminology has been operationalized. This research used an explanatory sequential mixed methods design to investigate professional identity with PTAs and SPTAs.

Chapter 2 - Literature Review

Introduction

In researching professional identity (PI) acquisition, both positive (Stephens, 2015; Thatcher & Greer, 2008) and negative (Finn, Learmonth, & Reedy, 2010; Goldie, Dowie, Cotton, & Morrison, 2007; van Os, devGilder, van Dyck, & Groenewegen, 2015) aspects were discovered. For this reason, educators should feel obligated to actively participate in the positive construction of PI to influence skills, values and behaviors of future practitioners (Stephens, 2015) "Programmes are therefore required not only to direct learning to meet academic requirements, but also to shape enculturation of learners to meet the requirement of Professional Statutory Regulatory Bodies" (Stephens, 2015, p. 456). Because the roles and responsibilities of the professional are sometimes written, for instance, in regulatory statements and sometimes not, it is incumbent upon the educator to directly and indirectly influence PI development. This chapter includes a review of the literature regarding different aspects of professional identity, it discusses several potential theoretical frameworks and an argument for use of Kolb's (1984) experiential learning theory (ELT) as the theoretical framework used to inform this research into PI (Jabareen, 2009; Ravitch & Riggan, 2016; Roberts, 2010).

In order to specifically study PI in the PTA, several steps need to be taken. First, the history of physical therapy will be explored to establish the field is unique in health care. This will be followed by looking at the word "profession," how it has changed over time and an argument will be made physical therapy is a profession and physical therapist assistants are indeed professionals. Additionally, current research in the field of PI are explored and the theoretical frameworks which have been used in the past and the theoretical framework which will be used to inform this research.

Physical Therapy as a Profession

To begin to understand the professional identity of the Physical Therapist Assistant (PTA) it is appropriate to look at the origins of physical therapy and the PTA in the United States and how physical therapy became a profession. In his book, *Introduction to Physical Therapy*, Pagliarulo (2016), covers the emergence of physical therapy and then the PTA. In 1917, responding to recurring polio outbreaks and the advent of World War I, two initiatives were undertaken. The United States government created the Division of Special Hospitals and Physical Reconstruction, whose primary role was to train and manage reconstruction aides. The mission of these reconstruction aides was to rehabilitate those injured in the war. Coinciding with this effort, a group of health care practitioners in Vermont were addressing the most recent polio epidemic, one group, referred to as physician assistants, was responsible for taking measurements of strength and providing exercise to those weakened by polio. After the war, these groups combined and shifted into the civilian sector with their primary focus on children. In these early days a great deal of confusion related to the role and scope of practice for these reconstruction aides grew from the diverse origin, conflicting views on management, and the changing treatment population. In 1921, to combat this confusion and to address conflicts with physician groups, the first formal professional organization related to physical therapy was created. A group of 30 women established a national organization, the American Women's Physical Therapeutic Association and the profession of Physical Therapy was born in the United States (Pagliarulo, 2016).

The field of physical therapy has grown significantly since its' inception. As the field grew and expanded two significant issues arose surrounding physical therapy requiring a great

deal of time to resolve. Both issues ultimately stemmed from conflicts with physicians and the American Medical Association (AMA) (Pagliarulo, 2016).

The first issue stemmed from physicians wanting to maintain control of all areas of health care (Pagliarulo, 2016). To this end, the AMA pushed for physical therapists to remain classified as aides or technicians. As technicians the physical therapist would remain under the control of the physician, who would directly control all aspect of rehabilitation; and physical therapy would not truly be a unique profession. remaining technicians would severely limit, autonomy and the scope of practice (Pagliarulo, 2016). The second issue was the lack of formalized educational curriculum (Pagliarulo, 2016). It was not until the early 1960's the United States Department of Labor would recognize the PT as a professional rather than a technician (Sahrmann, 2014). The 2013 House of Delegates of the American Physical Therapy Association adopted a vision statement addressing the role of physical therapy in transforming society through optimizing movement. The accompanying guidelines address the movement system as key to achieving this vision. The profession has incorporated movement in position statements and documents since the early 1980s, but movement as a physiological system has not been addressed. Clearly, those health care professions identified with a system of the body are more easily recognized for their expertise and role in preventing, diagnosing, and treating dysfunctions of the system than health professions identified with intervention but not a system. This perspective article provides a brief history of how leaders in the profession have advocated for clear identification of a body of knowledge. The reasons are discussed for why movement can be considered a physiological system, as are the advantages of promoting the system rather than just movement. In many ways, a focus on movement is more restrictive than incorporating the concept of the movement system. Promotion of the movement system also provides a logical context for the diagnoses made by

physical therapists. In addition, there is growing evidence, particularly in relation to musculoskeletal conditions, that the focus is enlarging from pathoanatomy to pathokinesiology, further emphasizing the timeliness of promoting the role of movement as a system. Discussion also addresses musculoskeletal conditions as lifestyle issues in the same way that general health has been demonstrated to be clearly related to lifestyle. The suggestion is made that the profession should be addressing all movement dysfunction and not just movement disorder caused by disease or injury, as would be in keeping with the physical therapist's role in prevention and as a life-span practitioner (Sahrmann, 2014). Since this time the profession of physical therapy has wrestled with a professional identity (Sahrmann, 2014).

The second early concern for the profession was addressed in 1928 by the professional association by adopting its first formal educational curriculum in 1928 (Pagliarulo, 2016). The first program required nine months to complete with a pre-requisite of being trained in physical education or nursing prior to admission. Over the years the requirements for licensure have increased. In 2000, the American Physical Therapy Association published its "Vision 2020" statement, one aspect of this vision was all PT schools would award only the doctorate degree for physical therapists by 2020 (American Physical Therapy Association, 2015), while no longer a working document, at the time of this writing this vision is almost complete.

While the idea of a physical therapist assistant goes back to the 1940's the reality did not come to fruition until the late 1960's (Wojciechowski, 2015). Research completed by Harvard University revealed a significant shortage in health care providers spurring the passing of the Comprehensive Manpower Training Act in 1971 (Carpenter-Davis, 2003). The first 15 physical therapist assistants graduated in 1969 from Miami Dade College (Wojciechowski, 2015). A

significant number of PTA schools were not established until the passing of the 1971 act. Currently, the standard educational requirements for becoming a PTA is an associate degree.

While the PTA came to be in the 1960's the American Physical Therapy Association (APTA) did not grant membership for the PTA to the APTA until 1973 when the PTA was granted affiliate membership by a margin of one vote (Wojciechowski, 2015). The PTA did not have a voting right at the state level until 2015 and they still do not have a vote at the national level (Wojciechowski, 2015). Complicating the development of professional identity in the PTA is continued disagreement on the role of the PTA and a lack of representation at the national level (Carpenter-Davis, 2003). While little research has been completed on the development of professional identity in Physical Therapists, no research was found looking at the development of professional identity of the PTA.

The PTA/PT Relationship

Since the inception of the PTA position the relationship between PTA and PT has been evolving (Wojciechowski, 2015). As the name implies the Physical Therapist Assistant's job is ostensibly to assist the PT in treatment of patients, how the assistance manifests itself is multifactorial. The official stance is outlined by the APTAs House of Delegates (HOD) article HOD P06-18-28-35 stating,

> Direction and supervision are essential in the provision of quality physical therapist services. The degree of direction and supervision necessary for ensuring quality physical therapist services is dependent upon many factors, including the education, experiences, and responsibilities of the parties involved, as well as the organizational structure where physical therapist services are provided. ("Direction and Supervision of the Physical Therapist Assistant," 2018, p. 1)

The actual laws for supervision are governed by each state and vary. The one constant is a PTA must have a PT who is ultimately responsible for the treatment and care of the patient.

> The physical therapist is directly responsible for the actions of the physical therapist assistant in all practice settings. The physical therapist assistant may provide services under the direction and at least general supervision of the physical therapist. In general supervision, the physical therapist is not required to be on site for direction and supervision but must be available at least by telecommunication. The ability of the physical therapist assistant to provide services shall be assessed on an ongoing basis by the supervising physical therapist. ("Direction and Supervision of the Physical Therapist Assistant," 2018, p. 1)

Because the PTA cannot practice without a supervising PT the PTA/PT relationship is very important. While the APTA provides guidelines, such as HOD P06-18-28-35 the dynamics of the relationship is not well defined and as seen above has many facets. Additionally, Medicare and some other insurance companies have rules on supervision of the PTA tied to reimbursement (American Physical Therapy Association, n.d.-b) which can also impact the relationship. When the PTA position was first created the transition was not smooth and was met by some opposition by PTs who felt threatened by the PTA (Wojciechowski, 2015). The role of the PTA and the PTA/PT relationship has continued to evolve over the years but continues to vary (Wojciechowski, 2015).

Research looking at the relationship between the PTA and PT shows, despite the PT understanding physical therapy practice guidelines there is misunderstanding about specific abilities of the PTA to collect data and perform treatment (Hawthorne, Cohoon & Chambers, 2018; Robinson et al., 1994). A study by Hawthorne et al. (2018) found increased comfort levels

by both PTA and PT students regarding this relationship after an intraprofessional learning activity. Jung, Salvatori and Martin (2008) found communication to play a major role in developing and understanding the roles between occupational therapist assistants (OTA) and occupational therapists (OT) in a study looking at intraprofessional learning activities in school. Jung et al. (2008) concluded the experience of working together and communicating helped both the OTA and OT better understand the others role and created a better relationship.

More Than Professional Skill

Developing profession specific skills is a critical component of any academic professional program. However, being a professional is more than just a skill set, as Sharpless et al. (2015) notes, "textbooks can teach me how to diagnose problems, not necessarily how to handle them" (p. 715). Handling a problem requires more than knowledge. It also requires interaction with the patient and the health care team (Sharpless et al., 2015). Wald (2015) is even more emphatic in suggesting identity transformation is the highest purpose of medical education. Holden et al. (2015) argued professional identity includes many less tangible skills, for instance cultural competence, resilience, empathetic labor, reflection, humanism and other values and beliefs specific to a profession.

The tangible and intangible skills will be expected from the novice clinician (Holden et al., 2015; Lindquist et al., 2006; Stephens, 2015; Trede et al., 2012). "Competencies expected of graduating health professionals include: teamwork; understanding of each profession's roles and responsibilities; communication; reflection on practice; patient- or client-centred care, and ethical behavior" (Thistlethwaite & Dallest, 2014, p. 556). Developing a professional identity is a key component to becoming a professional and acquiring these skills (Holden et al., 2015; Wald, 2015). These less tangible skills are much more difficult to teach and assess because they

are dynamic and change throughout the educational process (Holden et al., 2015; Stephens, 2015; Vivekananda-Schmidt et al., 2015).

Definition of Professional Identity

Professional identity (PI) has been identified as one of the biggest differences between the novice and seasoned practitioner (Hensel et al., 2014). Although PI has been identified as a critical piece to professional development and readiness to practice, practitioners have not agreed-upon a definition or implementation process (Crigger & Godfrey, 2014; Wilson et al., 2013). Simply stated, "A professional identity is an individual's image of who they are as a professional" (Caza & Creary, 2016, p. 4). While the concept may be simple the process of development of PI and PI itself is complex.

Many definitions of professional identity either ignore or only imply the contribution of previous experience unrelated to the chosen field or personal characteristics of the individual. For this reason, this research utilizes the definition by Healey and Hays (2011) professional identity is the "understanding of their profession in conjunction with their own self-concept, enabling them to articulate their role, philosophy, and approach to others within and outside of their chosen field" (p. 9). Utilizing this definition allows the future professional to integrate a concept of what a person does in a given profession and develop beliefs of how a person in the profession will behave. In addition, this definition also accounts for the ability to integrate this new knowledge with their previous self-concept incorporating new information and experiences into a professional identity which does not require the abandonment of a personal identity.

Developing Professional Identity

The acquisition of professional identity (PI) is complex and multifactorial (Ibarra, 1999; Jebril, 2008; M. G. Pratt et al., 2006). Forces contributing to the creation of PI include, previous

experience, social roles, group identity, available role models, organizational influence, personal characteristics, and how the individual integrates these forces all contribute the individual's self-concept and specifically their professional identity (Ibarra, 1999; Jebril, 2008; Wald, 2015). Pratt, M. G. et al. (2006) suggests this complexity contributes to the dearth of research on the subject.

When discussing an emerging topic in education, interprofessional education, a number of scholars have noted for interprofessional education to be successful the pre-professional must understand their role in the team and to do so they must have an understanding of their professional identity (Holden et al., 2015; Wald, 2015). Wood (2001) argues, "Students need to gain confidence in their own professional identity before being able to undertake professional learning and moving on to successful teamwork in clinical practice" (pp. 816-817). Because having a professional identity appears to be a critical component to successful teamwork and interprofessional education, it is important to better understand its formation in the student.

Researchers suggest professional identity begins prior to the student attending their first class (Holden et al., 2015; Sharpless et al., 2015; Vivekananda-Schmidt et al., 2015; Wald, 2015). Speaking specifically of physicians, Sharpless et al. (2015) pointed out, "To this process students bring prior identities, ideas about physician roles and image, and vision for their future" (p. 713). In the case of physicians this beginning of professional identity may extend back into adolescence (Wilson et al., 2013). If this is truly the case, all pre-professionals likely begin to develop ideas, whether right or wrong, about how an individual in a specific profession should behave as soon as they have knowledge of the profession and begin to see themselves entering a specific profession.

These preconceived ideas of how an individual will think and behave begin to inform professional identity prior to the individual beginning school (Hensel et al., 2014; Vivekananda-Schmidt et al., 2015; Wilson et al., 2013). Hensel et al. (2014) conclude in their research, the values and beliefs students arrive with may be more ingrained into students' professional identity than educators assume and is not just a process completed during professional education. The idea professional identity begins prior to entry into professional education is complicated by the belief an individual's PI continues to evolve through formal education, into practice and throughout the professional's entire career (Brott & Myers, 1999; Lindquist et al., 2006; Sharpless et al., 2015; Wald, 2015; Wilson et al., 2013). The complexity of the components of PI and the longitudinal nature of its creation makes studying it very difficult.

It should also be recognized, while PI appears to be a valuable commodity for the novice practitioner, there is not a script for how to behave and act and no two professional identities will be the same. Looking specifically at physical therapy students in United Kingdom Lindquist et. al. (2006) identified three different professional identities types. "Three professional identities of being a physiotherapist [equivalent to a physical therapist in the U.S.A.] were revealed and described as the Empowerer, the Educator and the Treater" (Lindquist et al., 2006, p. 272). This would suggest the educator needs to be mindful of differences and allow each student to develop their own personal attributes.

Current Research on Professional Identity

While it has been stated there is little research or literature on professional identity, there is some. Nursing is an area where the related topic of self-concept has been studied as it relates to longevity in the field (Cowin, 2002; Cowin & Hengstberger-Sims, 2006; Johnson, Cowin, Wilson, & Young, 2012). Where professional identity is a subset but "inextricably related"

(Johnson et al., 2012, p. 562) to overall self-concept. In a longitudinal study of nurses, a positive self-concept was found to increase retention and longevity in the nursing field (Cowin, 2002). In another study, Cowin and Hengstberger (2006) found novice nursing students had an overall tendency to have a drop in self-concept during their first year of practice, decreasing overall retention in the field. Finally, in a literature review of PI formation Johnson et al. (2012) found clinical environment and student/teacher relationship can have a positive as well as negative effect on the development of PI. In their literature review, Johnson et al. (2012) conclude, "Further research conducted with rigour to enable robust findings is thus of paramount importance to understanding how nurses develop their professional identity, and the ways in which their education can best contribute" (p. 567). Due to its relationship to job satisfaction, retention at a job and retention in the field PI, demands more research.

There has been research conducted on PI in other health care fields as well. Utilizing a modified Delphi technique, the University of Texas System convened a panel of experts to develop a framework for the development of PI to shorten medical training (Holden et al., 2015). This panel identified 10 aspects of PI with 30 subdomains (Holden et al., 2015). "The task force reached consensus on 10 key characteristics that the group considered foundational to professional identity: adaptable, altruistic, curious, empathic, ethical, honest, reflective, responsible, self-aware, and trustworthy" (Holden et al., 2015, p. 762). These 10 aspects were then divided into 6 domains with 30 subdomains; each subdomain was given written objectives to be addressed in different aspects of medical school to improve the quality of PI over time (Holden et al., 2015). While the results of the implementation of this process have not been released at the time of this writing, the fact PI development is being actively pursued is promising.

Looking more specifically at physical therapy there is some research into PI development as well. The results of a study showing Canadian physiotherapist saw their profession as worthwhile but underappreciated Miles-Tapping et al. (1992) undertook a survey to identify actions to be taken to strengthen the PI of physiotherapists. As a foundation to the research, Miles-Tapping et al. (1992) state, "A strong, favourable professional image helps it recruit clients, form alliances, and secure a niche for itself in society" (p. 31). Findings for increasing PI in the practicing clinician included, participation in professional organizations, specific marketing, use of positive mentors and attractive salaries (Miles-Tapping et al., 1992). While this research speaks to the practicing PT, it does not address PI development in the student or PTA.

A qualitative longitudinal study published looking at the development of PI in promising first year doctorate physical therapists, was then extended and additional research was published after the second year (Black et al., 2010; Hayward, Black, Mostrom, Jensen, Ritzline, & Perkins, 2013). Four themes were gleaned from the first year of study: (a) clinical environment influences performance, (b) experience, social interaction and self-directed learning play important roles, (c) improving communication skills increases confidence, and (d) PTs were engaged in PI development and role transition (Black et al., 2010). The concluding study showed increases in PI related to additional formal and informal learning, role expansion, expansion of skills, collaborative exchange and opportunities to teach (Hayward et al., 2013). While techniques used to intentionally or unintentionally increase PI during the first years of PT practice may not be the same utilized by student PT/ PTAs or PTAs, it is important to keep these findings in mind when researching the PTA student.

Professionalism vs. Professional Identity Education

While a component of professional identity (PI), "professionalism" is a separate concept and needs to be differentiated from PI with both concepts and their relationship addressed in the school setting (Wilson et al., 2013). As noted above Sharpless et al. (2015) see PI as "ways of being" (p. 713), while they see professionalism as "ways of acting" (p. 713). The student must move from "acting" like a professional to "being" a professional to be a successful professional.

The Merriam-Webster Dictionary (2019) defines "acting" as "The art or practice of representing a character on a stage or before cameras" ("Acting," 2019). A frequently heard phrase in the classroom is, "Fake it until you make it". This phrase would imply the student is "acting" like a professional for the audience of peers, patients, instructors and clinicians. However, The Oxford Dictionary ("Being," 2019) defines "being" as "The nature or essence of a person" (definition 2). The goal of educators should be to help the learner transfer from "acting" the professional to "being" a professional.

Professionalism is often considered the outward actions (or acting) of the professional's beliefs or PI (Holden et al., 2015; Sharpless et al., 2015; Wald, 2015). Wilson et al., (2013) argues professionalism, the behavior, rather than creating PI has been too long the focus of education over the past decades and subsequently external behavior rather than internal change has been the result. The outward act, however, does not always indicate transformational learning. Wilson et al, (2013) astutely observe an individual's actions do not always coincide with his/her belief system. To truly be professional and to have a professional identity a practitioner must incorporate the profession into "self" (Vivekananda-Schmidt, Crossley, & Murdoch-Eaton, 2015; Wilson et al., 2013). In doing this, the health care professional's actions are guided by identity rather than guessing. Goltz and Smith (2014) spoke to this stating, "A PI is

critical to a person's sense of self: It is about connecting with roles, responsibilities, values and ethics unique to a specific profession" (p. 785). Therefore, educators must work to recognize the students sense of self and assist in forming the subsequent PI.

A health care student may act in a particular way not because it aligns with their personal belief system, but because the individual believes it is how a person in the profession *should* act. To this end, several researchers have noted a "fake it until you make it" strategy utilized by pre-professionals (Holden et al., 2015; Sharpless et al., 2015). In adopting the "fake it until you make it" strategy, the student will act as they believe a health care professional would in a specific situation. The student would not seem to have a true PI until the behaviors are integrated into their sense of self (Goltz & Smith, 2014). This process of acting the professional to learn how to become a professional may be an important piece of development but is only successful if followed up with reflection, which will be discussed below. Therefore, while professionalism and professional identity are very closely related, they do not always align, they must be differentiated and addressed separately during professional development.

Developing Professional Identity in Education

A variety of techniques have been proposed for instilling professional identity (PI). However, due to the many intangible components, there is no clear-cut path, although several themes have developed. In a qualitative study completed by Plack (2006), specifically in physical therapy, three themes to guide education emerged: (a) the use of the clinical environment, (b) learning strategies to make sense of the clinical environment for instance guided reflection, and (c) specific learning outcomes which include the identification of values, beliefs and attitudes of professionals are going to help the novice practitioner come into alignment with the community of practice.

In a study looking at the way PT students experience practice Barradel, Peseta and Barrie (2018) utilized "ways of thinking and practising" (p. 387) to develop multiple themes related to building PI. Speaking specifically about developing a sense of profession the authors conclude,

Students developed a sense of their professional self in four main ways: (1) from their preexisting ideas of what the profession was about, (2) through the context of a patient interaction, (3) as a result of the physiotherapy community, and (4) from the interdisciplinary approach. (Barradell et al., 2018, p. 399) As educators it is appropriate to anticipate PI development longitudinally and to expect differing outcomes to guard against forcing students into unreasonable expectations.

As noted above, recognizing a void between professionalism and PI, The University of Texas System created the Transformation in Medical Education (TIME) initiative to address PI development (Holden et al., 2015). The program implemented the program and began assessing the multiple identified domains. The assessment of these domains can be difficult. The authors borrow Cooke et al.'s (2010) three basic tools for assessment which are observation in the clinic, developmental benchmarks and assessment of learning environments (Holden et al., 2015). Despite these assessments being labor intensive, intentionality in developing a professional identity is a positive step forward.

Concern with Clinical Work and Professional Identity

The clinical environment may not be the best place for a novice clinician to cut their professional identity (PI) teeth. As previously suggested, professionalism is easier to address than PI in both formal education and the clinical setting, because there is an outward manifestation to see and critique. Unfortunately, development of PI is often left to the natural socialization of the student in the clinical setting (Holden et al., 2015; McLean, Johnson,

Sargeant, & Green, 2015; Wilson et al., 2013) Crigger and Godfrey (2014) point out the danger to leaving PI development to an unstructured socialization; inappropriate behavior is not always corrected by clinical supervisors which can reinforce wrong beliefs and values.

In addition, the clinical student is also not being supervised during all their interactions and decisions, allowing for unwitnessed inappropriate decisions and actions to be reinforced while working with actual patients (Plack, 2006). Wald (2015) points out additional potential "dangers" of the unstructured clinical setting. If the novice clinician has brought along preconceived ideas of what professionalism and PI look like and reality is significantly different, there can be a great deal of internal dissonance (Wald, 2015). This dissonance can be difficult for the student to resolve when a student witnesses poor ethical decision making by respected senior professionals (Wald, 2015). The issue can also be complicated by the fact supervision of the student in the clinic is by professionals, and not trained educators who may be watching for PI development (Plack, 2006).

It would not be surprising to learn students working in actual clinics during their schooling witness inappropriate behavior from supervisors. While medical students interviewed by Sharpless et al. (2015) recognized the value in experiencing physicians "who take shortcuts, grow jaded and care little about communication or the nuances of the individualized patient care" (p. 715), the student with a less developed sense of PI may not recognize the behavior as inappropriate and chose to emulate it. Crigger and Godfrey (2014) pointed out "faking" PI while using observed professional's behaviors to develop PI is only helpful if behavior is professional and appropriate feedback is provided to shape the behavior. When bad or inappropriate behavior is not corrected due to the erroneous assumption professionals do not make errors, inappropriate and unprofessional behaviors are reinforced (Crigger & Godfrey, 2014; Plack, 2006).

The process of "faking" PI and professionalism while working to attain it is more concerning in the clinical setting than in the classroom. While somewhat supervised in a clinical setting; novice practitioners are honing their skills and developing their professional moral compass while working with and making decisions for actual patients. If a student makes poor decisions while engaged in patient care there may be actual harm (Knebel & Greiner, 2003). Plack (2006) also reminds formal educators are often hesitant to correct inappropriate behavior and supervising clinicians are no more likely to intervene. These concerns suggest there should be intentionality to helping health care students develop PI (Holden et al., 2015). Wood (2001) argues, "students need to gain confidence in their own professional identity before being able to undertake professional learning and moving on to successful teamwork in clinical practice" (p. 816). This suggests the development of PI cannot be left to chance or to the natural socialization of the clinic.

Adult Education Implications

Many PTAs find eth field as a second career. Therefore, many of the learners and future physical therapist assistants are adult learners. However, when does one become an adult? This relatively simple question continues to be debated. From a legal aspect most, states consider 18 years of age the beginning of adulthood. From a developmental perspective it is now generally accepted the brain is not fully mature until close the age of 25 (Arain et al., 2013). Lindeman (2014) inadvertently addresses the issue of age as he argues in The Meaning of Adult Education for the idea education is not confined to childhood but continues throughout life, "The whole of life is learning, therefore education can have no endings. This new venture is called adult education—not because it is confined to adults but because adulthood, maturity, defines it limits" (Lindeman, p. 6; italics in original). Lindeman (2014) is not concerned with defining adulthood

by a specific age but having the maturity to seek knowledge and to recognize learning whether formal or informal never ceases. The accrediting body for PTA programs does not release aggregate data on the average age of the PTA student nationally, but data collected at one of the midwestern schools participating in this study shows an average age of just over 29-years for the past four years. By either standard the average PTA student is an adult learner.

A second issue which needs to be addressed is whether formal college education is considered adult education or if it is an extension of the compulsory pedagogical framework of secondary education. Merriam, Caffarella and Baumgartner (2006) divide learning environments for adults into three categories with the first discussed being "formal institutional settings" (p. 29). The defining component appears to be related more closely to the purpose of education rather than the location.

In 1984, Knowles expanded his learning model to include six assumptions of adult learners; they include (a) self-conception, (b) adult learning experience, (c) readiness to learn, (d) orientation to learn, (e) motivation, and (f) the learner needs to know why they need to learn something (Merriam et al., 2006; Pratt, D. D., 1993). These assumptions seem to be more closely aligned with reason and readiness rather than location. Once education is no longer compulsory, choosing to pursue education whether at a local craft shop or college curriculum, fits into Knowles' characteristics of adult education.

Knowles is by no means the definitive resource for adult learning. Merriam et al. (2006) review other models of adult learning including, proposed models by Illeris, Jarvis, and McClusky. Each of these models focus more on the process and experience of learning rather than the location or curriculum. The standard PTA program is not compulsory; it is accessed

through selective admission and is job specific. These traits again fit well with the concept of adult education regarding motivation, self-conception, and readiness to learn.

Professional Identity in Higher Education

As noted above, the acquisition of professional identity (PI) is complex and multifactorial (Ibarra, 1999; Jebril, 2008; Pratt, M. G. et al., 2006). Forces contributing to the creation of PI include, social roles, group identity, available role models, organizational influence, and personal characteristics; how the individual integrates these forces contributes to the individual's self-concept and specifically their professional identity (PI) (Ibarra, 1999; Jebril, 2008; Wald, 2015). M. G. Pratt, Rockman and Kaufmann (2006) suggest this complexity contributes to the dearth of research on the subject.

In 2012, Trede et al. completed a study of "the extant higher education literature on the development of professional identities" (p 365). They completed a systematic search of higher education journals looking for "theories and philosophical stances that underpin discussions of professional identity development" (p. 365). Covering the ten-year period from 1998 to 2008 only 20 articles were found addressing, even superficially, theory for PI development (Trede et al., 2012). When looking for underpinning theories the group identified 11 different theories including, Nietzschian theory, Kolb, Schön, Mezirow and Freire, Perry and Erikson, and Lave and Wenger, which are authors tied to adult development and learning. This diverse group of theories inspired the authors to lament: "This represents a remarkably disparate range of theoretical frameworks, indicating an underdeveloped field where there is little agreement amongst scholars" (Trede et al., 2012, p. 375). The theory most often utilized was Schön's model of reflection, an extension of Dewey and Kolb's experiential learning (Trede et al., 2012).

There is also little more research, specifically on the timing of introducing formal professional identity (PI) training to students. One area of education which has concerned itself with the timing of PI is interprofessional education (IPE). Therefore, the search for a unifying theory began there. A number of scholars have noted for IPE to be successful the pre-professional must understand their role in the team and to do so they must have an understanding of their professional identity (Holden et al., 2015; Wald, 2015; Wood, 2001). Wood (2001) argues, "Students need to gain confidence in their own professional identity before being able to undertake professional learning and moving on to successful teamwork in clinical practice" (pp. 816-817). Because having a professional identity appears to be a critical component to successful teamwork and IPE, it is important to understand its formation in the student.

Despite an apparent need for research on PI, there is a paucity of research regarding the development of professional identity. In 1999, Ibarra stated, "Despite consensus in the socialization literature that identity changes accompany work role changes, the process by which identity evolves remains unexplained" (p. 765). Likewise, M. G. Pratt, Rockmann, and Kaufmann (2006), reiterate Ibarra's (1999) lament stating, "there is a paucity of literature on the topic [construction of professional identity]" (Pratt, M. G., et al., 2006, p. 235). Since this time there has been continued research into the development of professional identity in education including, Hensel, Middleton and Eng (2014), Plack (2006), Adams et al. (2006), the research and mechanisms for the development of professional identity in the educational process remains scant. For instance, the research by Plack (2006), Lindquist, Engardt, Garnham, Poland and Richardson (2006) and M. G. Pratt et al. (2006) minimize the influences of didactic learning and focus on clinical work completed in the field after the completion of classroom education. Hensel, Middleton and Engs (2014) focus narrowly on the effects of alcohol on PI development.

Holden et al. (2015) have begun a longitudinal study which looks at PI formation throughout medical school and residency, but data collection will not be complete until after 2020. Finally, other research focuses on PI development after all schooling is completed and the individual is working in the profession (Barradell, Peseta, & Barrie, 2018; Hayward & Li, 2014; van Os et al., 2015).

While there is an apparent lack of research on the subject of PI development, there is some research. Research suggests professional identity begins prior to the student attending their first class (Holden et al., 2015; Sharpless et al., 2015; Wald, 2015) Speaking specifically of physicians, Sharpless et al. (2015) pointed out, "To this process students bring prior identities, ideas about physician roles and image, and vision for their future" (p. 713). In the case of physicians this beginning of professional identity may extend back into adolescence (Wilson et al., 2013). If this is truly the case, all pre-professionals likely begin to develop ideas, whether right or wrong, about how an individual in a specific profession will behave as soon as they have knowledge of the profession and begin to see themselves entering a specific profession. These preconceived ideas of how an individual will think and behave begin to inform professional identity prior to the individual beginning school. Hensel, Middleton and Engs (2014) conclude in their research, the values and beliefs students arrive with may be more ingrained into students' professional identity than educators assume and it is not just a process completed during professional education. This idea professional identity begins prior to entry into professional education is complicated by the belief an individual's PI continues to evolve through formal education, into practice and throughout the professional's entire career (Lindquist et al., 2006; Sharpless et al., 2015; Wald, 2015; Wilson et al., 2013). The complexity of the components of PI and the longitudinal nature of its creation makes studying it very difficult.

Adult Education Applied to PTA

Possessing or not possessing suitable professional identity can have implications in the educational process. Scholars suggest having an understanding of one's professional identity is critical in the timing of educational activities such as interprofessional education (Holden et al., 2015; Wald, 2015) and the introduction of immersion through clinical practice in the field (Crigger & Godfrey, 2014; Plack, 2006).

Development of professional identity (PI) must involve deliberate education and guided experience (Holden et al., 2015; Lindquist et al., 2006; Wald, 2015). Preparing the health care worker for patient care is more complicated than teaching some basic skills (Lindquist et al., 2006). The novice clinician must have a clinical skill set but, also most have a professional identity (PI) to guide their decision making and to interact appropriately in the health care team (Lindquist et al., 2006; Plack, 2006; Trede et al., 2012). Traditionally health care education has focused on outward behavior and has let natural socialization in the clinic guide the formation of PI (Holden et al., 2015; Wald, 2015). Recent literature suggests clinical experience is not enough; it must be a guided process which is begun in classroom and includes intentional feedback both in the classroom and clinic (Holden et al., 2015; Plack, 2006; Wald, 2015).

Becoming a professional requires more than subject or skill knowledge because health care is more than knowledge about a particular disease, it is also about relationship (Goltz & Smith, 2014; McLean et al., 2015; Miles-Tapping et al., 1992). As a "practice patient" noted "When they walk in the door here (university), they've come to learn medicine. When they leave, they're going to treat patients" (McLean et al., 2015, p. 85). This change from student learner to health care practitioner "is the transformational journey through which one integrates

the knowledge skill, values and behaviors of a competent, humanistic (clinician)" (Wald, 2015, p. 702). The stakes are too high to be left to chance (Plack, 2006; Sharpless et al., 2015).

It is the duty of the educator to assist with the transformation from student learner to skilled professional. There are several proposed ways to help guide the professional student toward an appropriate professional identity. Techniques include reflection (Wald, 2015), critical incident techniques (Sharpless et al., 2015), interprofessional education (D'Eon, 2005) and patient simulation (McClean et al., 2015) to name but a few. These techniques can be coupled with concepts like Holden et. al.'s (2015) transformation in medical education (TIME) framework, discussed above, which suggests breaking the development of PI into three distinct stages culminating in clinical practice. Additionally, Ibarra (1999) argues because students encounter so many novel experiences early on in their education their PI is more adaptable early in their career. The implication is the groundwork for the development of PI must be laid early and not be left to chance hoping a terminal clinical experience will fill in the gaps.

Reflection can be used early and throughout schooling to help develop PI (D. Kolb, 1984; Osteen, 2011; Wald, 2015). Because there is more to quality health care than understanding and treating a diagnosis; it is about understanding the complexities of the diagnosis and how it effects the lives it touches (Wald, 2015). Processing what has happened, decisions made, effects on outcome and the feelings and beliefs associated with those concepts according to Wald (2015) can "foster 'practical wisdom' for engaging in messy complexities of practice" (p. 702). Keeping the above in mind "reflection" on learning is an important piece to any learning situation (D. Kolb, 1984; Wald, 2015)

Reflection can be used after interactions with students, patients, simulated students or even after lecture (Barradell et al., 2018; Wald, 2015). Unfortunately, reflective practice is not

necessarily an intuitive process and will need to be guided. Critical incident technique (CIT) is one tool used in conjunction with guided reflection (Sharpless et al., 2015). “The critical incident technique consists of a set of procedures for collecting direct observations of human behavior in such a way as to facilitate their potential usefulness in solving practical problems and developing broad psychological principles” (Flanagan, 1954, p. 1). The CIT utilizes five major areas including, reviewing an incident, fact finding, and works toward potential solutions or alternate actions (Flanagan, 1954). Reflecting on past actions, outcomes, decisions and alternatives can help future health care student develop a professional identity.

Another proposed tool which can be deployed in an educational setting to influence PI development is interprofessional education (IPE) (D’Eon, 2005). IPE is a tool which can be utilized in a variety of ways. IPE is defined as, “when two or more professions learn with, from and about each other to improve collaboration and the quality of care” (Barr & Low, 2013, p. 4) as seen in the definition IPE is about much more than just learning in the same room or at the same time; it is about different professions coming together, sharing knowledge, building rapport and solving problems together. This technique can be utilized with interdisciplinary case studies, simulated care, or even with actual patients to help gain PI.

Simulated patients who are either live actors or tethered mannequins are another option for developing skill and PI prior to patient interaction. Actors working as simulated patients are studied by McLean et al. (2015) regarding laying the groundwork for PI. The simulated patient allows for multiple pre-professionals to work with an actor who acts as a simulated patient to develop treatment plans and interact with each other without putting the rapport or health of an actual patient at risk. Utilizing these techniques can also allow pre-professionals to interact in a

safe environment and grow together to develop PI and teamwork skills (Nylén, 2018; Sharpless et al., 2015).

Professional Identity is so much more than behavior and too important to not be intentionally addressed. Educational institutions need to critically evaluate their role in developing a positive professional identity in their students. Developing professional identity needs to be guided, written into curriculum and have intentionality. Additional research in professional identity development needs to be completed to expand technique options for introduction, help establish timelines for introduction and to establish assessments.

For a professional or future professional to understand their role in the health care team, they must, as noted above, have a professional identity. The professional must also have an understanding of their profession's role on the health care team. Interprofessional education is one tool which can be utilized to help future and current health care professionals understand their role in the team (Wood, 2001). Wood (2001) goes on to argue health care students must understand their professional identity to go on to successful interprofessional education. The subsequent problem becomes: 1) when is the best time to institute interprofessional education? and 2) does the interprofessional education improve the ability of health care teams to interact?

The goal of these teaching techniques is to address the complexities of developing an appropriate PI in the novice clinician. It is unlikely any one of these techniques is the only solution. Without further research into PI and how it develops an changes in during the educational process educators will not be able to effectively deploy these techniques.

Theoretical Framework

Previous Theoretical Frameworks Applied to Professional Identity

If in fact, PI is based on many inputs, including the socialization, available role models, social membership, personal characteristics and more it will be difficult to find a specific theoretical framework which can encompass all of the pieces to the PI puzzle (Ibarra, 1999; Sharpless et al., 2015; Wald, 2015). In the following section a variety of theories have been utilized to explain changes in professional identity and used for the basis of research will be assessed for their appropriateness to inform this research on the development of PI in physical therapist assistant students during the educational process and on into practice.

When searching the literature for a grounding theory regarding professional identity (PI) multiple theories have been proposed. Goltz and Smith (2014) set out to assist a relatively obscure health care group, Health Education and Promotion Specialists, to better develop a PI by providing an overview of the importance of PI development and by compiling a list of theoretical frameworks influencing the development of PI. The list of frameworks provided by the authors include: social/human capital theories, social network theory, social learning theory, intrinsic/extrinsic motivation theories, pedagogy/instructional theory and social identity theory, (Goltz & Smith, 2014).

For each proposed grounding theory, Goltz and Smith (2014) succinctly summarize the premise of the individual theory. Several of these potential grounding theories will be briefly looked at to assess applicability to this research. Their viability for this research will be discussed and despite not making the list for Health Education and Promotion Specialists (2000) “experiential learning” will be put forth as the theoretical framework for this research.

Social capital theory is one potential unifying theory, Woolcock and Narayan (2000) summarize social capital theory, “The basic idea of social capital is that a person's family, friends, and associates constitute an important asset, one that can be called on in a crisis, enjoyed for its own sake, and leveraged for material gain” (p. 226). Goltz and Smith (2014) assert the social/human capital theories look at PI as a “commodity” to be developed and marketed using community resources. This theory may have application in explaining why an individual chose a profession and potentially more influence when considering PI changes and development after the health care worker has entered the marketplace but would seem to have limited application in a formal educational setting. The typical student will have limited access or exposure to appropriate community resources and market influence, especially in the beginning of their education. Many professions, such as medical doctor and physical therapist may take seven to twelve or more years to complete the educational process after the decision is made to pursue the degree. Markets can make extreme changes in this time and likely have minimal impact on the educational process once the initial commitment is made, until the learner enters the work force.

Social/human capital is utilized by VanDerLinden (2005) in an instructional article on how to get ahead in your profession, however the emphasis is on first being in the profession and does not address formation of PI during the educational process. VanDerLinden’s (2005) suggestions include professional development courses, networking and seeking intentional mentoring as a new professional. It would not be surprising to discover once a health care worker completes their training, they recognize a need to understand and exploit the PI of a given profession to increase their own marketability. It would be difficult to argue, however, the typical novice student and especially the prospective student is savvy enough to have developed the long term vision to look at creating their PI as a marketing tool especially when considering

research done by Adams et al. (2006) indicating low concepts of PI in health care students. Additionally, in the clinical setting mentorship or supervision is typically assigned by an institution rather than sought by the learner. For these reasons this theory was discarded for this research.

When considered by itself, it is difficult to utilize human capital theory as a theory for the development of PI. "Human capital theory suggests that individuals and society derive economic benefits from investments in people" (Sweetland, 1996, p. 341). Human capital theory explains the need for investment in education for societal and personal benefits, including increased income and output by more educated individuals (Sweetland, 1996). Sweetland (1996) additionally states, "education consistently emerges as the prime human capital investment for empirical analysis (p. 341), in other words, most of the research surrounding human capital theory is focused on an investment in education not how education informs the self. Human capital theory then is more apt to explain why resources are allocated for education and why education is an important choice for the individual rather than informing who a person becomes because of choosing education.

While social network theory relies on the individual's knowledge, it is based heavily on whom a person knows interacts (Goltz & Smith, 2014; Lin, 1999). In regard to social network theory, Kadushin (2012) claims, "Social network theory is one of the few theories in social science that can be applied to a variety of levels of analysis from small groups, with organizations, nations, and international systems" (p. 13). In this light the theory relies on groups or networks for explanation of behavior of the individual and begins with the simplest level of two individuals or the dyad (Kadushin, 2012). Much like social/human capital theory, social network theory relies a great deal on inclusion or exposure to individuals within the field of

study for maximum development of PI. However, exposure for many health care students is limited, until late in the educational process when they begin clinical work. Unlike the previous theories discussed, social network theory is not as reliant on influence of a specific group. Social network theory allows for influence on an individual level with someone inside or outside the group, for instance a family member or coach to have a significant impact on the development of PI in an unrelated field.

Despite this increased flexibility, social network theory has its drawbacks in informing PI development. Social network theory does not overtly allow for an individual to draw conclusions based on individual insight but requires insight to be associated with a person or group (Kadushin, 2012). Kadushin (2012) defines network, "A network is a set of relationships" (p. 14). Therefore, a network requires relationship and at minimum two components, because it requires external feedback, "As with all network theory, we will see that a feedback loop is at the heart of the network process" (Kadushin, 2012, p. 13). While it may be conceded no one exists and learns in a vacuum without influence from individuals or groups it does not allow for singular uninfluenced experience to impact PI development; that is, it does not allow for an individual to observe or learn and draw unique conclusions from experience.

Utilizing social network theory would additionally rely heavily on interactions between the student and member of the profession and seeing them in action to develop their PI. The typical health care student spends the bulk of their formative educational process with peers and a limited number of professional educators. While professional educators are typically licensed in the field the student is pursuing, the interactions are more typically in line with educator/student relationships rather than the novice/professional relationship. This research will include looking at PI development prior to significant and formalized interaction with

professionals in the field. As with social/human capital theory, social network theory may be better suited to explain PI as it changes during a professional career rather than its' ability explain development of PI in the student.

Social learning theory is also a potential informer of PI (Goltz & Smith, 2014). Goltz and Smith (2014) describe it as, "Observation/role model-based professional norms (e.g., attitudes, values, behaviors)" (p. 786). Social learning theory was introduced by Bandura (Bandura & Walters, 1971; Goltz & Smith, 2014) and relies almost exclusively on the cognitive aspects of learning. Social learning theory is based on observation and role modeling (Bandura, 1977; Goltz & Smith, 2014). Again, this theory fits very neatly into PI, but limits the learner to experience and observation with minimal explanation of why two individuals with similar experiences will act differently and draw different conclusions. This model relies on modeling and observation and does little to speak to biological differences in behavior or explain how a person may be affected by non-observational learning or conflicting role models (Griffin, 2006; Rushton, 1982).

Goltz and Smith (2014) also look social identity theory (SIT). The concise abstract of the theory regarding PI includes the idea SIT can support a means of development as well as future growth (Goltz & Smith, 2014). It also allows for specific training by educators, learning through mentors, learning through observation all of which can be formal or informal (Goltz & Smith, 2014). However, SIT as proposed by Tajfel and Turner (2004) relies heavily on the influences of behavior based on individual interaction between "in-groups" and "out-groups" where PI would ultimately be influenced by the individual wanting to be part of the in-group and not being part of the out group (Tajfel, 1982). Tajfel and Turner's SIT (1979) was created to try to explain prejudice and bias of one group toward another. A desire to be in the "in group" of physical therapy may influence why a student pursues physical therapy as a career and it may motivate

the student to model behavior of those in the "in group", but the "out groups" will have much less opportunity to influence. It is unlikely the novice student has enough experience with in-group and out-group behavior to have substantial effect on the development of PI until enough experience with multiple professional groups has been amassed. Again, as with the above theories, SIT appears to have a better opportunity to explain growth and changes in PI once the professional has entered the workplace.

Experiential Learning

Unlike the previous theories, which rely heavily on work place experience, experiential learning theory (ELT) was formulated as a philosophy to specifically improve the process of education by recognizing the importance of experience (D. Kolb, 1984). Based on the writings of John Dewey and others, Kolb's experiential learning theory (ELT) allows for multiple aspects of experience and learning to affect professional identity (PI) and will be the grounding theory of this research (D. Kolb, 1984). Kolb (1984) posits experiential learning is a new and unique concept because it always accounts for the experience of the learner. "Ideas are not fixed and immutable elements of thought but are formed an re-formed through experience" (D. Kolb, 1984, p. 26). The ability to form and re-form experiences allows the student to develop a basic PI and then use new experience in conjunction with the previous experience and alter their PI as new information is gathered.

Development of professional identity (PI) through the "social" theories and human capital theory require interaction with others and for the best results they require the learner to recognize appropriate role models and behaviors. Experiential learning recognizes the importance of interactions with professionals and role models but is not constrained by human

interaction. The “experience” of ELT can be interactions with textbooks, research or individual practice, for instance practicing the use of a novel piece of equipment.

Kolb and Kolb (2005) see learning as a circular or spiraling process; as stated in one of the six propositions of learning, “All learning is relearning” (p. 194). This quote suggests even with novel information learning is progressive and stacked with previous information, evaluated, refined, and integrated (Kolb, A. Y. & Kolb, D., 2005). Kolb (1984) theorizes learning’s cyclical nature is based on four basic abilities, (a) concrete experience, (b) observation and reflection, (c) abstract conceptualization and (d) application and experimentation with new experiences (Figure 2.1). Concrete experience can take the form of doing, observation, reading or interaction with others.

The cyclical nature of this theory allows the learner to experience, observe, create a solution, put it into action, learn from the action and begin the process again (D. Kolb, 1984) (Figure 2.1). While typically the learner enters the experiential learning cycle with experience, they are not required to, they can begin anywhere and proceed to reformulating a concept to put into practice (D. Kolb, 1984). Put into the context of developing professional identity a student may gain practical knowledge in the classroom, observe other’s behaviors, reflect on those behaviors conceptualize how it will look in their unique circumstance, apply or experiment with the theory evaluate the results and begin again. As noted above, unlike many other theories ELT allows for personal change and growth with limited or no outside intervention. For example, a learner could purchase a new piece of equipment, read the manual, try it out, see alternate uses or personal errors, and try new approaches, this process can affect the individuals PI with minimal to no “social” influence.

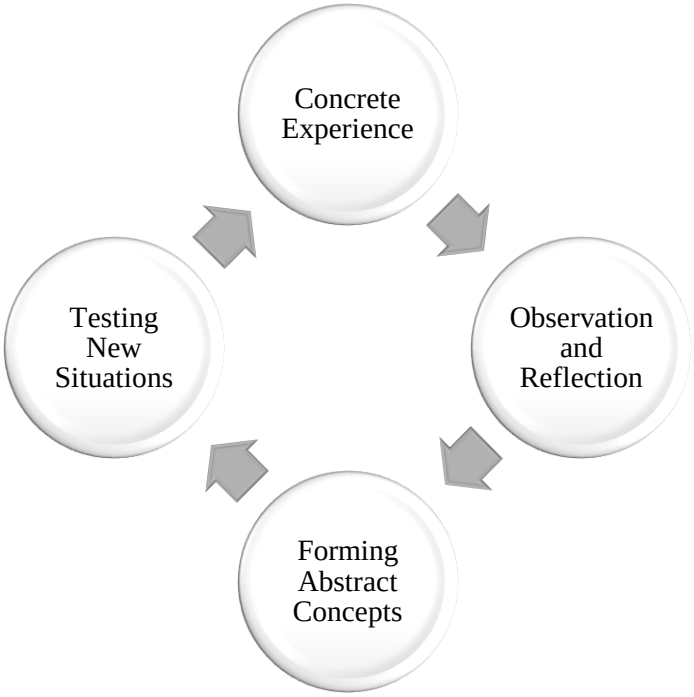

Figure 2.1. Lewinian Experiential Learning Model Adapted From Kolb,1984.

This theory fits into developing knowledge, skill and PI. For instance, a student may have had previous experience with physical therapy as a patient or through a family member of who was a patient, where they inadvertently drew conclusions about how a physical therapist assistant (PTA) may act. The individual can then reflect on how the behavior fits in with their own past experience and concept of how a PTA would act in a specific new circumstance, they can develop a concept of behavior and put it into practice. Once put into practice the results can be assessed and the process can begin again with new experiences and information.

ELTs unique cyclical process allows for the student to incorporate and digest skill-based knowledge, moral behavior, good role models and bad role models to inform the development of PI. While Ibarra (1999) aligns herself with social identity theory, her discussion of the development PI through trying on provisional selves and adjusting through experience fits in nicely to experiential learning model as well. Both models utilize Bandura's (Bandura &

Walters, 1971) ideas of "social learning theory" in recognizing the developing professional behavior and ultimately PI is different than learning facts from a book and require adjustment through experience and modification (Ibarra, 1999; D. Kolb, 1984).

The cyclical nature of experiential learning also allows for significant change in PI over time and would allow for individual differences in the rate of development and differing levels of PI with students which have had largely the same educational experience. Finally, this cyclical development of PI allows the development of PI to not be a true linear progression but allows for strengthening and weakening of PI over time dependent upon multiple educational experiences, past pre-education experience, personal characteristics and differing conclusion and conceptualization of the unique learner (Adams et al., 2006; Lindquist et al., 2006; Niemi, 1997; Wilson et al., 2013).

Experiential learning theory is also a good fit for physical therapist assistant programs. The ELT process is seen throughout the students' educational process. The average PTA program spends 15 of its 77 weeks (or 19%) in the clinic (Commission on Accreditation in Physical Therapy Education-CAPTE, 2019). In the clinical setting, the student continues to learn, working with real patients under the guidance of a licensed professional. The student is now putting into practice the skills they have learned in the didactic portion of the program. They have the opportunity to put into practice the skills learned, have a "concrete experience," reflect on the results, adjust their thinking and try it again. Additionally, while the accrediting body does not publish the number of laboratory hours clocked by the average student, all programs have practical laboratory time, where again, the student is exposed to techniques required for the trade. Throughout the learning process they practice and are tested on skills, receiving feedback allowing for adjustment of PI.

Finally, unlike most other theories utilized to explain PI development ELT can be applied in both the formal educational setting and the professional setting. As argued above, many of the theories explain development of PI in either the school setting or the workplace. ELT, on the other hand, can also explain how a working professional's PI can also change. The same cycle of experience, observation and reflection, theory building, testing and experience which can influence PI in the student can influence the practitioner. As Lindeman (2014) points out, the adult never stops learning and the practitioner will continue to learn, observe test and grow.

The educational process for the physical therapist assistant is about experience, whether discussing the formal educational setting or the informal setting of physical therapy practice. As noted above experience during formal education comes in many forms, including classroom lecture, laboratory activities, textbooks, informal interactions with instructors, and supervised clinical activities. In the professional setting, experiential learning comes from, putting learning into practice, formal or informal mentoring, professional development courses, patient interaction and interactions with the health care team. Not only do these experiences lead to knowledge for practice, but they can also lead to professional identity formation. The advantage of using ELT as a theoretical framework is ELT can be used to inform all learning. and ELT can be used as the lens through which we understand gaining PI through experience in any of these learning environments. With ELT the only requirement is an experience, observation/reflection, concept formation, then testing in new situations (D. Kolb, 1984), this cycle can be applied to learning a new treatment technique or to gaining professional identity as a physical therapist assistant.

This research is focused on the development of PI and at its' root ELT is based on learning through experience, however, the two are connected. In a chapter on the connection in

adulthood between learning and development, Merriam and Clark (2006) report, “Adult learning literature assumes some development as a by-product of learning” (p. 27). Merriam and Clark (2006) go on to argue identity and development are connected through identity development, transformational learning and cognitive development. This suggests development, or in this case development of professional identity, is impacted by learning. Additional it is argued that experience is one of the keys to learning and development, “Learning that is connected to development is likely to be embedded in the life experiences of adults and intricately related to the context of adult life” (Merriam & Clark, 2006, p. 30). In other words, learning and development are closely linked and experience can impact both.

While it is potentially contributory, it is unlikely in an interview setting when discussing professional identity development, the individual will point to learning the parameters of heated ultrasound as a force influencing their development of PI. It is more likely, the individual will point to experiences with field of physical therapy, receiving physical therapy, interactions with clinicians, influences in their past make them want to be a health caregiver or some other lived experience which has influenced their character, ethics and who they are or will be as a PTA. ELT is the ideal tool for exploring these experiences, because it gives a template for exploration. Questions can be asked specifically to the ELT cycle: what was the concrete experience? When you think back on an experience why do you think it was important? What part of your identity do you think the experience spoke to? How did the experience change what you believe a PTA is?

Chapter Summary

There is no lack of literature about professional identity (PI). Despite the abundance of literature surrounding PI, there is no consensus on even the simplest topics such as a definition

let alone a grounding theory. A brief history of professional identity has been explored and a definition has been selected for this research. A variety of theories have additionally been explored to ground research and explain the development of PI in a variety of stages of pre-professional and professional life. For this research, experiential learning theory (ELT) has the greatest flexibility for informing development of PI prior to schooling, during schooling and into the professional career. It does not rely as heavily on the influence of specific groups and allows for variance during development. Therefore, in this research looking at the development of PI during school and into practice ELT will be the basis for analysis.

Chapter 3 - Methodology

The purpose of this chapter is to explain the methods utilized to investigate both quantitatively and qualitatively the forces contributing to the development of professional identity (PI) in physical therapist assistants. The chapter begins with the research question and why it was asked. The research question is followed by the methodological framework and why it was employed, followed by an overview of the procedural method. Instrumentation is then discussed, including rationale for use, their validity and modifications. Finally, data analysis methods are explained and a more in depth look at procedural specifics are covered.

Researcher Background

Ultimately, this research was undertaken looking through several identified and likely several unidentified lenses, all of which likely informed and at the same time may have hindered the interpretation of the literature and research results. The research began with the overarching belief professional identity begins prior to formal education and extends throughout one's professional career and is a result of multiple experiences within and outside the profession and involves multiple types of experiences, which will be discussed below. The author has experience with strong professional identity as both a PT and an educator and believes a strong PI can be both an asset and hinderance. Finally, for reasons previously discussed, the author believes it is incumbent upon educators to mindfully and intentionally influence the development of PI in future clinicians.

Additionally, it may be helpful to know the background of the researcher. The author is an educator at a midwestern community college teaching future PTAs. The researcher began his career as a full-time physical therapist (PT) working in both inpatient acute care and inpatient rehabilitation. After nearly 20-years of practice, he accepted a full-time position at a midwestern

two-year college as an instructor in a physical therapist assistant program, where he has remained through the time of this writing, the past 11-years. For the past eight of those years, the researcher has additionally taken on the role of program director, throughout his academic career he continues to practice PT on a PRN (as needed basis). An interest in professional identity (PI) formation began with the transition from full-time PT to full-time educator. The researcher struggled with his own PI, “Am I a PT that teaches?” or “Am I an educator, who is a PT”. As he wrestled with his PI, he began to research PI development in education. As noted in the previous chapter, PI can have both positive and negative effects on relationships with co-workers and patients. In looking for research on how to best instill appropriate PI in students little research was found, inspiring this research.

Coming from a world in which the double-blind randomized controlled trial is the gold standard of research two things became clear quickly. First, due to the longitudinal nature of professional identity (PI) developing a well-controlled double-blind randomized controlled trial is not a realistic goal. Second, because the ultimate purpose of this research was to elucidate the forces impacting PI development in order to better prepare students for interactions with co-workers and patients it is important to delve deeper than a survey would allow. To this end, this research combined quantitative and qualitative methods in a mixed methods investigation of variations in the strength of PI amongst professional and student physical therapist assistants, ways in which PI is defined, and the forces which influence PI through the educational process and into work life.

Research Questions

The complexity of professional identity development makes it difficult to narrow the research to a single question. This research entailed a single overarching question with sub-questions guiding the quantitative and qualitative portions.

Primary Research Question

What forces impact the development of professional identity in the student physical therapist assistant (SPTA) and physical therapist assistant (PTA), and do these forces vary from education to professional practice?

Quantitative Research Question

1. Is there a statistically significant difference in the rating of professional identity, utilizing the modified professional identity five-factor scale (mPIFFS) between first year SPTAs and second year SPTAs?
2. Is there a statistically significant difference in the ratings of professional identity (PI) utilizing the modified professional identity and values scale (mPIVS) between novice clinicians with there or less years of experience and PTAs with more than three years of experience?

Quantitative Research Hypotheses

The Null Hypotheses for the quantitative portion:

1. There will be no statistically significant difference in the PI ratings on Tan et al.'s (2017) modified professional identity five-factor scale between the first year PTA student and the second year PTA student.
2. There will be no statistically significant difference in the ratings of PI on the modified professional identity and values scale (Healey, 2009; Healey & Hays, 2011) between

novice clinicians with three or less years of experience and experienced PTAs with more than three years of experience?

Alternate Hypotheses:

1. Strength of professional identity, measured by the mPIFFS, will be greater in second year SPTAs than in first year SPTAs.
2. Strength of professional identity measured by the mPIVS will be greater in PTAs with more than three years of professional practice experience when compared to those with three or less years of experience.

Qualitative Research Questions

1. How is professional identity (PI) defined by SPTAs, novice PTAs and experienced PTAs?
2. What forces do SPTAs and PTAs identify as shaping the development of PI?
3. What are the differences between the forces shaping PI development in the SPTA and the PTA?

Research Method

Debate regarding the best research method for education is ongoing and will not likely be settled in the near future (Subedi, 2016). Mixed-methods research favored by pragmatists, joined quantitative (a positivist approach) and qualitative research (a constructivist approach) as a legitimate research methodology approximately 20-years ago (Creswell & Clark, 2017; Ivankova, Creswell, & Stick, 2006; Subedi, 2016). There are approximately 40 types of mixed-method research, each with its own benefits (Ivankova et al., 2006).

Proponents of mixed-methodology argue the constructivist and positivist cannot capture all of the richness of the available data utilizing their qualitative and quantitative methods,

respectively (Subedi, 2016). Mixed methods, however, can be defined as, "A procedure for collecting, analyzing, and 'mixing' or integrating both quantitative and qualitative data at some stage of the research process within a single study for the purpose of gaining a better understanding of the research problem" (Ivankova et al., 2006, p. 3). By utilizing a mixed method, the researcher can present quantitative data and then look deeper. Detractors may be concerned the results of the quantitative and qualitative portions of the research may conflict (Subedi, 2016). Subedi (2016) argues quite the opposite, "Many researchers select mixed method in order to search out the opportunity for a greater assortment of divergent views" (p. 571). Teddlie and Tashakkori (2006) suggest this is actually one of the benefits of mixed method research; "Properly conducted MMR [mixed methods research] also provides the opportunity for an assortment of divergent conclusions and inferences due to the complexity of the data sources and analyses involved in the research" (p. 9). By utilizing both techniques the researcher is not restricted to one type of data collection and is able to explore multiple outcomes (Subedi, 2016; Teddlie & Tashakkori, 2006).

Explanatory Sequential Design

This mixed methods research utilized an explanatory sequential design. In explanatory sequential design, the quantitative portion of the research is completed prior to the qualitative portion, with the intent of using qualitative data to explain the quantitative results (Creswell & Clark, 2017; Ivankova et al., 2006; Subedi, 2016). **Figure 3.1** is a visual representation of the explanatory sequential design. In this design, the research is intentionally divided into two distinct phases with essentially two research studies being completed; a quantitative study is completed with the second, qualitative phase, researching the results of the quantitative phase (Creswell & Clark, 2017; Ivankova et al., 2006).

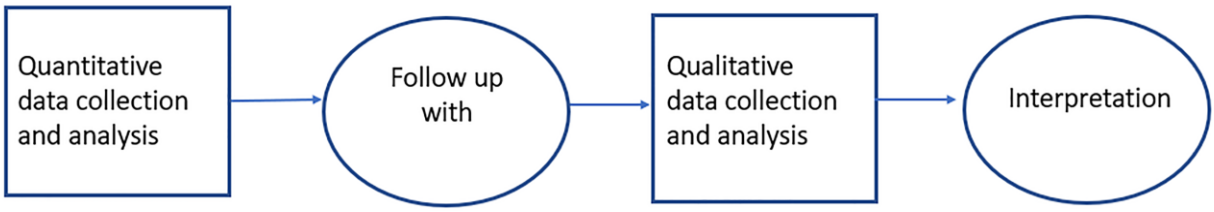

Figure 3.1. A Visual Representation of the Explanatory Sequential Research Design (Subedi, 2016, p. 573).

Utilizing an explanatory sequential design has several benefits. By completing the quantitative portion first and analyzing the data prior to the qualitative portion the researcher is able to dig deeper into anticipated data (Creswell & Clark, 2017; Subedi, 2016). Potentially, more importantly, this method affords an opportunity to explore in more depth unexpected data that arises from the quantitative data (Creswell & Clark, 2017; Subedi, 2016). An additional benefit of this method is after the completion of the qualitative phase the researcher can integrate the conclusions of the two phases and extend the quantitative results (Creswell & Clark, 2017). This two-fold approach allows the quantitative portion to give a general understanding of the research problem, while the qualitative portion refines and explains the data through more in-depth analysis of the participants views (Ivankova et al., 2006).

An important aspect of explanatory sequential design is its integrative properties. This design method requires the researcher to integrate the two distinct phases of research (Ivankova et al., 2006; Teddlie & Tashakkori, 2006). Integration may come in several forms (Ivankova et al., 2006). The quantitative phase can be used to establish data collection protocol for the qualitative phase; it can be used to identify questions for interviews and/or it can be used to assist in purposive sampling for interviews (Ivankova et al., 2006). The researcher may evaluate and draw conclusions from the qualitative and quantitative portions separately and then the two phases are integrated (Ivankova et al., 2006). After the two phases of research are completed the

conclusions from each phase can be assessed to either confirm individual conclusions or lead to new unique interpretations of the data (Ivankova et al., 2006).

Prior to knowing the results of the quantitative portion of the research, how the explanatory sequential design method would be utilized in this research was only speculation. A list of potential interview questions was created. The questions were related to the literature review, the two quantitative surveys, and Moss, Gibson and Dollarhide's (2014) three themes surrounding PI. However, the advantage of explanatory sequential design was demonstrated after analysis of the two surveys additional questions. Additional questions were created based on the outcome of the quantitative analysis. Questions were added to attempt to explain the survey results and to further elucidate other data. Additionally, theories or conclusions drawn from survey analysis were explored. Essentially the explanatory sequential design allowed for two studies in one.

In the quantitative portion of the research, participants rated their professional identity on one of two scales. The qualitative portion investigated whether participants were using the same personal criteria and definitions to arrive at those quantitative ratings. Utilizing the explanatory sequential design, the research attempts to explain the results of PI ratings by different groups of participants. Previous research on strength of PI has found conflicting results, including a dip in PI in the midst of education (Cowin et al., 2013) and also no significant change in PI throughout education (Hensel et al., 2014). Additionally, many studies use graduation from a program as a divider; they look at PI development in school or after graduation (Black et al., 2010; Hayward & Li, 2014) but no studies found looked at both settings. By utilizing the explanatory sequential design, any previous outcome or a novel outcome can be explored in more detail with specific questions regarding PI development created after the results of the mPIFFS results have been

examined. In this explanatory sequential design, the results of the survey were utilized to determine qualitative interview questions to seek explanation of similarities or differences in the results of strength professional identity.

Populations

For reasons noted above two separate surveys were used to research PI development in the field of physical therapy. For this reason, what may initially look like one population will be considered two, student physical therapist assistants (SPTAs) and physical therapist assistants (PTAs). This section will look at the populations involved in this research.

Student Physical Therapist Assistants

According to the Commission on Accreditation in Physical Therapy Education (CAPTE) at the time of the research there were 12,970 physical therapist assistant students in the educational process in the United States (CAPTE, n.d.) attending 371 accredited programs ("Number of PT and PTA Programs as of July 12, 2019 02:20 Pm," 2019). This research was conducted in a midwestern city where there were two public institutions and one proprietary school with accredited Physical Therapist Assistant (PTA) programs, combined the programs graduated approximately 70 students annually. There were approximately 150 students enrolled in these programs each year. Each of the three local programs agreed to participate in this research. For inclusion in this research the SPTA was currently enrolled in one of these three local PTA programs.

The student group was divided into first year and second year students for this research. While different institutions run on different schedules, for instance, semesters, or trimesters, the mean length in the program nationally is 77 weeks. (Commission on Accreditation in Physical

Therapy Education-CAPTE, 2019). Breaking the groups between the first and second year allows studying students in the first half and second half of the educational process.

Physical Therapist Assistants

According to the Bureau of Labor and Statics (Bureau of Labor and Statistics, 2016) at the time of the research, there were approximately 85,580 licensed PTAs in the United States. In the researched metropolitan area there were approximately 950 employed PTAs (Bureau of Labor and Statistics, 2019). For inclusion in this research participating PTAs confirmed they had graduated from a CAPTE accredited PTA program. In addition, the individual confirmed they possessed a valid state license and was currently practicing as a PTA.

Determining a point of demarcation for practicing clinicians was a more difficult task. In creating the Dreyfus Model of Skills Acquisition, advancement from "novice" to "master" was studied in a variety of learning tasks, including foreign language acquisition, chess playing and becoming a pilot (Dreyfus & Dreyfus, 1980). The Dreyfus model closely parallels the experiential learning model, for example, concrete experience is necessary to attain mastery of a skill, the learner cannot rely on just a set of instructions (Benner, Sutphen, Leonard, & Day, 2005; Dreyfus & Dreyfus, 1980). You can read flight manuals all day, and fly the simulator, but you will not be a pilot until you successfully fly the plane. In research by Benner et al. (2005) the Dreyfus Model was used in several studies to look at skill acquisition in nursing. As a result, Benner et al. (2005) divided skill acquisition into four stages ranging from *novice* to *expert* (where novice includes students). The researchers concluded the key component to movement through the stages is experiential learning. "At the heart of good clinical judgment and clinical wisdom lies experiential learning from particular cases" (Benner et al., 2005, p. 189). While the authors acknowledge no two people move at the same pace and some never reach the level of

expert, they do suggest some guidelines (Benner et al., 2005). Benner et al.'s (2005) research suggests nurses move from advanced beginner to competency between two and three years. While this research concentrates on PTAs and not nursing there are significant parallel's when considering both are health care programs, the two programs are of similar length, both programs have an associates of applied science diploma, and both have a terminal clinical/residency component. Additionally, this model coincides with the authors anecdotal experience as a practicing clinician and manager. For the above reasons, the professional PTAs were broken into two groups with division being three years of practice, coinciding with Benner et al.'s (2005) division between *competence* and *expertise*. The two groups were divided as "novice clinicians", those with three or less years of professional experience, and "experienced clinicians", those with more than three years of professional experience.

Instrumentation

Three different tools were utilized to collect data for this research: (a) the modified professional identity five-factor scale (mPIFFS) (Tan et al., 2017), (b) the modified professional identity and values scale (mPIVS) (Eason et al., 2018; Healey & Hays, 2012), and (c) semi-structured interviews. There are several instruments designed to measure professional identity (PI). However, all instruments located were divided by population: (a) to measure PI in students during formal professional education (Cowin et al., 2013; Holden et al., 2015; Pratt, M. G. et al., 2006; Tan et al., 2017), and (b) development of PI in professionals (Black et al., 2010; Hayward et al., 2013; Healey, 2009; Jebril, 2008). This finding alone suggests variation in PI formation from school to the workplace. Unfortunately, no survey instrument was found which could assess PI development both in the formal educational setting and in professional life. Therefore, this research utilized two separate survey instruments: (a) the modified professional identity five-

factor scale (mPIFFS) (Tan et al., 2017)) to measure PI in SPTAs and (b) the modified professional identity and values scale (mPIVS) (Eason et al., 2018; Healey & Hays, 2012) to measure PI in practicing professional PTAs. After the quantitative data was collected and analyzed, semi-structured interviews were utilized to clarify questions arising from the surveys and to further elucidate the acquisition of PI. The following sections will describe the two surveys used and how the semi-structured interviews were utilized.

The Professional Identity Five-Factor Scale

Measurement of PI in student physical therapist assistants (SPTAs) utilized a modified version of the professional identity five-factor scale (mPIFFS) created and validated by Tan et al. (2017). The PIFFS was created to assess PI in college students pursuing a wide variety of professional career aspirations (Tan et al., 2017). The PIFFS includes 26-items; 25 of which are rated on a Likert scale and a single yes/no question (Tan et al., 2017). The results of the survey were analyzed by the five factors proposed by Tan and his colleagues and also as a composite PI score for each individual student (Tan et al., 2017). The specifics of the tool, background, modifications, and validity are discussed below.

Other tools created to measure PI have several drawbacks, including being created to measure a specific piece of identity development and therefore are not generalizable to multiple professions (Tan et al., 2017). According to Tan et al. (2017), PI scales also, "Do not adequately include key factors about student learning that any professional education programme must have to influence professional identity development" (p. 1505). One of the purposes of the PIFFS was to create a tool which could be validated across multiple professions so the same tool could be used across an entire educational system (Tan et al., 2017). Tan et al. (2017) also argue only one previous PI measurement tool was found which utilized "a multilevel confirmatory factor

analysis" (p. 1505) and most "have not been validated using a theory-driven approach such as structural equation modelling that can test the stability of the factor structure" (p. 1505). Therefore, Tan et al. (2017) set out to create and validate a comprehensive instrument which could be used regardless of the profession being pursued and included a wider range of PI domains.

For their instrument, Tan et al. (2017) identified five-factors they believed contribute to the development of PI. These factors are (a) knowledge about professional practice, (b) having professional role models, (c) experience with the profession, (d) preference for a profession, and (e) professional self-efficacy. The resulting instrument included 27-items covering their five dimensions (Tan et al., 2017). "All the items except one are rated on a five-point Likert scale, with 1: *Never True,* 2: *Not Really True,* 3: *Neutral,* 4: *Somewhat True and* 5: *Definitely True"* (italics by original authors) (Tan et al., 2017, p. 1511). The exception was "'Do you already know what kind of work or profession you prefer?' which required a *Yes* or *No* reply" (Tan et al., 2017, p. 1511).

Because this instrument was created to assess PI across multiple professions at the same time, the language is very general (Tan et al., 2017). Because of this generality, a face-validity assessment was completed with two professional PTA educators and two SPTAs. After informal discussion with these individuals, minor modifications were made for ease of reading and comprehension. Examples of changes include changing "business" to "physical therapy" and "future profession" to "future as a PTA". The PIFFS can be found in Appendix B alongside all modifications made for this research.

Validity of The Professional Identity Five-Factor Scale

In the original study, the instrument was distributed to all of the students in a polytechnic institution in Singapore with 38 different professional programs (Tan et al., 2017). Data was collected from 1,295 students in 36 programs accounting for approximately 9.3% of the potential respondents and 95% of the programs. The authors of the PIFFS report the analysis for construct validity was completed in three stages. Stage 1 was confirmatory factor analysis with three fit indices including (a) an absolute index where a small χ^2/df ratio of ≤ 3 and a $p > .05$ indicate a reasonable fit, (b) an incremental comparative fit index (CFI) where $\geq .95$ indicates a good fit, and (c) a root-mean-square error of approximation (RMSEA) with acceptable model fit at $\leq .06$. Stage 2 found the model valid for the population through factorial invariance using exploration and cross-validation samples. In stage 3 the overall scores were averaged and evaluated using independent t-tests to determine if there were adequate differences across the five-factors to make them distinct. Construct reliability was analyzed using the coefficient *H* test. (Tan et al., 2017). Results and conclusions were reported for all three stages.

As a result of the model fit analysis, correlation matrix and modification indices two of the original 27 items were dropped making the final instrument 25 items showing "reasonable distinctiveness" between their five-factors (Tan et al., 2017, p. 1512). The calculated CFI was .90 and the RMSEA was .05. In the confirmatory factor analysis, the χ^2/df ratio was found to be 2.84 with p=.000. While all of the findings do not meet the pre-analysis expectations above the authors argue, "The reader should take into account that with the very large samples, such as ours, even the slightest differences between the proposed model and the empirical data are picked up by the chi-square test" (Tan et al., 2017, p. 1514). The results of the construct

reliability analysis (coefficient *H*) showed reliability scores within the .65 to .85 range. The authors conclude the test has appropriate fit and reliability (Tan et al., 2017).

Assessment of the stability of the instrument was completed using two randomly selected samples. The authors report, "Even under very strict conditions, with both the factor loadings and co-variances constrained equal, the measurement model was tested to be invariant…In other words, the model was highly stable" (Tan et al., 2017, p. 1515). In addition, when the individual items were analyzed between ratings of high and low PI the groups were found to be significantly different across all the 36 programs assessed. Through their testing, the authors found the PIFFS to be reliable and valid (Tan et al., 2017).

Professional Identity Values Scale

Measurement of PI in novice and experienced PTAs utilized a modified version of the professional identity values scale (mPIVS) (Eason et al., 2018; Healey, 2009; Healey & Hays, 2012). The PIVS was initially created and validated as a 32-item survey for a dissertation involving female counselors (Healey, 2009). The PIVS was subsequently validated outside Healey's initial dissertation, by a group including the original author and used in subsequent published and unpublished research utilizing 22-items (Healey & Hays, 2011, 2012). The PIVS includes themes from three major areas (a) professional orientation, (b) professional values, and (c) professional development (Healey & Hays, 2012).

The final 20-item PIVS instrument modified for this research, was adapted and validated by Eason et al. (2018) for use with the professional athletic training population. In writing about the PIVS, Eason et al. (2018) broke down the sub-groups noted above. Professional orientation is labeled as a combination of "(1) advocacy and community engagement; (2) holistic, contextual, and relational approach; (3) professional engagement and collaboration; (4) personal wellness;

and (5) meaning and values" (Eason et al., 2018, p. 74). The concept of professional development includes items addressing three stages of counselor identity development (Eason et al., 2018). Stage 1- imitation and internalization of expert beliefs, Stage 2-acceptance of oneself as an expert, and Stage 3) establish one's own professional beliefs (Eason et al., 2018). While grouped and themed differently than the components of the professional identity five-factor scale (PIFFS), the two scales have a great deal of similarity, looking at expert roles, developing one's own sense of professional self and experience in the profession (Eason et al., 2018; Tan et al., 2017).

The 20-item professional identity and values scale (PIVS) utilized by Eason et al. (2018) will be utilized for this research with only slight modifications due to similarities between athletic training and physical therapy. Because Eason et al. (2018) were specifically looking at athletic trainers, a face validity assessment was completed after modification for this research, utilizing two professional PTA educators and two professional PTAs. These individuals read through the survey separately, making recommendations for only slight modification to the instrument. Seven of the 20-items were not changed. Changes made include, substituting forms of "physical therapy" for forms of "athletic training". A complete list of the items and modifications made can be found in Appendix C. The final item in the survey arose as a result of piloting the semi-structured interview which will be discussed below.

Validity of the PIVS

As noted above, the PIVS was developed and initially validated for female counselors (Healey, 2009; Healey & Hays, 2011). Since its introduction (Healey, 2009) factor analysis has been completed by Healey and Hays (2011) and Eason et al. (2018) for construct validity. Factor analysis "is considered the method of choice for interpreting self-reporting questionnaires"

(Williams, Onsman, & Brown, 2010, p. 2). Benefits of factor analysis include reducing a large number of variable to several factors, connecting variables for refinement of theory and provides construct validity (Williams et al., 2010).

Healey's original survey consisted of 32-items (Healey, 2009). With further research and factor analysis it was reduced to 22-items (Healey & Hays, 2011). Eason et al. (2018) looked to adapt the original 32-item PIVS to be used to measure PI with athletic trainers working in collegiate athletics. Exploratory analysis was undertaken with the modified instrument utilizing n= 299 participants and reduced the instrument to 20-items (Eason et al., 2018). Both teams completed statistical analysis of the instrument and calculated a Cronbach α of 0.80 (Eason et al., 2018; Healey & Hays, 2011). There is dispute over qualitative descriptors for Cronbach α ranges, but a score of 0.80 is generally accepted as "high" reliability (Taber, 2018).

The PIVS and mPIVS were also reviewed by two PTA instructors and two experienced PTAs not participating in the research. No changes from those already present in Appendix C were suggested for the mPIVS. Both the PTAs and PTA educators reviewed and rated how closely they believe the scale comes to measuring PI on the face validity Likert scale noted above (Nevo, 1985).The professional PTA educators both rated the MPIVS a 4/5; the professional PTAs rated the mPIVS a 5/5. The professional PTAs reported the survey was straightforward, easy to read and required less than five minutes to complete. One of the PTA raters pointed out some of the statements addressed ideas other than PI, specifically "values", but after discussion agreed the two are intertwined. The mPIVS demonstrated adequate face validity to proceed.

Semi-Structured Interviews

The final data collection tool was semi-structured interviews. There are three types of interviews, unstructured, semi-structured and structured (Longhurst, 2003; Merriam & Tisdell, 2016; Whiting, 2008). On a continuum of formality, semi-structured interviews are in the middle generally guided by predetermined questions (Merriam & Tisdell, 2016). While question themes are created and even specific questions are pre-written, the questions can be altered to fit a particular participant (Longhurst, 2003; Merriam & Tisdell, 2016). Semi-structured interviews are typically relaxed and conversational rather than the stricter guidelines of a structured interview (Longhurst, 2003). One benefit of utilizing a semi-structured format is it allows for exploration of themes and topics introduced by the participant and is not bound by a specific group of questions which must be asked in a specific sequence (Merriam & Tisdell, 2016).

Interview questions for this research were created based on multiple factors. Some of the questions speak to the "Five-Factors" proposed by Tan et al. (2017) as areas indicating strength of PI: (a) knowledge about professional practices, (b) having the professional as a role model, (c) experience with the profession, (d) preference for a profession, and (e) professional self-efficacy. (Tan et al., 2017) Second, by the characteristics Plack (2006) identified as necessary to be a competent physical therapist including*:* expert knowledge, skills, values, attitudes and beliefs. Additionally, questions were created after analysis of the survey results in phase I of the research. Finally, all questions can be placed directly or indirectly into the framework of experiential learning theory (ELT). For instance, a question can be seen as a question directly reflecting the ELT cycle; tell me about a time when you knew for certain PT was the field for you? ELT can be used indirectly, by being utilized for follow up questions; how did this change your understanding of what physical therapy is? Interview questions are found in Appendix D.

Semi-structured interviews were completed with representatives of each of the research groups. Groups consisted of two educational cohorts (first year and second year students) and two professional cohorts consisting of novice (PTAs with three or less years' experience) and experienced PTAs (PTAs with more than three years' experience). The interviews explored how individuals define professional identity, the role of the PTA, how the PTA fits into the health care team, and the forces influencing those perceptions. All interviews were audio recorded on a digital recorded and transcribed verbatim. Themes were searched for based on the theoretical framework and concepts looking for themes associated the proposed factors of the two surveys, the experiential learning model and the literature review (Yin, 2017).

Samples

Student Physical Therapist Assistants

SPTAs were found through convenience sampling. As noted above, program directors from three midwestern metropolitan area accredited PTA schools agreed to participate. Once research and IRB approval were secured each program director was provided with a copy of the research institutions IRB approval, a copy of the survey and any additional information required by the participating institution. In addition, each director had the opportunity to ask questions or request additional information from the researcher. After the individual institution's approval was secured each director was provided with an email (Appendix H) to be forwarded to each student. The email outlined the purpose of the survey, included a confidentiality statement and the two hyperlinks described above. Each program director was asked to provide the number of students receiving the emailed request for statistical evaluation. Approximately 120 students received the email. Of the 120 student, 52 students opened the survey, of those students three chose to opt out and 49 completed the survey.

Physical Therapist Assistants

PTAs were sought through convenience and snowball sampling. The participating program directors were asked to forward an email requesting participation to program alumni (Appendix I). Rehabilitation directors of two local health care systems agreed to forward the email to their PTA staff. Finally, a post was made in an alumni Facebook page of one of the participating institutions requesting participation and additionally asked if alumni would "tag" other PTAs who might be willing to participate. The Facebook post (Appendix J) included a brief statement of the purpose, an invitation to participate, a request to tag or forward the request to others, a statement of anonymity, a link to the survey and finally a request to contact the researcher if willing to be interviewed for this research either through the provided link or through the Facebook message system.

Due to recruitment techniques employed, it was not possible to determine the actual number of PTAs exposed to the survey. According to Facebook metrics 135 PTAs saw this post on the alumni webpage. After consulting with the participating program directors, a best estimate is between 250 and 300 PTAs were exposed to the opportunity to participate in this research. Of the PTAs exposed to the survey 84 opened the survey and 80 completed the survey, with three opting out and one incomplete survey. Demographic questions for PTAs included, years of practice, gender, age groupings, PTA school attended and whether physical therapy was a second career

Protection of Human Subjects

The first step in protecting human subjects was earning approval through the individual research committee and then through the research institution's institutional review board (IRB). The researcher completed all applicable training required by the institution prior to the beginning

the IRB application process through the Collaborative Institutional Training Initiative (CITI Program). CITI Program modules completed include but are not limited to, authorship, human subject, assessing risk, privacy and confidentiality, data management, conflict of interest, informed consent, and research misconduct. After receiving approval through the Kansas State University IRB, the researcher complied with all requirements. The researcher provided a copy of the IRB approval to the three participating institutions of student subjects and received approval to conduct research.

Both the mPIFFS and mPIVS surveys were administered through Qualtrics where identifying information was secure and unavailable to the researcher. The survey began with a description of the research, a statement of informed consent and with the option to not participate in the survey (Appendix E). The participant was required to confirm their credentials and the informed consent to move into the survey items. The researcher did not have access through Qualtrics to any identifying information including Transmission Control Protocol/Internet Protocol address (the IP Address). The only identifying information available to the researcher was provided by the participants for interview purposes. The survey did not ask for information which would allow the researcher to identify the participant.

Steps were taken to prevent the appearance the researcher could match survey answers to information collected for potential interview participants. The surveys and the request to be interviewed were accessible by two separate links. The participant was required to click one link to take the survey, where the researcher was shielded from any identifying information, including web IP address. A second link was selected by those willing to participate in the interview process. While it may have been helpful to review the participants answers to their respective surveys when selecting interviewees, preparing for interviews and analyzing the

results, anonymity when completing the surveys was ultimately deemed more important. Potential participants could therefore participate in both or just one of the research sections.

Unlike the anonymous surveys, participants being interviewed met with the researcher either through the video conferencing program, Zoom, or in a face-to-face interview, so additional steps were taken to guard confidentiality. Prior to the interview, a copy of the informed consent (Appendix F, the original consent form, Appendix G the videoconferencing consent form) was presented to the volunteer and signed. Those participating through Zoom printed, signed and returned the consent form to be kept on file with copies of the informed consent forms completed by those interviewed in person. Prior to either form of interview the researcher reviewed the purpose of the research and the procedures to assure the anonymity of the participant in reporting the research. Before beginning the interview, the participant was given an opportunity to ask questions, once satisfied they were asked to sign the informed consent for the researcher and was offered a copy for their records.

Pilot Studies

Professional Identity Five-Factor Scale

Both survey instruments have been previously validated by their creators. Because the instruments have been previously validated the pilot studies concentrated on becoming familiar with Qualtrics, gaining experience with the semi-structured interview process. To gain experience with Qualtrics, the mPIFFS was minimally modified and administered to students in four different semesters of PTA school at a midwestern two-year college through Qualtrics (Leighton, 2018). A total of 29 students ultimately participated in the pilot study by completing the survey. The instrument was also assessed by two PTA educators and two experienced PTAs for face validity considering readability, modification of the instrument from its original form,

audience and intent. Verbal feedback from students completing the survey indicate completing the survey took less than three minutes, the items were easy to understand and addressed the proposed topic. The evaluating therapists and students suggested a change in item number 26. As written, number 26 is a “yes or no” question; “Do you already know what kind of work or profession you prefer” (Tan et al., 2017, p. 1514). Because the individuals being polled have ostensibly chosen a profession it was suggested to change the question to, “Do you already know what kind of work in the profession you prefer?” The evaluating therapists and one of the PTAs rated the instrument at 5/5 utilizing the Likert scale proposed by Nevo (1985). The scale is as follows,

> The rater is asked to rate a test or an item on the following 5-point scale: "5"-the test is extremely suitable for a given purpose; "4"-the test is very suitable for that purpose; "3"-the test is adequate; "2"-the test is inadequate; and "1"-the test is irrelevant and therefore unsuitable (Nevo, 1985, p. 289).

One of the PTA raters rated the face validity as 4/5 and expressed concern the original PIFFS is not consistent with using “job” and “profession” but agreed it was adequate. The mPIFFS demonstrated adequate face validity to proceed.

Semi-Structured Interviews

The qualitative portion of the test was piloted for face validity as well as to assess, flow, coding, and time requirements (Leighton, 2019). The semi-structured interviews were piloted with two participants. The first individual was a student in their first semester of a selective admissions PTA program in one of the participating midwestern colleges. The second participant was an experienced PTA who graduated from another of the participating colleges. Both interviews were transcribed, and cursory conclusions were drawn. In immediate follow up

discussions, the participants reported they believed the items addressed the topic at hand. Both participants had nothing further to add when asked, “Are there any questions I should have asked that I did not?” The student interview required less than 20 minutes to complete. The interview with the practicing experienced PTA required just over 42 minutes. The two interviews were subsequently transcribed and coded. Both participants were given the opportunity to member check the transcripts and conclusions, neither had input. As a result of this analysis questions were added to the potential interview questions list found in Appendix D. Examples of additions are seen in question 5, added after both participants discussed a previous plan to become a physical therapist. For questions 12 and 13, “How do you know this?” was added to attempt to increase the depth of the answer. Additionally, both participants reported they enjoyed participating in the interview process, denying items were too personal. Through this process it was determined the proposed questions to guide the semi-structured interviews were appropriate.

Overview of COVID-2019 Impact

While it is unusual to provide specific dates of data collection in research of this nature, the extraordinary events surrounding the roll out of the quantitative surveys warrant discussion. The unforeseeable collision of this research with the beginning of the COVID-19 outbreak in the United States potentially impacted every aspect of the research after that point. Quantitative data collection began the first weeks of March 2020, this release date unknowingly coincided with the beginning of public awareness of COVID-19 with CNN reporting the second death in the United States on March 1, 2020 (CNN 2020). Approximately two weeks after the surveys were initially distributed, the United States began to alter how schools operated. The three schools which agreed to distribute the modified professional identity five-factor scale (mPIFFS) (Tan et al., 2017) all moved their course delivery to online in mid-March of 2020, significantly disrupting

course planning and administration. At this same time, significant changes were also occurring in health care. The two states in which data were collected for the modified professional identity values scale (mPIVS) (Healey, 2009; Healey & Hays, 2012) issued stay at home orders at the end of March and beginning of April (Mervosh, Lu, & Swales, 2020). Health care workers and health care systems were gearing up for a potential pandemic with limited personal protective equipment (Cha, Miller, Miller, & Sun, 2020). Both students and health care workers faced unknown health risk (Yeung, McKeehan, Woodyatt, & Vera, 2020). While the anonymous nature of the surveys and their deployment coinciding with the beginning of public awareness of the health risks of COVID-19 prevents assessment of the state of mind of potential participants, it would not be surprising to find the number of survey participants reduced due to concerns greater than participation in research. It is also possible the increased attention focused on health care and its workers impacted rating levels of professional identity. Because of this possible impact, the following question was added to both interview lists, "Has COVID-19 impacted your thoughts on entering health care?"

The current health concerns related to COVID-19 also impacted the qualitative portion of the research. Initial approval from the research committee and the institutional review board (IRB) was predicated on face-to-face interviews with representatives from each of the four groups. The IRB approval had safeguards for anonymity, data collection and storage based on audio recording and transcription. Individuals volunteered for interviews based on believing the interviews would be in person. COVID-19 changed the ability to gather and meet in public and each individual had their own ideas and concerns about going into public for non-essential tasks. Each volunteer was contacted and asked if they were still willing to be interviewed. Twelve of the first 15 individuals contacted agreed to participate in the interview process. Three of these

individuals reported they would prefer to be interviewed via Zoom rather than meet in person. With this information, an addendum was filed for and received through the IRB with added safeguards for video conferencing.

While waiting for IRB approval, the face-to-face interviews continued with the original informed consent form (Appendix F), the researcher postponed video conferencing until new IRB approval was secured. Once secured, a new informed consent form (Appendix G) was utilized for all remaining interview and the new protocol for video conferencing was followed with those three individuals, quick response from the IRB meant no disruption to data collection. Prior to video conferencing, participants were emailed the informed consent, participants printed the form, signed it, scanned it and emailed it back. Video conferencing was scheduled and completed after the researcher received the signed form.

Phase I: Quantitative Data Collection

The explanatory sequential mixed method design of the research used the quantitative data to inform the qualitative portion of the research (Creswell & Clark, 2017). The goal of the quantitative portion of this research was two-fold. First the modified professional identity five-factor scale (mPIFFS) (Tan et al., 2017) (Appendix B) and the modified professional identity values scale (mPIVS) (Appendix C) (Eason et al., 2018; Healey, 2009; Healey & Hays, 2012) provided a quantitative number for overall strength of PI for each individual. Having PI quantified in this manner allowed a more objective comparison inside the two population groups, specifically, the ability to look at the strength of PI in first year versus second year SPTAs and separately the novice PTA versus experienced PTAs. The aggregate scores and individual items were then utilized to inform the questions utilized in the quantitative portion discussed below. By utilizing the explanatory sequential method unexpected results found in the aggregate data for

overall PI rating or for specific items in the mPIFFS/mPIVS were also intentionally explored during interviews to provide a more robust analysis.

Regardless of recruitment technique, each participant was provided with several items including, the purpose, a confidentiality statement, an informed consent statement, and two hyperlinks. One link connected the participant to the appropriate instrument, the mPIFFS (Tan et al., 2017) for students or the mPIVS (Eason et al., 2018; Healey, 2009; Healey & Hays, 2012) for practicing clinicians. The mPIFFS/mPIVS were available through Qualtrics, allowing the participant to anonymously take the survey. The Qualtrics software anticipated it would take the participant approximately two minutes to complete the survey. The second link allowed the participant to provide contact information to volunteer to be interviewed in the quantitative portion of the research. As with the first link, the participant was assured the link to participate in the interview did not link survey results to their contact information assuring anonymity for both interview participants and survey-only participants.

Both surveys and the potential interview link were available for 12 weeks. During this time, three requests were sent to program directors to request they remind students and alumni of the opportunity to participate in the research. At this same time, reminders were posted to the Facebook alumni page, making a similar request. The surveys were closed after several weeks of inactivity.

Intermediate Stage

As dictated by the explanatory sequential research design, the surveys were administered and initially evaluated prior to beginning the qualitative portion (Creswell & Clark, 2017). Chi-squared tests were completed to assess validity and appropriateness for factor analysis. Both of the original surveys were subjected to chi-square and factor analysis and this research completed

these tests for comparison. In keeping with the previous use of the instruments, Cronbach's α test was completed to check for reliability (Coladarci & Cobb, 2014; Taber, 2018) values of greater than .8 found for both modified surveys in keeping with the original surveys. In addition, T-test were utilized to test the null hypothesis for both surveys. T-tests were completed on both the mPIFFS and the mPIVS to look for statistically significant differences between each item in the surveys (Coladarci & Cobb, 2014). For the mPIFFS statistical significance was looked for between responses of first- and second-year students. No statistically significant difference in overall strength of PI between the two student groups was found. For the mPIVS, statistical significance was looked for in responses between novice and experienced PTAs where a statistical significance was found. Complete results of these tests are found below. The results of the analysis were also utilized to help determine the questions asked in the semi-structured interviews in the quantitative portion of the research (Appendix D).

Modifications to Interview Questions

During research design, multiple interview questions were developed to assist in determining factors associated with professional identity development. After the quantitative data was analyzed, the interview questions were adapted to reflect insights gained, questions raised, and clarification sought (Appendix D). In this section, the demographics of the participants interviewed, and data collected related to the qualitative research questions are discussed.

Additionally, other questions were added to the semi-structured interviews as result of the questions that arose from analysis of the data as a result the following questions were also added. Questions added after survey results analyzed:

1. Tell me how COVID-19 has impacted your thoughts on entering health care.

2. Would you define professional identity in your own words?
3. Can you tell me about a person or experience that has impacted your views of PT?
4. How has your view of what a PTA is changed since you decided to become a PTA?
5. Do you have role models for your work in the profession that are in health care and not in health care?
    a. If yes, how did you meet these people? who do you believe has had the greatest impact on your professional identity?
    b. If no, who are your role models and how did you these people?
6. Can you give me some examples of what has influenced your ability to think and act like a PTA?
7. Tell me about a time when you felt unqualified to be a PTA.
8. Tell me about an experience that confirmed your choice to be a PTA.

Phase II-Qualitative Data Collection

There were several reasons it was important to include a qualitative portion in this research. This research intended to investigate not only whether there is a difference in ratings of professional identity (PI), but also to explore how the criteria used to make the ratings may differ. It was not only important to determine if the individuals utilize similar definitions of PI and how concepts of PI vary in different stages of development as a professional. If there is an increase, no statistically significant difference or a decrease in ratings of PI it is important to explore the criteria used by the individual to rate their PI. Finally, because the student groups used a different instrument for rating PI than the professional groups it is not possible to compare these two outcomes. By completing semi-structured interviews, the evolution of PI from student to experienced clinician was explored on a more intimate level. By utilizing qualitative research,

a deeper richness was added to findings which may not be brought out by the quantitative tools alone.

Semi-structured Interviews

The second phase of this research employed semi-structured interviews. There are currently no hard guidelines for the appropriate number of interviews to complete in qualitative research to reach saturation of data. Researching the appropriate sample size for qualitative research in general and more specifically in doctoral dissertations, Mason (2010) found sample sizes between 1 and 95 were utilized in case study research method with the most typical size utilized for dissertations to be between 20 and 30. Mason (2010) concluded varying understanding of saturation and institutional standards were the greatest factors on determining sample size. Post data collection analysis of their own research completed by Guest, Bunce, Arwen and Johnson (2006) showed although they interviewed 60 individuals, saturation of 34 of their 36 codes happened after just six interviews with a homogeneous sample. Sample sizes as small as one has shown to be effective depending on the depth of interviews and topic. Data collection was concluded at 12 interviews with saturation.

Three individuals from each of the four research groups were interviewed. In all groups there were more than three volunteers. Selection was then based on the where the individual placed the "slider" when asked, "Please move the slider to indicate how strongly you identify as a PTA. From 0 'not at all' to 10 'very strongly'" when they volunteered to participate in the survey. The intention was to interview one of the lowest self-rated individuals, and individual at the midpoint and one of the highest. However, that was not possible because interview volunteers did not align with these categories.

Each interviewed participant was assigned a pseudonym which is used for all documents except personal correspondence with the participant and file names. The participants were assigned pseudonyms when referenced in analysis. Additionally, if an interviewee made reference to coworkers, instructors, patients or places which could identify them these references were also altered for confidentiality.

Nine of the 12 interviews were conducted at public locations chosen by the subject including restaurants and coffee shops. The remaining three interviews were completed using the video conferencing software Zoom. The interviews took between 30 and 90 minutes with the average interview requiring approximately 45 minutes. Data sources collected through the interview process included: two separate recordings, in the case of Zoom meetings, a video recording and a digital audio recording were collected

Additionally, prior to beginning the interview verbal permission was asked for and received to audio record face-to-face interview and video record and audio record Zoom interviews. Zoom interviews required a password to enter. The interviews were video recorded through the Zoom software and additionally with a handheld digital audio recorded. Once it was confirmed the digital audio recording was complete the Zoom video file was deleted. Audio files of both forms of interview were stored on a password protected hard drive and will be deleted with all other files after three years of the research completion. Each interviewed participant was assigned a pseudonym which was used for all documents except personal correspondence with the participant and naming the original transcript file which is secured in a protected hard drive.

After transcription each interview was read by the researcher for potentially identify information and altered for anonymity, changes included but were not limited to, names of colleagues, classmates and instructors, names of clinics, hospitals and colleges. Each participant

was given the opportunity to review transcripts to identify potentially sensitive data for exclusion, through the process of member checking (Birt, Scott, Cavers, Campbell, & Walter, 2016). At the preference of the participant a copy of the transcript was either emailed or printed for review. All participants chose to have copies emailed. Feedback was received regarding changing or additions from three of the 12 individuals. Two participant requested removal of short unrelated asides which contained sensitive information. One individual shared a store about her inspiration to become a PTA. As a result of these member checks the changes were made.

Printed copies of interview transcripts were used for the researcher's review purposes with no physical copies leaving the possession of the researcher. Hard copies are kept in a locked cabinet in the researchers locked office and will be shredded by a licensed confidential shredding company three years after the completion of the dissertation. All electronic documents will be maintained in a password protected electronic format for three years after publication on a hard drive kept in a locked cabinet and will then be deleted.

The interviews were completed over a two-week period after the completion of the traditional spring academic semester but prior to the fall semester to assure the participants remain in the same categorical group throughout their participation. Thus, data was collected prior to students moving from their first year to the second year of the program and before second year students become licensed practitioners.

Data Analysis

Data Corpus

According to Braun and Clarke (2006) the data corpus "refers to *all* data collected for a particular research project," (p. 5) [italics in original paper]. For this research, the data corpus would be all of the data from the two surveys, the interview transcripts, member checks, and data

collected in the pilot studies, although data from the pilot studies is not used to inform conclusions drawn for this research. Data sets however, "refers to all the data from the corpus that is being used for a particular analysis" (Braun & Clarke, 2006, p. 6). For this research data sets can be broken into the two separate surveys (Table 3.1) and interviews (Table 3.2) each seen separately, the data combined or specific interview questions which inform the survey results.

Table 3.1.
Quantitative Data Sets

Survey	Useable	Unusable
mPIFFS	49	4
mPIVS	75	6

Table 3.2.
Qualitative Data Sets

Data Format	Quantity
Audio Recorded interviews	13*†
Video Conference Recordings	3**
Interview transcripts	12 comprising 291 pages
Member check replies	3 total; 1 email and 2 verbal

*After completing one interview, a new recording was begun to ask a follow-up question

† All interviews were audio recorded including video conferences

**After the interviews were transcribed video conference recordings were deleted and their audio kept.

Quantitative Data Analysis

There were concerns regarding the sample size, related to the impact of COVID-19. Utilizing a traditional sample size calculator ("Sample Size Calculator," n.d.) for the SPTA population of 120 local students to obtain a confidence interval of 95% and a margin of error of 5% a sample size of 92 is required. Utilizing the same calculator a sample size of 49 of the 120 potential students yields a margin of error of 10.81% ("Sample Size Calculator," n.d.). For the PTA population, there are approximately 950 PTAs in the region (Bureau of Labor and Statistics, 2016). Utilizing the sample size calculator the required sample size for this population to achieve a 95% confidence interval with a 5% margin of error is 274 ("Sample Size Calculator," n.d.). Inputting the number of useable surveys collected yields a margin of error for the PTA population at 10.35% ("Sample Size Calculator," n.d.). Because the margin of error was larger than desired additional tests for validity and reliability were run.

Kaiser-Meyer-Olkin Measure of Sample Adequacy (KMO) and Bartlett's Test of Sphericity were also completed for both surveys, see Table 3.3 and Table 3.4. Kaiser (1974) and Kaiser and Rice (1974) suggest the sample adequacy calculations of .591 for the SPTA survey and .707 for the PTA survey are of "middling" (p. 112) and "miserable" (p. 112) results for the appropriateness of factor analysis. However, results of greater than .5 are considered adequate samples for internal validity and suggested the data was appropriate for factor analysis (Dziuban & Shirkey, 1974; Field, 2018). According to SPSS Help (IBM Corp, 2019) a significance of .000 as noted in the Table 3.3 and Table 3.4 below should be reported as $p>.001$. Bartlett's Test of Sphericity showed a significance less than .001 for both surveys indicating the survey samples are adequate for factor analysis (Field, 2018; IBM Corp, 2019)

Table 3.3.

Validity Analysis for mPIFFS for SPTAs

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.591
Bartlett's Test of Sphericity Approx. Chi-Square	532.194
df	325
Sig.	.000

Table 3.4.

Validity Analysis for mPIVS for PTAs

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.707
Bartlett's Test of Sphericity Approx. Chi-Square	662.938
df	276
Sig.	.000

In the quantitative portion, the modified professional identity five-factor scale, (mPIFFS) (Tan et al., 2017) was administered to PTA students through Qualtrics and resultant Likert scale ratings for the individual items were averaged for an overall "strength" of professional identity (PI). Likewise, the modified professional identity values scale (mPIVS) (Eason et al., 2018; Healey, 2009; Healey & Hays, 2012) was administered to practicing clinicians and yielded a similar averaged rating for items and an overall "strength" of PI. While the scores on the mPIFFS and the mPIVS could not be compared to one another directly; the scores between the student group and between professional groups, respectively, were compared across individual items and for strength of professional identity utilizing Excel. Excel was also used to determine standard deviation scores for overall PI and between several individual items.

All other survey data were analyzed with SPSS v. 26. The results of the surveys were analyzed by one-way ANOVA to look for significant difference between the groups. Results of

the one-way ANOVA analysis whether showing statistically significant change (p-value < .05) in the five factors and overall PI rating, no change or a drop, helped to determine appropriate questions to be used in semi-structured qualitative interviews.

Intermediate Stage: Quantitative Analysis Informing Qualitative Research

Thematic Analysis of the mPIFFS

In research utilizing explanatory sequential design, the quantitative portion (in this case the surveys) are administered and subjected to data analysis prior to the qualitative portion to inform a portion of the questions in the qualitative interviews. For this reason, after factor analysis was completed the individual factors were searched for themes, keeping in mind, the relative effect on the variance of the data is strongest for factor one and weakest for factor eight (Table 4.13). A general theme was assigned to each factor. The pattern matrix of the factor analysis of the mPIFFS with a direct oblimin rotation with the factors named for predominant attributes was calculated (Table 3.1)

Factor one is comprised of the following three items.

a. I am sure I will have no problems dressing and behaving professionally in my industry.
b. I concentrate in my studies on what I believe I would need to know and be able to do when I enter my future occupation.
c. I believe I can already think and reason like a professional in a company or organization.

The theme assigned to this factor was “self-efficacy” (Table **3.5**). Questions were added to the qualitative interviews to explore self-efficacy of the individuals. Examples of these questions are:

a. Did you consider becoming a Physical Therapist?
b. Has there been a time when you felt unqualified to be a PTA? Can you tell me about that?

c. Tell me about a time when you questioned your decision to become a PTA?

The items related to the second factor are:

a. I work part-time in physical therapy while I am studying.
b. Before I entered college, I already had some prior work experience related to physical therapy.

The theme assigned to second factor was, “Experience with the profession.” This factor also contained one of the lowest rated items in the mPIFFS, “I work part-time in physical therapy while I am studying” (*M*= 1.92, *SD*= 1.4). Factor analysis, however, showed a link to experience in the field with PI ratings. There are multiple ways an individual might gain an understanding of PT and the role of the PTA with work experience being only one of these. An individual may do volunteer work, request to observe in the field, or might have personal experience with PT through an injury or the injury of someone close to them. The following questions were included in the interviews to explore this factor.

a. How long have you been aware of PT as a profession? PTA?
b. How did you become interested in Physical Therapy?
c. Why did you decide to pursue this care? That is, what attracted you to PT.
d. Did you consider any other profession(s) or was this your first choice?

The third factor included the following items.:

a. I admire professionals who are already working in my future work environment.
b. I admire most those teachers who are professionals in the area that I would like to enter.
c. I know the nature of the work I will do in my future profession.
d. I know what kind of applications, tools and equipment I will handle in my future occupation

e. When working on problems in class, I imagine myself to be in the shoes of a professional in my future work environment.

f. I feel poorly prepared for a real job. (reversed)

A connection between these items is more difficult to make. The largest overall theme here is related to role models and their effect on the individual. This factor was labeled “role models” and the following questions were added to the interviews.

a. Who are your role models?

b. Can you give me some examples of what or who has influenced your ability to think and act like a PTA?

c. What is the relationship between the PT and PTA?

Table 3.5.

Direct Oblimin Rotation of mPIFFS for SPTAs with Themes

	Factor							
Survey Item	Self-efficacy	Experience with the profession	Role models	Knowledge of professional practice	Fitting in (self-efficacy)	Confidence	Prior knowledge	Active Pursuit (experience)
I am already pretty sure what field of physical therapy I will enter after completing my education.				-.81				
I have no doubt that I will master all the skills necessary to succeed in my future work.						.75		
I'm confident that I can do an excellent job in the future						.51		
I believe I will get along with my future colleagues, get their cooperation, and have informal conversations with them.					.89			

I am sure I will have no problems dressing and behaving professionally in my industry.	-.47		.42	
I admire professionals who are already working in my future work environment.		-.74		
I admire most those teachers who are professionals in the area that I would like to enter.		-.69		
I believe I can already think and reason like a professional in a company or organization.			-.50	
I know the nature of the work I will do in my future profession.		.45	-.51	
In most work environments, professionals with different backgrounds work together. I know of the different types professionals I will be collaborating with.				
I have a good idea about the roles and responsibilities of my future job.				.45

I know what kind of applications, tools and equipment I will handle in my future occupation		-.47		-.44
I am aware of the impact of the decisions I make as a professional in the industry.			.63	
I have a good idea about the rules and regulations in the industry.		-.52		
I work part-time in physical therapy while I am studying.	.85			
I am part of an interest group (inside or outside of school) related to my profession.				-.64
I know personally some people who work in my future profession.			-.83	
I follow developments in physical therapy in the media, for instance online or on television.				-.83
Before I entered college, I already had some prior work experience related to physical therapy.	.80			

I have interacted with professionals in the industry outside of college or through events organized in the college.				-.49
When working on problems in class, I imagine myself to be in the shoes of a professional in my future work environment.		-.59		
I concentrate in my studies on what I believe I would need to know and be able to do when I enter my future occupation.	.79			
I believe I can already think and reason like a professional in a company or organization.	.63			
Do you already know what kind of work in the profession you prefer?			.81	
I am not sure about the kind of challenges faced by the professional in the industry I will work. (R)				.93
I feel poorly prepared for a real job. (R)		-.49		

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization. a. Rotation converged in 20 iterations.

Thematic Analysis of the mPIVS for Qualitative Research

As with the mPIFFS, the mPIVS was subjected to the same factor analysis, to investigate themes to aid qualitative data collection (Table 3.6). The mPIVS survey items corresponding with the first factor appear to be related to "internalization" of the profession. The last three items on this list have negative values and are reversed statements, indicating a positive relationship. The items associated with the first factor, self-efficacy are:

a. At this stage in my career, I have developed a professional approach that is congruent with my personal way of being.
b. I have developed a clear role for myself with the physical therapy profession that I think is congruent with my individuality.
c. I feel comfortable with my level of professional experience.
d. I feel confident in my role as a professional physical therapist assistant.
e. Based on my level of experience within the physical therapy profession, I have begun developing specialization within the field.
f. I have developed personal indicators for gauging my own professional success.
g. I am still in the process of determining my professional approach.
h. I understand theoretical concepts but am unsure how to apply them.
i. I am unsure about who I am as a physical therapist assistant.

The following interview questions are related to this theme:

a. Can you give me some examples of what or who has influenced your ability to think and act like a PTA?
b. Has there been a time when you felt unqualified to be a PTA? Can you tell me about that?

c. We are all familiar with the pain scale, 0-10. If I asked you to rate how strongly you identify as a PTA on a 0-10 scale, what number would you give yourself?

The theme associated with the second factor is “external influences”. These items show an outside influence on the individual’s PI.

The second factor is associated with the following mPIVS survey items:

a. In making professional decisions, I balance my internal professional values and the expectations of others.
b. Feedback from my supervisors and experts serve as the primary means by which I gauge my professional competence.
c. Building strong relationships with other physical therapy professionals is important to me.
d. It is important for physical therapist assistants to be involved in promoting the physical therapy profession.

Questions for the interviews associated with these items included:

a. How did you become interested in Physical Therapy?
b. Why did you decide to pursue this care? That is, what attracted you to PT.
c. Can you give me some examples of what or who has influenced your ability to think and act like a PTA?
d. Who are your role models?

The theme for the third factor was named “patient relations”. This third factor was associated with the following mPIVS survey items:

a. Assisting patients in advocating for their needs is an important component of one's role as a physical therapist assistant.

b. Patient empowerment is a fundamental component one's role as a physical therapist assistant.
c. Therapeutic interventions should be flexible with regard to a patient's presenting concerns.

The interview questions associated with this theme include:

a. What is the role of the PTA on the treatment team?
b. What is the relationship between the patient and the PTA?
c. How important is PT for successful patient outcomes?

These statements indicate the PTA works with the patient to help them help themselves, providing treatment plans fitting their needs and advocating for the patient to get needed services. This is further supported by the advocacy item rating, which was the highest rated statement in the survey (Table 4.21).The evidence suggests part of the PI of the PTA is related to patient partnership.

The fourth factor was “autonomy.” The fourth factor includes the following three items:

a. In making professional decisions, I balance my internal professional values and the expectations of others.
b. Assisting patients in advocating for their needs is an important component of one's role as a physical therapist assistant.
c. My work as a physical therapist assistant is fundamentally connected to my personal spirituality.

This does not appear to be a strong correlation with a total variance of 1.62. Due to overlap and the relatively lower correlation with variance, no additional questions were added to the interviews for this theme.

The fifth factor, “self-efficacy” has the lowest influence on variance and was discarded due to this low variance. This factor appears to be related to equating their work with their own value system, that is aligning PI with personal values. This final factor did not add any questions to the interview process because questions related to internal motivation had already been created.

Table 3.6.

Pattern Matrix Direct Oblimin Rotation of mPIVS for PTAs with Themes

	Factor/Theme				
	Internal-ization	External Influence	Patient Relations	Auto-nomy	Self-Efficacy
At this stage in my career, I have developed a professional approach that is congruent with my personal way of being.	.69				
I have developed a clear role for myself with the physical therapy profession that I think is congruent with my individuality.	.73				
I feel comfortable with my level of professional experience.	.82				
I feel confident in my role as a professional physical therapist assistant.	.80				
Based on my level of experience within the physical therapy profession, I have begun developing specialization within the field.	.75				
I have developed personal indicators for gauging my own professional success.	.41				
I always gauge my professional competence based on both internal criteria and external evaluation.					.46
In making professional decisions, I balance my internal professional values and the expectations of others.		.60		-.45	

Feedback from my supervisors and experts serve as the primary means by which I gauge my professional competence.		.81			
Assisting patients in advocating for their needs is an important component of one's role as a physical therapist assistant.			.71	.42	
Patient empowerment is a fundamental component one's role as a physical therapist assistant.			.86		
Therapeutic interventions should be flexible with regard to a patient's presenting concerns.			.72		
Building strong relationships with other physical therapy professionals is important to me.		.71			
It is important for physical therapist assistants to be involved in promoting the physical therapy profession.		.57			
My work as a physical therapist assistant is fundamentally connected to my personal spirituality.				.78	
Physical therapist assistants work best when professional expectations match personal values.					.83
I understand theoretical concepts but am unsure how to apply them.	-.61				
I am still in the process of determining my professional approach.	-.67				
I am unsure about who I am as a physical therapist assistant.	-.80				

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.
a. Rotation converged in 11 iterations.

The mean ratings with standard deviations were calculated for all 78 PTAs filling out the entire survey (Table 3.7). The highest rated item, with an average rating *M*=5.81 out of 6, *SD*=.43, is “Assisting patients in advocating for their needs is an important component of one's role as a physical therapist assistant.” This item addresses the identity of the PTA in general and not the identity of the individual PTA. In other words, it does not state whether the individual on the survey is an advocate, but rather if patient advocacy is an important part of being a PTA. The same observation can be made for the next two highest scoring items. “Patient empowerment is a fundamental component one's role as a physical therapist assistant” and “Therapeutic interventions should be flexible with regard to a patient's presenting concerns.” These two items, patient empowerment and patient advocacy, regardless of how the individual interpreted the meaning, were identified as the two most important characteristics of a PTA.

Table 3.7.

Mean Ratings on mPIVS With Standard Deviations

Descriptive Statistics			
	Mean	Std. Deviation	Analysis N
At this stage in my career, I have developed a professional approach that is congruent with my personal way of being.	5.15	.90	78
I have developed a clear role for myself with the physical therapy profession that I think is congruent with my individuality.	4.90	.91	78
I feel comfortable with my level of professional experience.	4.53	1.03	78
I feel confident in my role as a professional physical therapist assistant.	5.12	.81	78
Based on my level of experience within the physical therapy profession, I have begun developing specialization within the field.	3.79	1.38	78

I have developed personal indicators for gauging my own professional success.	4.47	.94	78
I always gauge my professional competence based on both internal criteria and external evaluation.	4.97	.81	78
In making professional decisions, I balance my internal professional values and the expectations of others.	4.99	.67	78
Feedback from my supervisors and experts serve as the primary means by which I gauge my professional competence.	4.31	1.25	78
Assisting patients in advocating for their needs is an important component of one's role as a physical therapist assistant.	5.81	.43	78
Patient empowerment is a fundamental component one's role as a physical therapist assistant.	5.64	.56	78
Therapeutic interventions should be flexible with regard to a patient's presenting concerns.	5.54	.70	78
Building strong relationships with other physical therapy professionals is important to me.	5.47	.60	78
It is important for physical therapist assistants to be involved in promoting the physical therapy profession.	5.45	.66	78
My work as a physical therapist assistant is fundamentally connected to my personal spirituality.	4.62	1.05	78
Physical therapist assistants work best when professional expectations match personal values.	5.21	.75	78
I understand theoretical concepts, but I am unsure how to apply them (R)	4.05	.97	78
I am still in the process of determining my professional approach (R)	3.67	1.40	78
I am unsure about who I am as a physical therapist assistant (R)	4.69	1.21	78

Qualitative Analysis

Interviews were transcribed verbatim. Interviews ranged from 30 minutes and 17 pages of transcription to 90 minutes and 38 pages of transcription. The average interview lasted 45 minutes with 24 pages of text. Transcripts of each interview were emailed to participants for review of accuracy and identification of potential participant identifiers (Stake, 1995).

Yin (2017) provides four general strategies for data analysis which can be applied to a direct interpretation of the data. “One strategy is to follow the theoretical propositions that led to your case study” (Yin, 2017, p. 168). A second proposed strategy is in direct contrast to the first, the data is analyzed for themes without regard to the proposed theoretical framework (Yin, 2017). For this analysis both techniques were used. First, because interviews questions were informed by the research related to the mPIFFS and the mPIVS, the pilot study and literature review the interviews were first evaluated by searching for themes (codes) with consideration the interview question. Themes were then looked for in relationship to the proposed factors of the two surveys. Finally, themes were looked for related to the specific research questions and theoretical framework. For instances, looking at how interviewees define PI and looking for experiential learning as a contributor to PI. Once completed the themes were compared to the original theoretical framework and research questions to assess potential alignment of the theoretical with what was observed and shared in the interviews. Final conclusions were drawn from this analysis.

The theoretical framework of this research is based on Kolb’s (1984) model of experiential learning. In the analysis, data was sought to show individual examples of experiences affecting concepts of professional identity (PI). In addition, examples were sought

related to modified professional identity five-factor scale as presented by Tan et al. (2017) and the modified professional identity and values scale (mPIVS). Finally, examples were sought related to the three qualitative research questions.

Thematic Analysis

In looking for themes in the data, Braun and Clarke (2006) remind the researcher, it is not possible to be completely unbiased when searching for themes and interpreting data. Therefore, it is more realistic for the researcher to begin analysis understanding his perspective rather than to go in believing he is truly neutral (Braun & Clarke, 2006; Clarke & Braun, 2013; Saldaña, 2016). Regardless of intention, the positionality of the researcher will affect themes found and conclusions drawn (Braun & Clarke, 2006; Saldaña, 2016). To this point, Saldaña (2016) states, "[H]ow you perceive and interpret what is happening in the data depends on what type of filter covers that lens and from which angle you view the phenomenon" (p. 6). Additionally, Braun and Clarke (2006) argue the process of how themes were ascertained is often left out of the methodology of the research and how the authors theoretical frame is used to interpret data is also not explicitly stated. To this point, this research includes a section on positionality and information on experiential learning to aid the reader in understanding the lenses through which this data was analyzed.

Because the quantitative surveys were used to inform the qualitative portion of the research, the initial readings of the interview transcripts were not read without influence. An Excel spreadsheet was created with replies to specific questions grouped by experience level. Table 3.8 shows a small sample of the groupings related to the presence of role models.

Table 3.8.

Grouping of Interviewee Answers Regarding Role Models

pseudonym	Group	Examples of Role Models
Rhoda	First Year	Yeah, I have a lot. But it seems everybody that I know is in health care. So maybe that's who I surround myself with. But everyone I run with they're all in some form of health care. Everything I do, I know she's a nurse, she's a nurse, she's this kind of nurse, this one does this, because when you run, you like you're sharing your back ground and I run with the same people year after year.
Kevin	First Year	My mom**,** Yeah actually it's interesting, I don't know if I told you this, but as of, gosh was I four, not in kindergarten yet, maybe three or four-year-old Mr. 'Kevin' here actually attended class with his mother.
Kat	First Year	Yeah, my aunt is a role model the one that I mentioned earlier. She's always been an inspiration to me, for sure. Um, my teachers, they're still practicing PTs, which is the most important thing to me that they actually do what they teach so it makes everything that they say a little more reliable, a little more worth listening to.
Lou	Second Year	uh, well, it's funny man, cuz growing up my role models were kind of like the PTA with taking bits and pieces that's what I did I guess growing up. Because like I didn't really have a good relationship with my dad, but I would find characteristics in other men that would meet, I like the way he handled that, and I would kind of build my own dad. I know that sounds kind of weird, but that's what I did. So role models would be like, because I think you can find something good in pretty much anybody. And I tell people I don't try to judge people, like I've always learned that you can learn from anybody. So role models is just, I didn't really have a role model, I just took what was good in people and just adopted it and went with it.
Beth	Second Year	I really like (instructor) Really like (same instructor), but I don't know her as a therapist I only know her as a teacher, so but I like her philosophy and her approach to it all. So. The person that I'm gonna be, my clinic instructor for the Fall, we got to do a, she came to our school and did transfer training for us and I was really impressed with her, just her personality, her thoroughness, her professional demeanor, and then when a student ahead of me had her for his clinical and I got his feedback on her, it just confirmed all of what my impressions were, and she's in a Skilled Nursing facility setting, so I'm really excited to work with her and find out, watch her do what she does.

Lynn	Second Year	Well, I worked with him at one of my tech jobs, he was a PTA and he was also an athletic trainer too. But just absolutely great attitude always smiling always willing to help, loved his job, was very very good at it and just along the way, me as a Tech I wasn't a student, I wasn't in PTA school, I wasn't going, I wasn't a PTA yet and yet he devoted a lot of time in teaching me and helping me to decide that PTA is what I wanted to do, so, and that was my first job as a tech, so.

Initial readings looked for themes associated with the factors found in each survey. For instance, Table 3.9 shows a sample of themes found connected to two of proposed five factors of the PIFFS. For example, one of the five factors is having professional role models. For this reason, interviewees were asked about role models. Examples were sought in the interviews of professional role models.

Table 3.9.

Example of Themes Associated with two of the mPIFFS's Five Factors

Experience with the Profession	Having Professional Role Models
• As a patient • As an outside observer • As a student—simulated and clinical • As a clinician—personal and observed	• PTA Instructors • PTs/PTAs • Other health care workers • Non-health care individuals • Co-workers • Mosaic of individuals

Additionally, knowing no significance was found in overall PI ratings for groups in either survey readings were completed to look at understanding of PI and how individuals believe they have learned to think and act like PTAs. Additional readings looked for themes associated with

the experiential learning model. Data was also separated in Excel by item to explore differences in and between groups regarding specific items addressed. An example of this would be looking at whether the individual had considered going to PT, to explore the impact on choosing PTA over PT as a profession. Finally, readings were completed looking for novel themes and information not originally expected.

While this mixed methods research is not a case study, the size of the population and the semi-structured interview format lent itself to some of the same data analysis considerations. Stake (1995) describes two strategic ways to derive meaning in case study research, "through direct interpretation of individual instance and through aggregation of instances until something can be said about them as a class" (p. 74). Due to the sample size (n) of 12, the overall saturation of data, and the single interview format of this research, the data lends itself to both direct interpretation and aggregation.

Chapter Summary

This mixed method research utilized an explanatory sequential research design. This design allowed the researcher to examine the forces which influenced the PTA student's development of their professional identity in school and evolution during practice. By administering and analyzing the survey data prior to completing the semi-structured interviews the researcher was afforded the insights of the survey results to better formulate interview questions.

Chapter 4 - Findings

This chapter reports the findings of this mixed-methods research. It begins with an overview of the problem, reviews the quantitative and qualitative research questions, then describes the population and data analysis completed. This research utilized an explanatory sequential design, in which quantitative data was collected and statistical analysis was conducted prior to the interviews to help inform the qualitative portion of the research. The qualitative data was then collected and analyzed in conjunction with the quantitative results This chapter is organized similarly.

Purpose

The purpose of this research was to explore how individuals in distinct phases of the educational process and their professional careers define professional identity (PI), to examine the forces influencing PI development and investigate how individuals make meaning of their role as a Physical Therapist Assistant (PTA). This research was undertaken to provide insight to educators, supervisors, and mentors regarding PI development and the ways in which they may influence the development of appropriate professional identity in distinct phases of the educational process and into practice. Finally, better understanding of how the student PTA defines professional identity may assist the field in gaining insights into the perceived role of the PTA in the profession of Physical Therapy and the efficacy of the field in engendering a professional identity.

Demographics of Participants

There are two distinct populations in this research. The sample of student physical therapist assistants are described first, followed by the practicing physical therapist sample.

SPTA Survey Demographics

Approximately 120 students received the email invitation to participate in the research. Of the students which received the email 52 opened the survey of which three surveys were not completed and therefore not used for analysis. Therefore, there were 49 completed surveys used from the sample. Three students opened the survey and did not complete it. Of those students who completed the survey, 51% were in their first year of PTA school, while 49% of the surveys were completed by second-year students (Table 4.1).

Table 4.1.

SPTA: Current Year of School

Year of School	Frequency	Total Percent
First	25	51
Second	24	49
Total	49	100

The majority of participants indicated a career in physical therapy was their first career choice. Only 35% of respondents indicated the pursuit of physical therapy as second career, while 65% indicate this would be their first career (Table 4.2).

Table 4.2.

SPTA: PTA is a Second Career

Answer	Frequency	Percent
Yes	17	35
No	32	65
Total	49	100

Participants age categories ranged from 19 to 65. The largest number of student respondents were in the 19-25-year-old age group with 17 or 34.7% of respondents. With the second largest group being 26-30 at 28.6% for a total of 63.3% of students being in the 19-30-year-old age range. No comparison could be made to the field because The PTA school accrediting body does not release data regarding age of students (Table 4.3).

Table 4.3.

SPTA: PTA is a Second Career

Age Groups	Frequency	Percent	Cumulative Percent
19-25	17	35	35
26-30	14	29	64
31-35	4	8	72
36-40	6	12	84
41-45	5	10	94
46-50	2	4	98
51-55	1	2	100.0
Total		49	100

Data on gender identity **(**Table 4.4**)** was also collected. The majority of the participants identified as female with 73.5%, while 24.5 % of respondents identify as male, and one individual**,** representing 2% of respondents**,** preferred not to answer. Looking at the national data 35.3% of students are male and 64.7% are female (Commission on Accreditation in Physical Therapy Education, 2019).

Table 4.4.

SPTA: Gender Identity

Gender	Frequency	Percent
Male	12	24.5
Female	36	73.5
Prefer not to answer	1	2
Total	49	100

PTA Demographics

Due to recruitment techniques employed, it was not possible to determine the actual number of PTAs exposed to the survey, a best estimate is between 250 and 300. Of the PTAs exposed to the survey 84 opened the survey, 75 completed the entire survey. Nine surveys were not completed in their entirety and removed from the sample. Table 4.5 through Table 4.8 shows a breakdown of the demographics of participating PTAs.

The majority (71%) of the PTA participants were novice clinicians. Of the 75 respondents 53 reported three or less years' experience (classified as novice clinicians) and 22 indicated more than years' experience (classified as experienced clinicians) (Table 4.5).

Table 4.5.

PTA: Years of Practice

	Years of practice	Frequency	Percent
PTAs	Novice PTAs	53	71
	Experienced	22	29
	Total	75	100

As with student PTAs, practicing PTAs were asked if PT was a second career (

Table 4.6). Of the 75 PTAs, 31 or 41% indicate PT is a second career for them, compared to 35% of SPTAs. While 44 or 59% of practicing clinicians indicated PT was not a second career, compared to 65% of SPTAs.

Table 4.6

PTA: Second Career

Second Career	Frequency	Percent
Yes	31	41
No	44	59
Total	75	100

Like the SPTA results, the bulk of respondents 52% fell into the categories encompassing the 19-30-year-old age groups and 74% were 40 years-old or less (Table 4.7). The next largest age group was the 46-50-year-old group with nine respondents, or 12%.

Table 4.7.

PTA: Age Groups

Age Group	Frequency	Percent	Cumulative Percent
19-25	11	15	15
26-30	28	37	52
31-35	13	17	69
36-40	4	5	74
41-45	5	7	81
46-50	9	12	93
51-55	2	3	96
56-60	3	4	100.0
Total	75	100	

The majority of PTA participants were female. Individuals who identify as female comprised 75% of respondents and 25% identified as male (Table 4.8). All respondents either identified as male or female. This aligned with the SPTA gender demographics (73.5 % female and 24.5% male).

Table 4.8. PTA:

PTA: Gender Identity

Gender Identity	Frequency	Percent
Male	19	25
Female	56	75
Total	75	100.0

Quantitative Data Analysis

There is disagreement on what Cronbach alpha values are acceptable to indicate reliability (Taber, 2018). Under different circumstances a high alpha value may be unreliable and a low value may be reliable (Taber, 2018). Taber (2018) reports in research on the use of Cronbach's alpha in science, it is generally accepted an alpha value above .81 would be considered "robust" (p. 1278). The Cronbach alpha for the SPTA survey, the modified professional identity five-factor scale (mPIFFS), was found to be .811 (Table 4.9). With the threshold for "robust" data being .81 (Taber, 2018) the Cronbach alpha for the mPIFFS at .811 indicates it is robust and appropriate for factor analysis.

Table 4.9.

Overall Reliability Statistics for mPIFFS for SPTA Survey

Cronbach's Alpha	N of Items
.81	26

Likewise, the data for the PTA survey, the modified professional identity and values scale (mPIVS) was analyzed with Cronbach's alpha and a result of .83 (Table 4.10) which is also robust and reliable for factor analysis.

Table 4.10.

Overall Reliability Statistics mPIVS for PTA Survey

Cronbach's Alpha	N of Items
.83	19

Chi-square analysis (Table 4.11) was also completed to determine if the data for the mPIFFS and the mPIVS was valid and appropriate for factor analysis. The chi-square for the mPIFFS is 532.19 with 325 degrees of freedom. The *p-value* is calculated to be less than .001 indicating the data are valid and appropriate for further analysis including factor analysis (Field, 2018).

Table 4.11.

Validity and Appropriateness for Factor Analysis of mPIFFS for SPTAs

Chi-Square for mPIFFS	532.19
Degrees of Freedom	325
p-value	< .001

The mPIVS was also subjected to chi-square analysis (Table 4.12), yielding a chi-square value of 523.814 with 171 degrees of freedom. The *p*-value was calculated to be less than .001 as well, also valid and appropriate for factor analysis (Field, 2018).

Table 4.12**.**

Validity and Appropriateness for Factor Analysis of mPIVS for PTAs

Chi-Square for mPIVS	523.81
Degrees of Freedom	171
p-value	<.001

After assessing the data adequacy and reliability, additional analysis was completed including calculation of overall ratings of PI for the both the SPTA and PTA population as well as comparison of those ratings inside the groups.

Principal Component Analysis

After determining the data from both surveys was appropriate for factoring, a principal component analysis (PCA) was completed using SPSS v. 26. Discussing factor analysis, Field (2018) states, "In both PCA [principal component analysis] and factor analysis not all factors are retained. The process of deciding how many factors to keep is called extraction" (p. 789). Eigenvalues greater than one were used to determine which factors would be extracted and retained for analysis and were generated for both surveys along with matrices (Field, 2018). Tan et al. (2017) does not report Eigenvalues related to analysis, but instead looked at variance (for validity) and Cronbach alpha scores (for reliability) related to the expected factor findings related to their pre-survey hypothesized five-factors. Data analysis by Tan et al. (2017) found good fit and reliability for their proposed five-factors of PI. Eason et al. (2018), however, provide a table of principal axis factoring and suggest a direct Oblimin rotation due to expected variance and suppressing variance below .3. Eason et al. (2018) report six factors with two factors containing only two items. Both the mPIFFS and mPIVS were subjected to factor reduction through SPSS with Eigenvalues greater than one retained for analysis (Costello & Osborne, 2005) and initially no variance suppression. To make the table more readable, to decrease cross-loading and to better delineate relationships, subsequent analysis and rotation was completed suppressing variance below .4 (Costello & Osborne, 2005; Field, 2018). When looking at factor analysis, the factors are listed in order of how much each factor contributes to the variance of the data. For example, the factor in the first column is responsible for the most variance or is the most strongly

correlated with the columns decreasing in explanation of the variance as you move across the tables (Costello & Osborne, 2005; Field, 2018).

mPIFFS for SPTAs Factor Reduction

The mPIFFS for SPTAs principal component analysis resulted in eight factors with Eigenvalues of greater than one. Analysis was completed with no rotation, direct Oblimin rotation and varimax rotation to ascertain whether rotation would further remove cross-loading as suggested by Costello and Osborne (2005). Costello and Osborne (2005) report orthogonal (i.e. varimax) loading is the most popular, but in the social sciences oblique (i.e. direct Oblimin) loading is the more appropriate rotation because it allows for correlation stating, "(U)sing orthogonal rotation [varimax] results in loss of valuable information if the factors are correlated, and oblique rotation [direct Oblimin] should theoretically render a more accurate, and perhaps more reproducible solution" (Costello & Osborne, 2005, p. 3). For the above reasons direct Oblimin rotation was utilized for (Table 4.13).

The factor matrix divides the survey into eight factors which are statistically related to one another or correlated (Field, 2018). The first factor will have the greatest effect on the variance of the data. Factor one has the greatest effect and factor eight the least (Field, 2018) Factor analysis reduces the variable by determining which items are correlated with one another (Field, 2018). The following items are correlated into a single factor designated as "Factor 1":

a. I am sure I will have no problems dressing and behaving professionally in my industry.
b. I concentrate in my studies on what I believe I would need to know and be able to do when I enter my future occupation.
c. I believe I can already think and reason like a professional in a company or organization.

These three items had the greatest influence when explaining the overall ratings of SPTAs.

Table 4.13.

Direct Oblimin Rotation Pattern Matrix† of mPIFFS for SPTAs

	Factor							
	1	2	3	4	5	6	7	8
I am already pretty sure what field of physical therapy I will enter after completing my education.				-.81				
I have no doubt I will master all the skills necessary to succeed in my future work.						.75		
I'm confident that I can do an excellent job in the future						.51		
I believe I will get along with my future colleagues, get their cooperation, and have informal conversations with them.					.89			
I am sure I will have no problems dressing and behaving professionally in my industry.	-.47				.42			
I admire professionals who are already working in my future work environment.			-.74					
I admire most those teachers who are professionals in the area that I would like to enter.			-.69					
I believe I can already think and reason like a professional in a company or organization.				-.50				

I know the nature of the work I will do in my future profession.		.45	-.51		
In most work environments, professionals with different backgrounds work together. I know of the different types professionals I will be collaborating with.					
I have a good idea about the roles and responsibilities of my future job.				.45	
I know what kind of applications, tools and equipment I will handle in my future occupation		-.47			-.44
I am aware of the impact of the decisions I make as a professional in the industry.				.63	
I have a good idea about the rules and regulations in the industry.			-.52		
I work part-time in physical therapy while I am studying.	.85				
I am part of an interest group (inside or outside of school) related to my profession.					-.64
I know personally some people who work in my future profession.				-.83	
I follow developments in physical therapy in the media, for instance online or on television.					-.83
Before I entered college, I already had some prior work experience related to physical therapy.	.80				

I have interacted with professionals in the industry outside of college or through events organized in the college.				-.49
When working on problems in class, I imagine myself to be in the shoes of a professional in my future work environment.		-.59		
I concentrate in my studies on what I believe I would need to know and be able to do when I enter my future occupation.	.79			
I believe I can already think and reason like a professional in a company or organization.	.63			
Do you already know what kind of work in the profession you prefer?			.81	
I am not sure about the kind of challenges faced by the professional in the industry I will work. (R)				.93
I feel poorly prepared for a real job. (R)		-.49		

Extraction Method: Principal Component Analysis. Rotation Method: Oblimin with Kaiser Normalization.
† Rotation converged in 20 iterations.

mPIVS for PTAs Factor Reduction

The oblique rotation (direct Oblimin) was also used for the mPIVS for PTAs for the above stated reasons and additionally because Eason et al. (2018) utilized this rotation when validating the tool for use with athletic trainers allowing easier comparison of factors found here with the research of Eason et al (2018). Eigenvalues greater than one were retained to determine the factors (Field, 2018). Eason et al. (2018) found six factors compared to five in this research. Table 4.14 shows the distribution of the items for five factors, variance below .4 was suppressed in this analysis for clarity (Costello & Osborne, 2005; Field, 2018). The following nine items were related to the "first factor" which is responsible for the greatest variance of the data (Field, 2018):

a. At this stage in my career, I have developed a professional approach that is congruent with my personal way of being.
b. I have developed a clear role for myself with the physical therapy profession that I think is congruent with my individuality.
c. I feel comfortable with my level of professional experience.
d. I feel confident in my role as a professional physical therapist assistant.
e. Based on my level of experience within the physical therapy profession, I have begun developing specialization within the field
f. I have developed personal indicators for gauging my own professional success.
g. I understand theoretical concepts, but I am unsure how to apply them (R)
h. I am still in the process of determining my professional approach (R)
i. I am unsure about who I am as a physical therapist assistant (R)

Comparing these factors with the survey items were statistically significant between the novice and experienced PTA Table 4.14 shows seven of the nine items in factor one also yielded statistical significance between the two groups (Table 4.14).

Table 4.14.

Pattern Matrix† Direct Oblimin Rotation of mPIVS for PTAs

	Component				
	1	2	3	4	5
At this stage in my career, I have developed a professional approach that is congruent with my personal way of being.	.69				
I have developed a clear role for myself with the physical therapy profession that I think is congruent with my individuality.	.73				
I feel comfortable with my level of professional experience.	.82				
I feel confident in my role as a professional physical therapist assistant.	.80				
Based on my level of experience within the physical therapy profession, I have begun developing specialization within the field.	.75				
I have developed personal indicators for gauging my own professional success.	.41				.33
I always gauge my professional competence based on both internal criteria and external evaluation.		.35			.46
In making professional decisions, I balance my internal professional values and the expectations of others.		.60		.45	
Feedback from my supervisors and experts serve as the primary means by which I gauge my professional competence.		.81			
Assisting patients in advocating for their needs is an important component of one's role as a physical therapist assistant.			.71	-.42	
Patient empowerment is a fundamental component one's role as a physical therapist assistant.			.86		
Therapeutic interventions should be flexible with regard to a patient's presenting concerns.			.72	.37	
Building strong relationships with other physical therapy professionals is important to me.		.71			
It is important for physical therapist assistants to be involved in promoting the physical therapy profession.		.57			

My work as a physical therapist assistant is fundamentally connected to my personal spirituality.		-.78	
Physical therapist assistants work best when professional expectations match personal values.			.833
I understand theoretical concepts, but I am unsure how to apply them (R)	.61		
I am still in the process of determining my professional approach (R)	.67		
I am unsure about who I am as a physical therapist assistant (R)	.80		

Extraction Method: Principal Component Analysis. † Rotation converged in 11 iterations.

Rotation Method: Oblimin with Kaiser Normalization. (R) =Reverse

Overall Professional Identity Ratings of SPTAs

Utilizing Excel, the overall rating of student PI was calculated after reversing the negatively worded items (items 2 and 6; Appendix B) the mean PI at 4.01/5 (*SD*=.4) (with 5 being the highest PI). While the overall ratings of PI could not be compared between the two groups (SPTAs and PTAs), this information was utilized for comparisons inside the two groups. For instance, strength of PI was compared between first year SPTAs 3.94 and 4.08 for second year SPTAs. Because the sample sizes of the two groups were not the same, equal variance cannot be assumed, therefore, unequal variance was assumed when calculating independent t-tests (Field, 2018). An independent *t*-test was utilized to compare the means between the two groups and found no significance between the average PI ratings of first-year students (*M*=3.94, *SD*=.42) and second-year students (M=4.08, SD=.38) conditions; *t*(47)= -1.19, *p*=.24. T-tests were also used to evaluate other SPTA groupings inside the SPTA/PTA groups were also looked at separately comparing, male vs. female, second career vs. first career and age (Table 4.15). No statistically significant difference was found for any of these comparisons in either survey utilizing independent *t*-tests. Therefore, the first quantitative null hypothesis; "There will be no statistically significant difference in the PI ratings on Tan et al.'s(2017) professional identity

five-factor scale between the first year PTA student and the second year PTA students", cannot be rejected.

Table 4.15.

Independent t-Test: Overall PI Rating of SPTAs

	First-Year	Second-Year
Mean	3.94	4.08
Variance	0.18	0.15
Observations	25	24
Hypothesized Mean Difference	0	
df	47	
t Stat	-1.19	
P(T<=t) two-tail	0.24	

One of the initial purposes of the utilizing the two surveys was to attempt to quantify the strength of PI in both SPTAs and PTAs and in doing so look for differences of strength of PI related to experience inside the two groups. In both cases, the average PI for individuals with less experience, first-year vs. second year SPTAs and novice vs experienced PTAs was rated lower than their more experienced counterpart. In the case of the SPTAs and the mPIFFS, no statistically significant difference was found. However, in the mPIVS used with PTAs, the experienced PTAs did have a statistically significant higher PI rating than their novice PTA counterparts.

Second Quantitative Question Results

Regarding the second quantitative research question: Is there a statistically significant difference in the ratings of professional identity utilizing the professional identity and values scale between novice clinicians with three or less years of experience and PTAs with more than three years of experience? Overall PI ratings were calculated for strength of PI for novice PTAs

and experienced PTAs. The potential PI rating in the mPIVS ranges from 1, indicating a low PI, to 6, indicating a high PI unlike Tan et al. (2017) the original authors do not give definition to a specific low and high PI so the groups can only be compared to each other. The experienced PTAs had an overall higher rating of PI. Overall PI ratings for novice PTAs was calculated at 4.90 out of 6 and over PI rating for experienced PTAs was 5.25 out of 6. Despite not having a definitive definition of low and high PI from previous research (Eason et al., 2018; Healey, 2009; Healey & Hays, 2011), these ratings are relatively high on a six point scale. Unlike their student counterparts, the difference between the two groups was significantly different. The independent t-test comparing the average overall ratings of PI for novice and experienced PTAs shows a significant difference with a 95% confidence interval (Table 4.16). In answer to the second quantitative question, yes there is a significant difference between the overall rating of PI for novice and experienced PTAs with experienced PTAs rating their PI higher.

Table 4.16.

t-Test Comparing Overall PI of Novice and Experienced PTAs

	Novice PTA	Experienced PTA
Mean	4.90	5.21
Variance	0.17	0.14
Observations	52	23
Pooled Variance	0.16	
df	73	
P(T<=t) two-tail	0.002	

Overall Professional Identity Ratings of PTAs

The second null hypothesis for the quantitative data: There will be no statistically significant difference in the ratings of PI on the modified professional identity and values scale (mPIVS) (Healey, 2009; Healey & Hays, 2011) between novice clinicians with three or less years of experience and experienced PTAs with three or more years of experience. The second

null hypothesis should be rejected (Table 4.17). The alternate hypothesis to the second quantitative question: Strength of professional identity measured by the mPIVS will be greater in PTAs with more than three years of professional practice experience when compared to those with three or less years of experience should not be rejected.

Table 4.17.

Overall PI Ratings using the mPIVS with PTAs

Group	Overall PI rating M, SD
Novice PTAs	4.90, .40
Experienced PTAs	5.25, .33
PTA Average	5.00, .41

Overall PI rating for PTAs was also calculated with the negatively worded items reversed (items 17,18 and 19, Appendix C) 4.99/6 (*SD*= .42) (with 6 being the highest PI). The overall average strength of PI for novice PTAs was 4.89 (*SD*=.41) and for experience PTA's the average PI rating was 5.25 (*SD*=.42). An independent *t*-test was utilized to evaluate the mean PI ratings of novice and experienced PTAs. A significant difference in the scores for novice PTAs (*M*=4.89, *SD*=.41) and experienced PTAs (*M*=5.25, *SD*=.42) conditions; $t(47) = -3.90$, $p<.001$). That is, experienced PTAs had an overall higher rating of PI than novice PTAs and this difference is statistically significant (Table 4.20). Therefore, the second quantitative null hypothesis: There will be no statistically significant difference in the ratings of PI on the modified professional identity and values scale (mPIVS) (Healey, 2009; Healey & Hays, 2011) between novice clinicians with three or less years of experience and experienced PTAs with more than three years of experience, should be rejected.

Table 4.18.

t-Test: Two-Sample Assuming Unequal Variances

	Novice PTA	Experienced PTA
Mean	4.89	5.25
Variance	0.17	0.12
Observations	53	22
Hypothesized Mean Difference	0	
df	47	
t Stat	-3.90	
P(T<=t) two-tail	<.001	

Statistical Significance in the Surveys

To further analyze the survey data, each individual item on the surveys were compared between the participant groups. Independent t-tests were calculated to look for significance.

Significance in the mPIFFS for SPTAs

In addition to the calculations above to compare the average PI rating between first-year students and second-year students independent *t*-tests were calculated to look for significant difference between first- and second-year students for each individual item in the mPIFFS. Independent *t*-tests were calculated on all items in the mPIFFS to compare ratings between first- and second-year students. For the conditions t(73), $p<.05$ (Field, 2018; Perdue, 2017), three items showed significant differences between first- and second-year students. As shown in Table 4.19, second-year student were more likely than first-year students to rate three items higher:

a. I know the nature of the work I will do in my future profession [$t(47) = -2.93$, $p = .005$].
b. I have a good idea about the rules and regulations in the industry [$t(47) = -2.21$, $p = .032$].
c. I follow developments in physical therapy in the media for instance online or on television [$t(47) = -2.08$, $p = .043$].

No other items in the mPIFFS showed statistically significant differences when comparing the results between first and second-year students.

Table 4.19.

Items with Significant Difference between First and Second Year SPTAs

	My current year of school is:	N	Mean	Std. Deviation
I know the nature of the work I will do in my future profession.	First	25	4.04	.935
	Second	24	4.67	.482
I have a good idea about the rules and regulations in the industry.	First	25	4.04	.611
	Second	24	4.42	.584
I follow developments in physical therapy in the media, for instance online or on television.	First	25	3.00	1.225
	Second	24	3.67	1.007

Significance in the mPIVS for PTAs

Independent *t*-tests were conducted on the mPIVS to investigate significance between ratings to individual items between novice and experienced PTAs. For an overall confidence interval of 95%, a *p*-value of .05 was utilized to indicate a significant difference between the overall response of the two groups (Field, 2018; Perdue, 2017). For the mPIVS, seven items showed significant difference in the average ratings between novice and experienced PTAs (Table 4.20). For these items the experienced PTA was more likely to rate the positively worded item higher and the negatively worded items lower than their novice PTA colleagues. The items were:

a. At this stage in my career, I have developed a professional approach that is congruent with my personal way of being [$t(73)=-2.33$, $p=.023$].

b. I have developed a clear role for myself with the physical therapy profession that I think is congruent with my individuality [$t(73)= -3.38$, $p=.001$].

c. I feel comfortable with my level of professional experience [$t(73)=-3.03$, $p=.003$].

d. I feel confident in my role as a professional physical therapist assistant [$t(73)= -3.42$, $p=.001$].

e. Based on my level of experience with the physical therapy profession I have begun developing specialization within the field [$t(73)=-3.55$, $p=.001$].

f. I am still in the process of determining my professional approach [$t(73)=-4.47$, $p<.001$].

g. I am unsure about who I am as a physical therapist assistant (reversed) [$t(73)=-2.43$, $p=.018$].

Table 4.20.

Items with Significant Difference between Novice and Experienced PTAs

Group Statistics					
	Years of Practice	N	Mean	Std. Deviation	Std. Error Mean
At this stage in my career, I have developed a professional approach that is congruent with my personal way of being.	0-3 years	53	4.98	.99	.1
	Greater than 3 years	22	5.50	.51	.11
I have developed a clear role for myself with the physical therapy profession that I think is congruent with my individuality.	0-3 years	53	4.68	.96	.13
	Greater than 3 years	22	5.41	.50	.11
I feel comfortable with my level of professional experience.	0-3 years	53	4.28	1.01	.14
	Greater than 3 years	22	5.05	.95	.20
I feel confident in my role as a professional physical therapist assistant.	0-3 years	53	4.92	.78	.11
	Greater than 3 years	22	5.59	.73	.16
Based on my level of experience within the physical therapy profession, I have begun developing specialization within the field.	0-3 years	53	3.49	1.30	.18
	Greater than 3 years	22	4.64	1.22	.26
I am unsure about who I am as a physical therapist assistant	0-3 years	53	4.45	1.28	.18
	Greater than 3 years	22	5.18	.91	.19
I am still in the process of determining my professional approach	0-3 years	53	3.21	1.26	.17
	Greater than 3 years	22	4.64	1.26	.27

There was also an interest to investigate which items were rated the highest and lowest overall by all PTAs without regard to experience level (Table 4.21). The item with the overall highest rating for all PTAs was, “Assisting patients in advocating for their needs is an important component of one's role as a physical therapist assistant” (*M*=5.81, *SD*=.43) suggesting patient advocacy is an important component of one's role as a physical therapist assistant and their PI. The lowest rated item was, “Based on my level of experience within the physical therapy profession, I have begun developing specialization within the field” (*M*=3.83, *SD*=1.37) suggesting developing a specialty inside the field of physical therapy is a rather low priority for PTA’s in this sample.

Table 4.21.

Mean Ratings of mPIVS Combining novice and experienced PTA ratings (N=75)

	Mean Rating	Std. Deviation
At this stage in my career, I have developed a professional approach that is congruent with my personal way of being.	5.13	.91
I have developed a clear role for myself with the physical therapy profession that I think is congruent with my individuality.	4.89	.91
I feel comfortable with my level of professional experience.	4.51	1.05
I feel confident in my role as a professional physical therapist assistant.	5.12	.82
Based on my level of experience within the physical therapy profession, I have begun developing specialization within the field.	3.83	1.37
I have developed personal indicators for gauging my own professional success.	4.45	.95

I always gauge my professional competence based on both internal criteria and external evaluation.	4.95	.80
In making professional decisions, I balance my internal professional values and the expectations of others.	4.97	.68
Feedback from my supervisors and experts serve as the primary means by which I gauge my professional competence.	4.28	1.26
Assisting patients in advocating for their needs is an important component of one's role as a physical therapist assistant.	5.81	.43
Patient empowerment is a fundamental component one's role as a physical therapist assistant.	5.65	.56
Therapeutic interventions should be flexible with regard to a patient's presenting concerns.	5.53	.70
Building strong relationships with other physical therapy professionals is important to me.	5.48	.58
It is important for physical therapist assistants to be involved in promoting the physical therapy profession.	5.45	.66
My work as a physical therapist assistant is fundamentally connected to my personal spirituality.	4.63	1.06
Physical therapist assistants work best when professional expectations match personal values.	5.20	.75
I understand theoretical concepts but am unsure how to apply them.	4.08	.96
I am still in the process of determining my professional approach.	3.63	1.41
I am unsure about who I am as a physical therapist assistant.	4.67	1.22

Additional Quantitative Analysis

Additional analysis of the survey data which did not directly address the answers to quantitative research items, but provide information into the PI of the SPTA and PTA.

Professional Identity Five-Factor Scale

As noted above, Tan et al. (2017) did not provide factor analysis data for the PIFFS because they were analyzing their results against their pre-determined five factors and were not looking for novel factors. To validate the findings of this research, findings were compared to the original research data and hypothesis. Statistical analysis of the data reliability through Cronbach alpha was checked in regard to Tan et al.'s (2017) proposed five-factors and also found a reliable fit for four of the five-factors. The factor, preference for a profession is not appropriate for Cronbach's alpha analysis because one of the two items is not a Likert scale it is in the form of a "yes" "no" question, "do you already know what kind of work in the profession you prefer." For instance, the Cronbach alpha for the factor identified by Tan et al. of professional self-efficacy was .67 (Table 4.22), which indicates the current survey data is compatible with the original research.

Table 4.22.

mPIFFS Reliability of Data to Tan et al.'s Five Factors

Tan et al.'s Five Factors	N	Cronbach's Alpha
Knowledge about professional practice	6	0.72
Having professional role models	5	0.68
Experience with the profession	6	0.72
Preference for a profession	2	*
Professional self-efficacy	6	0.67

*Cronbachs's Alpha cannot be run on these items because one of the items is not a Likert scale, it is a "yes" "no" question

Means and standard deviations were determined for the ratings of each item (Table 4.23) for all 49 students, in this manner the relative importance of each factor is revealed for each item

for the student PTAs. The highest overall rated item for SPTAs was: “I am sure I will have no problems dressing and behaving professionally in my industry.” (*M*=4.92, *SD*=.27) (Table 4.23).

While dressing as a professional is an easy first step in establishing PI, behaving as a professional is a little more difficult, but confidence appears high. The next most highly agreed upon statement by both groups was, “I'm confident that I can do an excellent job in the future,” (M=4.78, SD=.42) (Table 4.23).

The lowest rated item of the positively worded Likert scale items was, “I work part-time in physical therapy while I am studying” (*M*= 1.92, *SD*= 1.4). There are a variety of possible reasons students do not work in the field during school, PTA students may not be working at all, for those working the available time to work may not align well opportunities to work in the field. This research did not determine the reasons behind this rating. It should also be noted the item asks only if the student is working in the field not if the student believes it is important to work in the field or if there would be value to working in the field.

Table 4.23.

Mean Ratings of mPIFFS All Student Responses (N=49)

	Average Score	Std. Deviation
I am already pretty sure what field of physical therapy I will enter after completing my education.	3.53	1.16
I am not sure about the kind of challenges faced by the profession of physical therapy.	2.61	.89
I have no doubt that I will master all the skills necessary to succeed in my future work.	4.31	.77
I'm confident that I can do an excellent job in the future	4.78	.42
I believe I will get along with my future colleagues, get their cooperation, and have informal conversations with them.	4.65	.48
I feel poorly prepared for a real job.	1.82	.78
I am sure I will have no problems dressing and behaving professionally in my industry.	4.92	.27
I admire professionals who are already working in my future work environment.	4.76	.52
I admire most those teachers who are professionals in the area that I would like to enter.	4.71	.50
I believe I can already think and reason like a professional in a company or organization.	4.12	.73

I know the nature of the work I will do in my future profession.	4.35	.81
In most work environments, professionals with different backgrounds work together. I know of the different types professionals I will be collaborating with.	4.16	.83
I have a good idea about the roles and responsibilities of my future job.	4.59	.54
I know what kind of applications, tools and equipment I will handle in my future occupation	4.24	.69
I am aware of the impact of the decisions I make as a professional in the industry.	4.63	.49
I have a good idea about the rules and regulations in the industry	4.22	.62
I work part-time in physical therapy while I am studying.	1.92	1.4
I am part of an interest group (inside or outside of school) related to my profession.	2.20	1.38
I know personally some people who work in my future profession.	3.90	1.53
I follow developments in physical therapy in the media, for instance online or on television.	3.33	1.16
Before I entered college, I already had some prior work experience related to physical therapy.	2.76	1.71
I have interacted with professionals in the industry outside of college or through events organized in the college.	3.49	1.45
When working on problems in class, I imagine myself to be in the shoes of a professional in my future work environment.	4.33	.75

I concentrate in my studies on what I believe I would need to know and be able to do when I enter my future occupation.	4.53	.71
I believe I can already think and reason like a professional in a company or organization	4.12	.83
Do you already know what kind of work in the profession you prefer? (1= Yes, 2= No)	1.31	.47

The means and standard deviations were calculated for each item separating the two student groups (Table 4.24). By separating the two groups it can be determined if the items have the same importance for first and second-year students. The highest overall rated item for both groups was, “I am sure I will have no problems dressing and behaving professionally in my industry,” for first-year students (*M*=4.92, *SD*= .28), second-year students (*M*=4.92, *SD*= .28). However, when comparing first vs. second-year SPTAs the results are not the same. The above item is the second most highly rated item for second-year students (*M*= 4.75, *SD*= .44) it is not the second most highly rated item for first-year students (*M*=4.80, *SD*=.41) (Table 4.24). The second most highly rated item for first-year SPTAs was, “I admire professionals who are already working in my future work environment” (M=4.84, SD= .37) (Table 4.24). Care must be taken when interpreting this result because the differences between first and second-year students was not found to be significantly different on these two items, but it appears both groups are confident in their the preparedness for practice and both groups also have a great deal of admiration for role models in the field.

Table 4.24.

Mean Ratings for mPIFFS Based on Year of School

	Current School Year:	N	Mean	Std. Deviation
I am already pretty sure what field of physical therapy I will enter after completing my education.	First	25	3.32	1.215
	Second	24	3.75	1.073
I am not sure about the kind of challenges faced by the profession of physical therapy.	First	25	2.64	.907
	Second	24	2.58	.881
I have no doubt that I will master all the skills necessary to succeed in my future work.	First	25	4.28	.792
	Second	24	4.33	.761
I'm confident that I can do an excellent job in the future	First	25	4.80	.408
	Second	24	4.75	.442
I believe I will get along with my future colleagues, get their cooperation, and have informal conversations with them.	First	25	4.64	.490
	Second	24	4.67	.482
I feel poorly prepared for a real job.	First	25	1.72	.737
	Second	24	1.92	.830
I am sure I will have no problems dressing and behaving professionally in my industry.	First	25	4.92	.277
	Second	24	4.92	.282

I admire professionals who are already working in my future work environment.	First	25	4.84	.37
	Second	24	4.67	.64
I admire most those teachers who are professionals in the area that I would like to enter.	First	25	4.76	.52
	Second	24	4.67	.48
I believe I can already think and reason like a professional in a company or organization.	First	25	4.04	.84
	Second	24	4.21	.59
I know the nature of the work I will do in my future profession.	First	25	4.04	.94
	Second	24	4.67	.48
In most work environments, professionals with different backgrounds work together. I know of the different types professionals I will be collaborating with.	First	25	4.12	.78
	Second	24	4.21	.88
I have a good idea about the roles and responsibilities of my future job.	First	25	4.52	.51
	Second	24	4.67	.57
I know what kind of applications, tools and equipment, I will handle in my future occupation	First	25	4.28	.61
	Second	24	4.21	.78
I am aware of the impact of the decisions I make as a professional in the industry.	First	25	4.64	.49
	Second	24	4.63	.50
I have a good idea about the rules and regulations in the industry.	First	25	4.04	.61
	Second	24	4.42	.58
I work part-time in physical therapy while I am studying.	First	25	1.72	1.10
	Second	24	2.13	1.73

I am part of an interest group (inside or outside of school) related to my profession.	First	25	2.24	1.20
	Second	24	2.17	1.58
I know personally some people who work in my future profession.	First	25	3.88	1.59
	Second	24	3.92	1.50
I follow developments in physical therapy in the media, for instance online or on television.	First	25	3.00	1.23
	Second	24	3.67	1.00
Before I entered college, I already had some prior work experience related to physical therapy.	First	25	2.72	1.60
	Second	24	2.79	1.87
I have interacted with professionals in the industry outside of college or through events organized in the college.	First	25	3.20	1.44
	Second	24	3.79	1.41
When working on problems in class, I imagine myself to be in the shoes of a professional in my future work environment.	First	25	4.36	.86
	Second	24	4.29	.62
I concentrate in my studies on what I believe I would need to know and be able to do when I enter my future occupation.	First	25	4.40	.82
	Second	24	4.67	.57
I believe I can already think and reason like a professional in a company or organization.	First	25	4.04	.94
	Second	24	4.21	.72
Do you already know what kind of work in the profession you prefer?	First	25	1.28	.46
	Second	24	1.33	.48

Participants

Forty-five participants completed the interview enrollment form and volunteered to participate in an interview. The volunteers were distributed across all participant sub-groups: 5 first-year SPTA, 11 second-year SPTA, 17 novice PTA and 12 experienced PTA (

Table 4.25).

Table 4.25.
Potential Interview Participants

Participant Category	Number of Completed Questionnaires	Mean PI Rating	Modal PI Rating
First-Year SPTAs	5	4.6	0,1,5,7,10
Second-Year SPTA	11	8.1	9
Novice PTAs	17	8.1	10
Experienced PTAs	12	9	10
Total	45	8.0	10

Participant Demographics

Of the 12 individuals interviewed nine (75%) were female and three (25%) were male which closely aligned with the survey participants, 74.8% female, 24.4% male and one preferred not to disclose. The age range of those interviewed was 24 to 53; however, the youngest was a novice clinician and the oldest a student. Eight of 12 (or 66%) participants entered physical therapy as a second career which is significantly higher than the survey averages of 32% for SPTAs and 40% for PTAs. Four of 12 participants were not Caucasian, nationally 88.5% of PTAs are white (American Physical Therapy Association, n.d.-a). Of the practicing PTAs

interviewed, areas of employment included, rehabilitation, acute care, skilled nursing and outpatient neurology and outpatient sports. The group interviewed was a fair representation of the PTA community regarding practice setting.

Interviewees were selected from the pool of 45 volunteers representing a range of self-reported PI ratings on the interview enrollment questionnaire. All potential interviewees were asked, “Please move the slider to indicate how strongly you identify as a PTA,” with 0 being not at all and 10 being very strongly (Appendix A). The scores ranged from 0 to 10 (Table 4.26). Interviewees were selected from those who volunteered based on score levels (low, middle, high). After defining professional identity and physical therapy in the interviews, interviewees were asked to rate their strength of PI on a ten-point scale. When asked to rate strength of PI on a ten-point scale during the interview, two participants matched their previous PI self-rating, two raised their self-ratings, and eight lowered their self-ratings of PI. Differences between interview enrollment form ratings and interview rating were as great as 5 points (Table 4.26).

Table 4.26.

Difference in PI self-ratings from Interview Enrollment Form and Interview

Experience	Strength of Identity with PTA	Interview Strength of Identity with PTA
First Year SPTA	5	5
First Year SPTA	0	5
First Year SPTA	10	6-6.5
Second Year SPTA	9	5
Second Year SPTA	7	4
Second Year SPTA	10	9
Novice PTA	7	7
Novice PTA	10	6
Novice PTA	10	7
Experienced PTA	10	7
Experienced PTA	10	6.6-7
Experienced PTA	5	6

Qualitative Research Question One

The first qualitative research question was: How is professional identity (PI) defined by SPTAs, novice PTAs and experienced PTAs? All the student participants denied prior knowledge of the phrase professional identity. When pressed to define PI a wide range of answers was provided. Lynn, a second-year student stated, “I mean I wouldn’t know how to describe it.” A first-year student Rhoda, stated, “A PTA um, I think of the word clinical. I think there is a little more formality to it.” Experienced PTA, Julia, stated, “I guess knowing where your place is in the workplace and outside. How that fits into the whole medical system, where you fit in”. Other comments included:

Megan, a novice PTA, stated,

No, I don’t think it’s anything I’ve heard of, but it makes sense. I take it as it’s individually how I see myself in my profession. I, actually think I contribute a lot of it to

> one, being a coach, and dealing with people of all ages. And two, the, my first supervising PT. I think she really showed me a lot, in the way that she handled things, in the way that she kind of saw how my setting works, in the way she dealt with those things.

Kerry, an experienced PTA, stated,

> I haven't heard it before. It doesn't really mean a whole heck of a lot, I mean I don't really [pause] when I think of myself as like you know, I mean I think of myself as a Physical Therapist Assistant but I don't think oh that's the only thing that I am and who I am and where I [pause] like say a doctor may identify themselves like I would think a doctor may identify themselves a little more I would say, because that's their, "I'm Dr. So and So". Me, I'm just "Kerry"

All interviewees but one denied hearing the phrase PI prior to exposure in the quantitative survey. The one exception, Alice, an experienced PTA, stated, "I've heard it before, I don't know if I fully understand it." Alice went on to define PI, "From what I gather, it's like everyone has different kinds of identities of themselves depending on where they are, like you have your personal identity but that doesn't necessarily have to be your work identity."

There was not a delineation in complexity of the definition between the answer of a first-year student and an experienced PTA. Kat, a first-year student, defined PI as, "The area in your job you want to focus on", while Kerry, an experienced PTA stated, "It doesn't mean a heck of a lot to me." There was one first year student, Kevin, whose defined PI as:

> Professional identity? I would say is just really knowing who you are and what you are in the scope of your profession. You know it can entail what you do, how to act, how to react, how to handle yourself, how to be a team player, so I think it would just

> encompass you as this puzzle piece, in this huge puzzle. You, where do you fit, how do you make this thing complete?

His definition of PI aligned closely with the definition utilized in this research, "Understanding a chosen profession in conjunction with one's own self-concept, enabling an individual to articulate their role, philosophy, and approach to others within and outside of their chosen field" (Healey & Hays, 2011, p. 9). However, the remaining eleven interviewees stated minimal to no formal concept of PI.

The PTA and SPTA interviewee stated they did not have an understanding of professional identity until they completed the prior survey, but they did have opinions and ideas regarding how they have learned to think and act like PTAs. While Kevin's definition aligns nicely with the one utilized for this research, Kevin and the other participants admitted it is not something they have considered previously.

Qualitative Research Question Two Results

The second qualitative research question was: What forces do SPTAs and PTAs identify as shaping the development of PI? Several themes emerged from the data addressing this question the themes included: positive characteristics of a PTA, characteristics of a bad PTA, role models, experience, the PTA/PT relationship, societal perception, contribution to patient success and feeling qualified as a PTA.

Positive Characteristics of a PTA

Several positive characteristics of a PTA were mentioned by the interviewees. Five of the six SPTAs discussed the ability to be compassionate or empathetic, treating each patient as a unique. Lou, a second year SPTA, focused on experience and knowledge as the primary characteristics and discussed less tangible traits like being trustworthy. Three of the six students

discussed a good PTA must be able to motivate individuals. Four of six discussed knowledge or lifelong learning. Beth, a second year SPTA, stated, “They need to be willing to constantly research and educate themselves, embrace the education, the continuing education, don’t think of it as a chore, think of it as an opportunity.” The traits of a good PTA as discussed by SPTAs revolved around, empathy, rapport, compassion, positivity, being a good listener, and continually educating oneself.

PTAs stated characteristics of a good PTA varied as well. Three of the six PTAs used the word empathetic. Four of six discussed the need to be a good listener. Three of the six PTAs discussed a need to be able to think quickly and adapt. Sandy, an experienced PTA, stated, “(you have to be) quick to act in cases where it’s- you never know what’s gonna happen.” An additional characteristic mentioned by three PTAs was the ability to accept feedback. Alice, a novice PTA, stated, “I think, you know, be able to take criticism”, and Megan, a novice PTA, stated, “Being able to take feedback”. The positive characteristics reported by the PTAs were empathetic, good listener, adaptability, quick thinking, and accept feedback.

When asked to explain how they knew those were characteristics of a good PTA, all six students indicated it was from their personal experience. Two of the three first-year students described more general health care experiences, for instance Rhoda stated, “Well how I decided was, I think just my years of being around health care and being around individuals that have had good health care and that have had bad experiences”. The third, first year student, Kat, related an experience during clinical “observations” required of applicants to apply to PTA school, “just following her around, seeing how she interacted with the patients, I learned a lot about what you have to do.” Personal experience was the common theme from the students.

Like their SPTA counterparts, the PTAs stated they knew these to be positive characteristics also related to experience and observation, however, more often they were related to experience in the field. All six PTAs stated in some fashion, “from experience”. Kerry, the most experienced PTA stated, “Um, just from doing it for so long.” Megan, a novice PTA stated, “Um, because that’s what I’ve seen other PTAs do that are successful.” Sandy, an experienced PTA, shared experiences,

Well, just from experience now. And I’m sure more the same as I continue to practice. But just thinking back at different situations every day that I encounter or I was thinking about one of the patients who was on some medications and suddenly went into a seizure and then the PT caught her, so before she hit the floor. Or just all the people who are crying or upset and being able to just let them be, and you may not get a lot done that day.

While all interviewees connected their knowing of positive characteristics to experience and observation the PTAs experiences which were shared were all related to PT experiences where SPTAs discussed observation of PTs and experiences with medical personnel outside of PT.

Characteristics of a Bad PTA

Characteristics of “bad” PTAs were also shared and their impact on PI development. Kat, a first year PTA student, summed it up by saying, “Um, a lack of empathy would not make for a very good PTA. Basically someone who doesn’t have any of the aforementioned qualities.” Five of the 12 interviewees indicated they have not met one and would have to speculate on what would make a bad PTA. Julia, on the other hand stated when asked if she had encountered a bad PTA stated, “Yes, I went to school with a couple and you know, surprisingly, it’s not the people that you thought they would be.” She went on to describe some questionable billing and

treatment practices. Kerry, not only reports she has met bad PTAs, but they have inspired her to be a better PTA.

Four interviewees discussed an observation of or experiences with bad PTs affecting how they behave as a clinician. Kerry, an experienced PTA, states, “And I think that’s why, totally off the subject, I think that’s why I’ve become the instructor I have become. Is because I want them to learn the things I didn’t learn as a student.” When asked specifically about the influence of PTAs, they believed were “bad”, three interviewees reported they learned more from the bad clinicians than the good ones. They witnessed actions they not only did not want to emulate but inspired them to be better clinicians as seen in Kerry’s statement above. Julia, an experienced PTA, when asked who was more influential stated, “Probably 60% the bad ones and 40% the good ones.” Lou, a second-year student, stated, “I would say it’s pretty much equal.” Megan, a novice PTA, stated,

I would say it was pretty much equal. Um, I take a lot of what my patients say. So when they say ‘Oh this therapist came in on the weekend and they made me do this, this and this and you know they didn’t listen to what was happening’ or ‘they didn’t explain what was going on’, or whatever, that just kind of resonates with me that you have to adapt to each and every patient individually. To be able to change what you’re doing or what they need that day specifically.

When considering forces which impact PI, negative experiences directly as in the case of Kerry or even indirectly as in the case of Megan can have a significant impact on behavior and ultimately PI.

Role Models

Interviewees also mentioned role models who have impacted them. Five of the six SPTAs discussed role models outside of PT. Rhoda discussed friends in health care, Kevin discussed his

Mom, and Kat mentioned an aunt. Lynn, who had worked in a PT clinic prior to school, discussed a PTA she had worked closely with and learned from. All six PTAs referenced co-workers. Three interviewees, Kerry, Megan and Alice spoke explicitly of mentors, while Clark, Julia and Sandy spoke indirectly of mentors. Clark summed up an inspirational role model stating,

Just the willingness to help and give that knowledge to anyone and everyone has just, it's inspiring and makes me want to learn more and makes me feel like I don't know enough for sure, being around her, so, definitely she's a big one that has influenced me.

Three of six PTAs also mentioned role models outside of PT. Julia, an experienced PTA, mentioned a sister being a role model, while Alice mentioned her Mom and Dad. One novice PTA denied having any role models at first, but then mentioned a PT mentor.

Role models were discussed by the SPTAs and the PTAs. SPTAs with limited physical therapy contacts looked to non-PT role models. Practicing PTAs, who have had more contact with clinicians in the field, are more likely to recognize role models in the field.

Experience

Interviewees mentioned experiences which helped shape their professional identity. Three individuals specifically mentioned clinical experience as a student. These individuals included, second year student Lou and the most experienced PTA, Kerry. Lou sharing positive experiences and Kerry, negative. Four of twelve interviewees mentioned instructors. First-year students (who have not had clinical experiences) mention schoolwork, and interaction with instructors or family experiences. Kevin, a first-year student with no clinical experience, mentioned classroom laboratory sessions. Beth, a second-year student, mentioned her faith. When asked to give examples of what has influenced her ability to think and act like a PTA her

first response was, “Well, first of all my faith in God.” Sandy, an experienced PTA, stated, “I would say just my experience in the field.” Clark, a novice PTA, stated, “Um, definitely experiences, 100%” Julia, an experienced PTA, described an experience, “Ohhh. I probably would say getting patients that I wasn’t prepared for, that would probably be the biggest one.” Whether in the field or out of the field, experience, dealing with schoolwork, instructors or difficult patients is a common theme for contributing to PI formation.

PTA/PT Relationship

The relationship between the PTA and PT were mentioned by the interviewees. Three of six students had not worked with a PT and spoke about the relationship in basic forms in future tense. Rhoda, a first-year student states in future tense, “I think if you get the right job it should be a team for sure.” Kat another first-year student speculates,

That is a very individual thing. I imagine it’s going to vary greatly between individuals. I won’t make an assumption because I know there are some PTs out there who are like ‘This is how you’re gonna do things do this, this, and this and then bring me back this’ and that’s exactly how it’s going to work. And then there are others who are going to be like ‘Do what you think’ and then you do what you think you should, so it’s- I won’t know until I work under my first PT.

Kevin, first-year PTA student, expressed frustration with lack of knowledge of the PTA role when interacting with PT students in a classroom activity, “it didn’t seem as if they saw us as important.” He goes on to say, “Okay I see what I’m gonna have to do here when I get out in the world to be like ‘My credentials may say PTA, but don’t just assume I don’t know maybe what you know.’” Ultimately, Kevin reports, PTA “is a tier down.”

Two of the three second-year students spoke about experiences with the PT, Lou stated, “I think in the outpatient it seemed more equal… And in the inpatient, it seemed a little more like

the PT was a step ahead, a step above". Additionally, he states, "So I mean the relationship is always close knit to where everybody, they both are on the same page with what's going on with the patients." Beth, a second-year SPTA, states, "Um, well definitely the PT has to have the right attitude for accepting the team attitude toward it, and I think the PTA needs to respect the PTs time and energy to be a PT." Lynn also recognizes the hierarchy, "PTs, they're the supervisors, so go to them for different things, but the same thing be open with them and be able to talk to them and ultimately it's their decision."

While the students have had limited experience, experience in conjunction with a supervising PTA or even no experience with the realities of the PTA/PT relationship all six practicing PTAs have experienced this relationship. All three novice PTAs spoke positively of the relationship. Novice PTA Megan reports, "I haven't had any bad relations with any of my PTs." Clark stated, "I've worked, and I still work alongside really great PTs." Alice notes feelings of equality despite the supervisor status of the PT, "So with me, it's weird because I know they've had so much more schooling than us, but it feels pretty equal. Like I feel like we, and everyone's so gracious." Experienced PTAs also spoke positively of the relationship and feelings of equality. Experienced PTA Julia, states, "Well, I think it's, well there's lots of different relationships that go on. But you know it's, it's less of like a pyramid and more of like a you're working together to achieve the same thing." Experienced PTA, Sandy, shares a story of collaboration,

I had one therapist Doris, and she's really young, she's the one that used to be my student [in an unrelated field] and she was amazing, … but I think she was the best at doing the collaborative [activity], cuz she would literally, when the patients would come she'd be like 'Well this is Sandy, I work closely with her, we're a team, and you know we both feed off of

each other' and so she would be sending me articles and I would give her information and so that was really a wonderful, probably the best relationship and I probably learned the most from her.

In contrast to novice PTAs, the experienced PTAs all shared stories of frustration with the PTA/PT relationship.

These individuals have had both positive and negative experiences with the PTA/PT relationship. Much of the frustration was attributed to lack of knowledge on the PT's part regarding the scope of practice of the PTA. Kerry, the most experienced of the PTAs, stated,

When they're first out of school it's not that great but as you work with them more and they know what you can and can't do, it's good. It depends on who you work with. There are some that are better than others and still don't view you as being qualified. Which is unfortunate.

Julia, an experienced PTA, discusses this frustration as well, when asked to talk about things which have helped her to think and act like a PTA,

> New PT grads and I usually have to have some pretty strong words….You know so the first time it happened with a new grad right out of school, and she just talked down to me every single time and I'm like okay maybe this is just her personality. Then it happened again.

Julia concludes the story discussing the education required on her part to cultivate these relationships,

> I think it's so important because you know one of those PTs was like "You guys have to take neuro?" I promise you I'm competent in what I'm doing, I know what I'm doing. And it's not all the PTs, (pause) there's quite a few.

Sandy, the final experienced PTA, also expresses the occasional frustration with the PTA/PT relationship,

It's different with each therapist, and I think it has evolved over time for me, personally. I think I have had to kind of teach them and let them know what I can do and what I couldn't do, and then [go] from there. Sandy goes on to tell a story of needing to educate PTs and patients as well:

> With the other PTs, at the beginning I had the problem with where, during the evaluation, they would not tell the patient that they might be seeing me, and so then what would happen is they'd show up and they'd be like "Who are you?" and then I'd be "Oh, I'm Sandy, the Physical Therapist Assistant," and sometimes it wasn't so (pause), I'd really have to win them over, so then I had to have a talk with the PTs. And I'd have to be like, "Hey, it'd be really nice if during the Evals you could say, 'Hey you might also work with Sandy, who's our PTA,'" and so then a couple of the therapists did a better job of that than others, um, I literally had a couple of patients where in the beginning it just became kind of irritating to me. Because they were right there and they just are sitting there, they clearly don't want to work with me. And I was like "look, if you have a problem, we can get you rescheduled. Because you know I'm not gonna force you to work with me", but that not knowing. So I think that communication has gotten better, I think they've been trying to make sure most patients know who they'll be seeing, "Oh, we go between two different therapists" Um, it's interesting because in the beginning, my boss was like "Oh you don't need to advertise that you're a PTA." She was like "You can just say that you're a therapist." So, you know, I don't know if it's, that if people immediately when they know you're a PTA, I mean we haven't had that issue so much, and once they get to know me and get to work with me it's a non- issue but, a lot of times if they don't know, and they just see or if they haven't said anything, in the beginning

especially with the one therapist, she would do it all the time and it really, became a problem. I mean really irritating. Cuz, it kind of made me feel a little diminished as well, like okay, well, yeah I guess you're seeing me (laughter) sorry.

Overall, SPTAs and PTAs spoke positively of the relationship, the greatest frustration surrounds PTs who are supervising PTAs who either do not understand the scope of practice of the PTA they are supervising, or do not understand the educational level of the PTAs they are supervising.

Societal Perception

All respondents who discussed what they believe society thinks of PTA indicated in some fashion society either does not know the position exists or believes the PTA is like a technician without formal training. Kat, a first year SPTA, stated, "As personal trainers." Kevin, another first year student, stated, "I think it will be just like a tier down. Oh, like you're not, oh Like I want to speak to the Physical Therapist, I don't want to speak to you."

Second-year student Beth stated, "Hmmm, I think they think of them as a technician. You know, wiping the tables down, applying heat and cold and just keeping their patient comfortable and just tracking them for the real therapies, therapists to come in."

Novice PTA, Clark stated, "I feel like we're a little bit down at the bottom and we're not looked at as equal." The most experienced PTA, Kerry, stated,

I don't think they know anything about us. I think like say when I get passed a patient and they're like., 'Oh, you're an assistant, like that's not, you're not qualified to see me' And then you have to explain to them what you are.

Another experienced PTA, Sandy, reported, "I don't know if a lot of people know about PTAs unless they've worked with one."

Multiple responses addressed the potential impact of society's view. Second-year student, Beth, responded, "I feel, I already feel like I wanna defend what I do, what I'm going to do, and be a little bit defensive about it. Which is silly, because there is no need and I was just there." First-year student, Kevin, stated, "Each person has an opportunity to change how people perceive either a profession, a person, a person from a certain section." When questioned about whether people not knowing about her profession bothers her Beth, a novice PTA emphatically states, "No, I don't mind telling them (laughter)."

Other Health Care Worker's Perception

While the majority of interviewees denied the fact, society has little understanding of their chosen profession, more frustration was shown when discussing lack of understanding from other health care workers. Novice PTA, Megan shared an experience while seeing her physician,

> Like I remember going for my physical and my doctor was like, 'Oh what are you doing, are you working? Blah blah blah' and I was like 'Yeah, I'm a PTA' and she's like 'What's that?' I was like, you're in the medical field, shouldn't you kind of know, like the general population of who works where? So, I feel like a lot of people don't really know.

Three other interviewees expressed frustration with needing to educate Physical Therapists on the role of the PTA. Kevin as noted above in his story interacting with PT students in a class project. Experienced PTA, Julia, discussed dealing with PTs,

> I don't think that they really know everything that we do… you know one of those PTs was like 'you guys have to take neuro[logy]?' I promise you I'm competent in what I'm doing, I know what I'm doing. And it's not all the PTs, [but] there's quite a few.

Contribution to Patient Success

In exploring the perceived importance of PTA to successful patient outcome, the responses were unanimous. Megan stated, “Very, very important.” Kat, “Absolutely 100%, very very very important,” Clark, “Extremely, important.” Experienced PTA, Kerry, stated, “Well it’s very important, it’s hugely important. Cuz they wouldn’t be able to get up and move, especially surgical patients.” Seeing value in work impacts your work and increases PI. These interviewees see significant value.

Feeling Qualified

Overall, SPTAs report they cannot recall a time of feeling “unqualified”. They recount times when they have been unsuccessful in school but equate this feeling with the reason they are in school, which is to learn. They do not report failure as being unqualified, but as a learning opportunity. A first-year student described it this way, “oh no, not really. I don’t feel like I doubt things. I feel like you’re there to learn and if you didn’t learn it you shouldn’t just give up, learn it again, try it a different way and practice.” One student reported feeling unqualified at times but describes how it often turns into a learning opportunity. Second-year student Beth stated,

> Yeah, it was just scary. And if I had a failure then I thought I was doing the wrong thing and I’m not cut out for this, and even though I know failing is learning it’s still hard and painful and yeah, so many times.

Despite perceived failure, students appear to equate non-success as a learning opportunity, rather than feeling unqualified.

For PTAs, four of six deny ever feeling unqualified to be a PTA. They too report times of being unsuccessful as learning opportunities. A novice clinician who reports feeling unqualified at times describes it this way,

> When I first started, I think I felt, not necessarily unqualified but just like, am what I'm doing, is it right? You know, like, questioning my abilities, I guess. But I had a supervising PT that kind of took me under her wings like 'You know what you're talking about, you know what you're capable of, you just have to believe in that'.

Even as a representative of the two people who report feelings of inadequacy, this individual ultimately, strengthened her PI with appropriate coaching.

When discussing their decision to become at PTA, for nine of 12, the answers were surrounding successful patient experiences. Even for students who had not worked with a patient. In one case, it was witnessing a patient who was successful while the future PTA student was completing a required observation. For the application process, for two students, it was successful rehabilitation of their own injuries and for one, it was watching a close friend benefit from therapy. For five of six PTAs the experiences surrounded the satisfaction derived from successful patient outcomes. One PTA reported it was a discussion with a friend, who is a PT, which inspired her to take the leap into PTA school. The two primary factors associated with confirmation of the choice to enter PT as a profession were patient success and influential role models.

Qualitative Research Question Three Results

The third qualitative research question was: What are the differences between the forces shaping PI development in the SPTA and the PTA? The answer to this question is related to experience level and experience type. The themes of the forces acting on the individuals may be the same, both were noted above to be affected by role models, the difference was the type of role model. Experiences are also different; the PTA has had more experiences in the field to aid in PI development, whereas the SPTA draws more from experiences outside the field.

Additionally, the SPTA is more likely to speculate on how what relationships may be like or must draw on fewer examples than their more experienced PTA counterparts. acting on the student vs the PTA. Finally, because all practicing PTAs have been in school it is likely they were subjected to the same influences as the SPTAs, but as they have gained experience in the field those they are able to point to more experiences in the field shaping their behavior and PI. This section will explore differences in the themes and timing of the forces noted above.

Role Models Within and Without the Field

Both groups discussed role models as being influential in their professional identity development. The SPTA was more likely, five of six, to name a role model outside the field while all PTAs referenced individuals inside the field. However as seen below there were exceptions in both groups.

When asked about role models and those who have influenced her, Rhoda a first-year PTA student first spoke of her mother and her family,

I guess I would just say, I mean it's hard to even pick just one experience because I think we're all of our experiences together, so you know I grew up in a family of ten, in a great community where everyone knew each other, we went outside the moment we woke up. My Mom rang the cow bell, that was dinner, but no other meal was a meal, only dinner. So, I think if I looked at everything in my life.

Rhoda went on to talk of individuals who are in health care influencing her, but does not discuss anyone one in PT, "It seems everybody that I know is in health care. So maybe that's who I surround myself with. But everyone I run with they're all in some form of health care." First-year student, Kevin, also first speaks of his mother when discussing influential people who have affected his work ethic, "My mom. Yeah actually it's interesting, I don't know if I told you

this, but as of, gosh was I four, not in kindergarten yet, maybe three or four-year-old Mr. Kevin here actually attended class with his mother." Kevin also references his grandmother, "My mom and my grandmother. My grandmother passed, but they were, I was around, between the two of them, 80-90% of my life, I was pretty much raised by those two women." Kat, the final first-year student references an aunt as a primary role model, "Yeah, my aunt is a role model the one that I mentioned earlier. She's always been an inspiration to me, for sure."

Second-year student, Lou, also referenced role models outside the field, "I didn't really have a good relationship with my dad, but I would find characteristics in other men that I would meet, I like the way he handled that, and I would kind of build my own dad. I know that sounds kind of weird, but that's what I did." Beth, a second-year student references a PTA, but points out it is more her philosophy than her PT skills, "I really like (instructor). Really like (same instructor), but I don't know her as a therapist I only know her as a teacher, so, but I like her philosophy and her approach to it all." As a group, these SPTAs are rely on role models outside of the field to inform their behavior in the field.

The PTAs were more likely to reference individuals in the field of physical therapy. Novice PTA, Megan, discussed a clinical instructor she worked under as a student,

> Seeing how she worked every day. And no two days were the same, no two treatments were the same. She was very accommodating to each patient and flexible and we did what we had to do, and you know whatever that meant was whatever that meant.

Clark, a novice PTA speaks of a PT who is a role model for him,

> Rachel, an amazing individual that is very empathetic, crazy smart, very driven, and will just you know, will go above and beyond for a patient, and it's just amazing to see that. And just how caring she is for everyone – coworkers, patients, just everything, so, and

> just the willingness to help and give that knowledge to anyone and everyone has just, it's inspiring and makes me want to learn more and makes me feel like I don't know enough for sure, being around her, so, definitely she's a big one that has influenced me.

Experienced PTA, Julia, refers to two PTs she works with as primary role models for her in the clinic,

> Nicole and Hema, I look up to them very very much and I don't think they could be more opposite. And I tend to be a little bit more of a hard ass like Nicole and frequently I have to look to Hema to be like, let's put some fun into this, be a little silly, all that kind of stuff, so yeah, they do frequently.

The student PTA was more likely to reference non-PT role models while PTAs were more likely to reference role models in the profession. While student PTAs were more likely to reference non-PT role models and PTAs role models in the field, there were exceptions. Second-year SPTA, Lynn, referenced a PTA she met prior to beginning PTA school,

> Well, I worked with him at one of my tech jobs, he was a PTA and he was also an athletic trainer too. But just absolutely great attitude always smiling always willing to help, loved his job, was very very good at it and just along the way, me as a Tech I wasn't a student, I wasn't in PTA school, I wasn't going, I wasn't a PTA yet and yet he devoted a lot of time in teaching me and helping me to decide that PTA is what I wanted to do, so, and that was my first job as a tech.

Julia an experienced PTA who spoke of her role models Nicole and Hema first and at greater length, also mentioned a sister who does not work in the field as a role model. However, in aggregate the SPTA was translating behavior seen in role models outside the field or personal values as in the case of Beth compared to more direct experiences inside the field for the PTA.

Timing of Witnessing Good or Bad Examples

Both the student and PTA groups spoke of the influence of witnessing good and bad examples as affecting how they choose to practice. The difference is largely who those individuals are and the number of potential witnessed observations. The PTA with 22-years of experience, Kerry, has had more opportunity to experience good and bad examples of PT than the first-year student, for instance Kerry is able to give characteristics and follow them up with an example when discussing characteristics of a bad PTA,

> Not wanting to help others. Self-centered. Think they're better than everyone else. Demeaning…. It probably comes out more from my coworkers. Like holy cow, I do not want to be like that person. You know they, because then they're the people, say at the end of the day, if we're on Acute Care we need to call everybody to make sure everybody's doing okay, do you need help? Can I take a chart from you, and the same people always give you their chart, so you have access to two patients and then they go home early, and you're stuck here late? And you're like hey I'm here trying to help you out why should I be working all this much harder? Why am I doing my job plus your job? Why do you get to leave early and then I get in trouble for having overtime, and that kind of stuff?

Rhoda, who has not been in a clinic yet during schooling is more speculative saying, "I think" as she begins to describe a good PTA,

> Um, for PTA *I think* it's kind of the same as people in a lot of health care they should have a good rapport with everybody, you know, very diverse, they should be able to relate to anybody and I think in a way they should be very optimistic, they should be, as far as physically fit they should be able to get up and down you know whether it's an

> eight hour day or a twelve hour day, um, you have to be empathetic for sure, you can't go into it like you're some dry dude you have to be able to put yourself in their shoes and think, wow, this would suck but I'm here to help you and that's who you want you want someone who's also what's that other word? Confidence. You need confidence. You can't walk in there and say "oh let's try this" you got to go in there and know your stuff.

First-year student Kat also speculates with a "think" statement, "There's probably a word for the ability to let things go but I can't think of it right now. Cuz, *I don't think* – you can't take work home with you or you'll just be wrecked." First-year student, Rhoda also discussed, "being around health care," but not physical therapy. First-year student, Kevin was asked about positive characteristics of a good PTA, he stated, "patient, being positive, treating every patient uniquely, man, you have to be… positive." When asked how he knows these are positive characteristics, he did not mention course work or experience in the field he stated, "I think those characteristics will make you successful in almost anything." When asked how she knows specific traits are characteristic of a good or bad PTA, second-year student, Beth, states, "Because those are the things I value as important." Only two of six SPTAs referenced experience in the field of physical therapy. Second-year SPTAs, Lou and Lynn referenced clinical experience. Lou stated, "Just looking, being in clinicals and the PTAs that I've had the pleasure of being around" and Lynn, "Kind of from what I've observed in clinic". Both SPTAs also reference non-PT related influences, for instance, Lynn stated, "I guess expectations of the clinical and as a student but also expectations as a human." The primary way SPTAs determine what are good and bad characteristics of being a PTA is from experiences prior to entering PTA school.

All six PTAs reference experiences in the field of physical therapy in how they know what is good and bad for how they model their behavior; although, some of them relate

experiences back to school and clinical work. In discussing how they know what good and bad characteristics are, novice PTA, Megan stated, “Um, because that’s what I see other PTAs do that are successful.” Clark, another novice PTA stated, “I would say those are things that I have, and I’ve seen that others have, some of the great PTs and PTAs that I know.” Kerry, an experienced PTA stated,

Yeah, just from working and then, you know, like how am I going to be a good PTA, what can I do to make myself a better PTA you have to always want to be able to learn as well, because continual learning is such an important part of this job is cuz things are changing all the time and you have to be able to want to learn and not just I’m done with school I don’t want to learn anymore. And how I know what the good characteristics are is because of just working and seeing all the other therapists and just standing back and watching them? And learning from them and then also having students come through.

Despite being out of school for 22-years, Kerry also relates experiences from school affecting her behavior,

I had a couple of bad ones [clinical instructors while in school] and then I had some really great ones. And I think that’s why, totally off the subject, I think that’s why I’ve become the [clinical] instructor I have become. Is because I want them to learn the things I didn’t learn as a student.

Kerry, also referenced a particularly influential instructor who still regularly impacts her thinking and behavior more than 20 years later,

The person that comes to mind is [a PTA instructor]. And, which is kind of interesting because she, I don’t know why because she comes to my mind and when I’m teaching documentation with students [in the clinic], all her stuff comes back to my mind and how you

should act on the clinical. The fear that she put into us in [class] we were sitting there in the [class] room and she was putting the fear of God into us of 'This is how you act when you go out into your clinicals.'

Experienced PTA, Julia, reported watching multiple clinicians and working as a PRN therapist (filling in 'as needed'), "Just from doing it the short time that I have done it and watched others. You learn a lot by watching people. And also with working PRN for so long."

Both groups are influenced by behavior they consider good and bad. Both groups showed influences inside and outside the field and in school and out of school. The difference is, as a whole, SPTAs referenced more outside the field experiences and PTAs more often spoke of experiences inside the field of physical therapy.

When Kerry, an experienced PTA was asked how she know these are good or bad characteristics, she stated, "Um, just from doing it for so long." Clark, a novice PTA when asked the same question reported,

I would say those are things that I have, and I've seen that others have, some of the great PTs and PTAs that I know have, and just if you have empathy then you're gonna be able to relate to patients and care for them in the way that they're gonna need no matter what they got going on.

Megan, another novice PTA stated, "Um, because that's what I've seen other PTAs do that are successful? And kind of, I've seen the ones that aren't like that, that don't, I think fit in as well." Julia, an experienced PTA spoke of patient experiences when asked about how she knows how to behave,

I never carried my own patient caseload and so I would always ask my patients what your goals are because I didn't know them and I didn't have that opportunity and so many times

I got ‘What do you mean what are my goals.’ And I’m like ‘What is important to you?’ And often times they did align but often times they didn’t. I think it’s important to get your patient buy in.

These PTAs are using patient experience to help them determine how to behave as a PTA and they have had many more patient interactions than even the most experienced SPTA. Kevin, a first-year SPTA, also referenced, “Experience”, but his experience is not patient related as a first-year student, “I think, from my experience. I think those characteristics will make you successful in almost anything.”

Both Julia and Kevin discussed frustration with the lack of understanding of the role of the PTA by the PT. However, the PTAs were more likely to discuss actual experience, for instance Julia’s report of needing to explain to a PT her knowledge level, while the SPTA was more likely to be speculative, saying, “It think” or “I imagine”. Kevin, did have an experience of frustration with a student PT experience, but on the whole, SPTAs were more likely to be influenced by what they thought the role was going to be like, as seem above with Kat and Rhoda, unlike the PTAs who referenced experience in the field, both positive and negative about their actual experience with the PTA/PT relationship.

Breadth of Experience Affecting PI

As the individual moves through education and into clinical work the number of experiences in the field multiply rapidly, the individual has more and more opportunities to have experiences in a multitude of ways and with multiple individuals, through interactions with instructors, classmates, clinical instructors, coworkers, patients, other health care workers, and more. As laid out above, as the individual gains breadth of experience in the field they are more likely to identify PT specific experiences as influential.

Each interviewee was specifically asked how they define PI, which varied greatly as discussed above. Each interviewee was also asked to talk about what they believe has impacted their PI development. Again, as seen above with understanding what are good and bad characteristics the interviewee was more likely to reference a more in-depth PT experience as the number of PT experience opportunities they were exposed to. Samples of responses to influences on the individuals PI include:

First-year student Rhoda discussed her independent nature and positive work ethic being influenced by an upbringing where she was required to be resourceful and work hard, she stated, "Growing up in a big family and we walked everywhere we bike everywhere we didn't ask for anything, you just were glad you got what you got."

Kevin, first-year student, who has not been in the clinic yet, "For me I think the labs. I think the labs were what really shifted my, I'm really more of a doer." Second-year student Lou, stated, "I would say clinicals was a big part of that. Because being in that environment showed me how clinicians should act." Second year-student, Beth, "Well, first of all my faith in God, is my priority." Novice clinician, Megan, with only a few months of practice as a PTA also referenced clinical work as a student, "I would say probably, my clinical rotations. Especially my last one, which was inpatient. And just seeing how she worked every day. And no two days were the same, no two treatments were the same."

Clark, a novice PTA credited the entire process,

> I think it was through all stages. I mean before school I definitely had the same values, morals, things like that, ethics. And then during school I learned a lot and had good instructors. And then after school I got lucky unlike a lot of people and I got into a really good place and that like definitely helped mold me into who I am.

Experienced PTA, Kerry, also reflected on an entire career, after discussing the influential good teacher and influential bad clinical instructor mentioned above, she summed up with, “I think just watching different therapists and how they treat patients makes me who I am, as a PTA.”

Julia, an experience PTA, discusses how she developed her PI,

> Just experience, just to feel confident that I did actually know what I was doing, and I did make sound clinical judgments. You know coming up with sound ideas and having the PT come up and say, “Wow I didn’t think of that, that’s a really good idea, what made you decide to do that?” So, things like that. And maybe just that confidence.

Sandy, an experienced PTA reports, “Yeah, definitely the patients. The patient populations, all the different people I’ve met, and then my colleagues. All the therapists I work with. Because those are the people that I have grown from and all these experiences.” She also goes on to mention instructors.

As the individual moves through education into practice the self-perceived influences on PI become more clinic related. However, it must be recognized, even though these individuals indicated the clinic as a primary influence, their school experience is an influencer, the experiences increase but older experiences are not replaced, they are built upon.

The main difference between the two populations were the timing of different experiences and role models within versus without the field of PT. Experiences varied from witnessing good and bad PTAs and experiences with patients versus clinical experiences. The SPTA is relying more on experience prior to school, role models outside of the field and speculation about the future. The PTA also continues to be influenced by those forces, but the

PTA tends to report more experiences and role models in the profession and past experience in the field rather than speculation about future experience.

Primary Research Question Results

The results of the seven qualitative and quantitative questions above all speak to the primary research question. While the quantitative questions and surveys cannot be used to directly compare SPTAs and PTAs, they can be utilized to learn about PI development from first to second-year as a student and between the novice and experienced PTA. Additionally, they can be used to search for forces impacting PI development and those which may not be.

Advancing PI Development

When comparing the overall PI ratings of SPTA to the results of Tan et al. (2017), overall PI ratings for SPTAs is high (4.0/5) with only three respondents not falling in the high PI group and only two falling in the low PI group. The item with the highest overall rating was predicting the ability to dress and "behave" like a PTA (4.92/5). Dressing and "behaving" like a PTA is the beginnings of PI development (4.78/5) (Holden et al., 2012; Sharpless et al., 2015). While the item regarding thinking and reasoning as a PTA showed overall lower ratings was 4.12/5 for SPTAs as a whole. PTAs responded to a similar item as SPTAs question about dressing and behaving like a PTA, but relates to a more advanced form of PI development, "I feel confident in my role as a professional physical therapist assistant" (Table 4.21). While the results cannot be compared directly because the questions are not the same and the Likert scales are not the same, the overall average rating of 5.12/6 for PTAs suggests experience in many forms impacts PI. This item was statistical significance for the experienced PTA to rate the item higher on the Likert scale [$t(73)= -3.42$, $p=.001$]. The experienced PTA is significantly more confident about their role as a PTA than the novice.

Influence of Good and Bad PTA Behavior

In the qualitative data, examples of good and bad behavior were reported as a force impacting PI. Both the SPTA and PTA stated the bad examples were as influential or more influential as the good examples. For instance, first-year student, Rhoda, when asked about good characteristics of a PTA gravitated toward bad examples to make her point rather than good examples.

> I would know if someone showed up to my appointment late or treated me like I was nobody I mean that would be an obvious I wouldn't want that PTA to work on me. And I can quote my mom, she'd say the same when she has me take her to her appointments, "I don't want her. She's not even nice, she doesn't even talk to me.

It should also be noted her answer is related to speculation and second-hand knowledge rather than her own personal experience.

The relatively high ratings on the items regarding admiring individuals in the field (*M*=4.76/5, *S* =.52) instructors (Table 4.23) on the mPIFFS supports the importance of perceived good examples to the SPTA. There was not a question on the mPIVS for PTAs which directly relates to good and bad characteristics. However, the PTA puts a high value on building strong relations in the field (*M*=5.48/6, *SD*=.58) (Table 3.7). This coupled with the fact the PTA rated developing personal factors to gauge success is lower (*M*=4.45/6, *SD*=.95) suggests the PTA is utilizing multiple factors for gauging success related to experience in the field with other professionals. The qualitative data supports this. Julia, an experienced PTA, when asked which example was more influential stated, "Probably 60% the bad ones and 40% the good ones." Lou, a second-year student, stated, "I would say it's pretty much equal."

Patient Interaction

The three most highly rated statements on the mPIVS by PTAs were in regard to the PTAs obligation to patient advocacy, patient empowerment, treating the patient as an individual (Table 4.21). The rating did not show statistical significance between the novice and experienced PTA. There was not a similar item in the mPIFFS for SPTAs.

Patient interaction as a highly important component is also supported by qualitative data. When asked to explain something which confirmed the choice to become a PTA, ten of 12 interviewees related a patient story. These stories include SPTA stories not directly related to the SPTA providing treatment. First-year student Rhoda's confirmatory story was related to a family friend who suffered a traumatic brain injury in a motor vehicle accident affecting everyone in her family, "I always use Ron who was the one in the car accident, that like affected Dave my son, and my daughter Gloria". Second-year student, Lou, speaks of patient's as well,

> I would say interacting with the patient and seeing them progress. There's just something about that feeling, when you're kind of, they get to know you and you get to know them. I was surprised by how many patients when you're getting ready to leave these clinicals were like "Hey, Man, we're gonna miss you" and "Have a good one" and "Good luck" when I was only here for like eight weeks, seven weeks. But I think that's very rewarding, I liked that.

Two of the three experienced PTAs related specific patient stories as well. Julia tells the story of Amy,

> I worked with a girl, Amy, she won't mind me sharing it. And she had an anoxic brain injury. She was twenty I think, twenty-one when she came to me, she came to me from [another hospital] and she couldn't walk, she couldn't talk, she couldn't stand, she

had no static standing balance. Super tight and she was a mess. I treated her for gosh, probably six to eight months, consistently. We did aquatic therapy and land therapy and I knew; I was like "This girl is gonna be able to walk, I know she's gonna be able to walk." And I had two different PTs tell me no. They're like just no, she's not gonna be a functional ambulator. Patients know if they're being seen by someone who doesn't believe in them. Which is why I got to see her because we really got along. There are just some patients where you can just see that fire and that drive and just know that they're gonna be able to do it. And sure enough, she's walking, and her talking's getting better. She doesn't do great walking, but she's walking, by herself.

These positive patient interaction stories along with the quantitative data support patient interaction as a factor affecting PI.

Role Models

The next most highly rated item on the mPIVS for PTAs (Table 4.21) was, "Building strong relationships with other physical therapy professionals is important to me." In the mm (Table 4.23) for the SPTAs two highly rated items involve admiring role models in the profession and instructors. The difference in impact was related to who they are most influenced by regarding behavior. The mPIFFS only addresses role models in the field and the mPIVS addresses neither.

These finding coincides with the qualitative from both SPTAs and PTAs regarding role models. In qualitative interviews all four groups discussed having role models inside the field which influenced them, ultimately affecting PI. For instance, first year student, Kat, discusses both role models outside the profession and inside,

> Yeah, my aunt is a role model the one that I mentioned earlier. She's always been an inspiration to me, for sure. Um, my teachers, they're still practicing PTs, which is the most important thing to me that they actually do what they teach so it makes everything that they say a little more reliable, a little more worth listening to.

Lynn, a second-year student discussed the importance of a role model who not only influenced her behavior as a PTA student but influenced her decision to pursue the field.

> Well, I worked with him at one of my tech jobs, he was a PTA and he was also an athletic trainer too. But just absolutely great attitude always smiling always willing to help, loved his job, was very very good at it and just along the way, me as a Tech I wasn't a student, I wasn't in PTA school, I wasn't going, I wasn't a PTA yet and yet he devoted a lot of time in teaching me and helping me to decide that PTA is what I wanted to do, so, and that was my first job as a tech, so.

Not all individuals who are in the position to be a role models provide positive examples they can still have a positive impact on PI. Experienced PTA, Kerry, tells of clinical instructors providing poor examples influenced her PI.

> I think that's why I've become the instructor I have become. Is because I want them to learn the things I didn't learn as a student. And I may be more tough on them because I know what it was like to have a really bad instructor that didn't teach me things. Because it was like holy cow what in the heck? This was just a waste of my time what am I even doing here? And so I think that is what has made me a different instructor? Because I don't want the students, I have to have the instructor that I had of not learning. When they are here with me, I want them to learn as much as they possibly can.

While both the SPTA and PTA spoke of role models both inside the profession and outside the profession influencing them. The SPTAs comments noted they were more influenced by role models outside the profession. In interviews the SPTA acknowledged role models in the field including teachers, clinical instructors, other clinicians but was more likely to reference outside role models while the PTA was more likely to discuss role models in the field including co-workers, mentors and even patients. The difference in the forces is likely related more to the amount of PT experience.

Importance of PT

The mPIVS for PTAs item, "It is important for physical therapist assistants to be involved in promoting the physical therapy profession" also had a relatively high rating on average for PTAs at 5.45/6 (Table 4.21). A high rating here suggests the PTA sees value in the profession and a necessity to promote it. This idea is strengthened by the importance, both SPTAs and PTAs put on their perception of the importance of PT for successful patient outcomes in the interviews. All twelve interviewees reported they believe PT is critical to patient success. Statements related to the perceived importance of PT to outcomes included:

First-year student Kat, "Absolutely 100%, very very very important,"

Second-year student, Lynn, simply states, "Very."

Novice PTA, Megan, "Very, very important." Clark, "Extremely, important." Experienced PTA, Kerry, stated, "Well it's very important, it's hugely important

This coupled with overall high rating of PI for all groups suggest finding value in our work contributes to positive PI. It cannot be determined from this data if this force is different between the SPTA and PTA.

Personal Values

A final highly rated item for PTAs on the mPIVS is "Physical therapist assistants work best when professional expectations match personal values" (*M*=5.20, *SD*=.75) (Table 3.7) suggesting there is a link between personal values and PI. The PIFFS does not have an item related to personal values. This idea is borne out in the qualitative data. The SPTA was more likely to discuss influences outside the field as contributing to how they know how to think and act like a PTA. Second-year student, Beth, states, "Well, first of all my faith in God." While first-year student, Kat, points to experience as a parent, "Just being able to raise my children has given me so much patience (laughter)." While PTAs did speak of outside influences, they also noted experiences inside the field when discussing how they think and act like a PTA. Novice PTA, Megan, relates multiple factors contributing to how she thinks and acts like a PTA, "I think, who I work with. And the companies I work for. And my patients." Experienced PTA, Julia, reports, "I probably would say getting patients that I wasn't prepared for, that would probably be the biggest one." However, PTAs also speak of non-PT related sources of influence, novice PTA, Alice states, "Honestly, I feel like, I feel like this is gonna sound like, I'm not trying to sound like anything but I feel like it's something that I've had even before school." The similarity here is both the SPTA and PTA view personal values as informing how they think and act like a PTA, but the PTA has a greater number of experiences in the field. While both the SPTAs and PTAs indicated experience in the field and outside the field as influencing PI, the PTA was more likely to attribute PT related experiences to their development.

PTA/PT Relationship

From the qualitative data, the PTA/PT relationship is a force impacting PI of both the SPTA and PTA. However, a key difference noted was SPTAs were more likely to talk of this

relationship in future tense, whereas the PTA spoke of actual experiences related to this relationship. The PIFFS, does not address this relationship, but does address, whom the SPTA admires with relatively high ratings for individuals in the field and instructors (both of which could be PTAs or PTs). No direct correlation can be drawn here due to the vagueness of the information, but it does show the SPTA values relationship with those in the field. Likewise, the mPIVS does not address the PTA/PT relationship; however, PTAs rated relatively high the item regarding relationships in the field. Building strong relationships with other physical therapy professionals is important to me" (*M*=5.48 *SD*=.58) (Table 4.21). The commonality is, both groups find value in relationships; the difference lies in the understanding and how this understanding is created.

Societal Perception

Societal perception affects the SPTAs and PTAs PI. It was posited social perception showed the least difference between SPTAs and PTAs. Both groups agreed society in general has little understanding of the role and educational level of the PTA and both groups in general denied this lack of understanding has a negative impact. Neither the mPIFFS nor the mPIVS have items which can be extrapolated to add depth to this understanding.

Experience Inside and Outside of the Field Impact PI

From the participants responses in the qualitative data, experience inside the field and outside uniquely impact their development into and as a PTA. These experiences are informal regarding PI. They include life experience, interactions with family members and role models (inside and outside of health care). As the future clinician moves through the educational process and into practice, a multitude of forces shape their PI, including informal observation of instructors, classmates, clinical instructors, patients and other health care workers. None of the

participants reference any type of formalized training in how a PTA should behave or fit into the health care setting, further, none of the interviewees mention law, policy or the APTA's Code of Ethics. Only one individual mentioned informal discussion of how to behave, when Kerry remarked she was told in science course, "This is how you act when you go out into your clinicals."

Only one participant stated having had more than a cursory understanding of PI as a concept, but all participants were able to point to formative experiences for PI development. While "experience with the profession" appears fairly self-evident with items like, "Before I entered college, I already had some prior work experience related to physical therapy" (*M*=2.76/5, *SD*=1.71). This low mean value coupled with knowing the average SPTA rated their overall PI in what Tan et. al. (2017) defined as a high PI suggests prior work experience is not a primary factor in the SPTA establishing a strong PI

Items on the mPIVS require the PTA to respond if they use both internal and external indicators to assess competence (*M*=4.97/6, *SD*=.68) (Table 4.21), whether they use supervisor or expert feedback when making decisions (*M*=4.28/6, *SD*=1.26) (Table 4.21) and if they have developed their own personal indicators for gauging success (M=4.95/6, SD=.80) (Table 4.21). These items in aggregate suggest the PTA values input but also values their own judgement.

Summary

In this sample, there are multiple forces impacting PI development in the SPTA and PTA. Most were similar between the two groups, role models, experience with good and bad examples, societal influence, societal perception of the PTA and others were discussed. What seems to vary more than the forces is how the forces present themselves. As the SPTA and PTA

gain experience, they tend to use more of their experience inside the field and with individuals in the field to inform their PI.

Chapter 5 - Discussion and Conclusion

The purpose of this research was to explore how individuals in distinct phases of the educational process and their professional careers define professional identity, the forces influencing its development and how these forces are different in the student and professional. The intention was to provide insights and suggestions which may be useful to the educator, employer, or possibly even the student or clinician regarding the nature of professional identity (PI) development allowing stakeholders to appropriately participate in the process. This chapter examines the findings of this research, implications and will conclude with recommendations for future research.

Discussion

Comparisons Not Possible Between SPTAs and PTAs

The quantitative research questions revolved around whether statistically significant differences would be found when looking at PI ratings comparing first and second-year physical therapist assistant students (SPTAs) and the novice and experienced physical therapist assistants (PTAs). It was hypothesized a significant difference between the groups would be found which would in turn lead to insights into why and what comprised these differences.

Ideally the same survey would have been used to assess all four groups allowing comparison between each group, for instance comparing first-year SPTAs with experienced PTAs. Unfortunately, a valid survey allowing such broad comparisons was not found and ultimately two different surveys were used. The modified professional identity five-factor survey (mPIFFS), created and validated by Tan et al. (2017) was used with SPTAs. The professional identity and values scale (PIVS) created and validated by Healey (2009) modified by Healey and Hays (2011) and then later modified and validated for athletic trainers by Eason et al. (2018).

Eason's (2018) version was slightly modified for use in this survey to assess differences in PI between novice and experienced PTAs. Therefore, comparisons and conclusions could only be drawn inside student groups and inside practicing clinician groups and not between the four groups.

Overall Strength of Professional Identity in SPTAs.

It was hypothesized, as students move through their educational experiences their PI would develop and there would be a difference in the strength of PI between first and second year SPTAs. This research did not find a significant difference between the overall strength of PI between first- and second-year students. Previous research has shown a variety of changes in PI for students including decreases in PI as the student moves through education (Cowin, 2002; Cowin & Hengstberger-Sims, 2006; Sharpless et al., 2015). The original research using PIFFS did find a difference in PI.

In the original research of the PIFFS, over 1200 students in 36 different diploma programs were surveyed (Tan et al., 2017). The authors analyzed their data and proposed objective numbers for low and high PI. Tan et al. (2017) determined low PI ratings were between 1.67 and 3.23 and high PI ratings were between 3.27 and 4.53 on a five point Likert scale with five being the highest degree of PI. The average PI of the students surveyed by Tan et al. (2017) was 3.23±.44. The average PI of the SPTAs in this research was 4.0±.40 with only three students having an overall PI rating outside Tan et al.'s (2017) "high" PI range with two students in the defined "low" range and 1 SPTA in the midrange. There are several potential explanations for this finding.

One potential explanation for the SPTAs generally falling into the high range could be due to selective admission. The PTA programs participating in this research had a selective

admissions process where not all qualified applicants gain admission, students take pre-requisite courses and have chosen a narrow field of study. Therefore, all the PTA students in this research have attended and completed college course work and were admitted to a selective program. In the Tan et al. (2017), the largest portion of student participants were freshmen (40.8%) of those surveyed. Result differences between the original study and this research may be affected by the high proportion of freshmen students in the original research with unknown admission requirements.

Further, in research by Adams et al. (2006) in which strength of PI was examined in 10 different health care fields including medical students, occupational therapy, physical therapy, nursing, and radiology. In their research, Adams et al. (2006) concluded physiotherapy (physical therapy) students had statistically significant higher ratings of PI than the other nine groups researched. The findings of my research suggest, like their student physical therapist counterparts, SPTAs have high PI from the outset of school, potentially decreasing the difference in PI from year to year.

Therefore, the issue could be SPTAs see themselves as professionals from the beginning. The SPTAs had already chosen their profession rather than a larger portion of freshmen students. The Adams et al. (2006) research was also a heterogenous population from different health care fields rather than centering on one profession.

Overall Strength of PI in PTAs

Unlike their student counterparts, a statistical significance was found between overall ratings of PI comparing novice and experienced PTAs. When looking at the mean overall rating of PI, the experienced PTA showed a statistically higher rating of PI compared to the novice PTA. This finding is in line with previous studies which suggest PI is dynamic and changes

throughout one's career. (Brott & Myers, 1999; Lindquist et al., 2006; Sharpless et al., 2015; Wald, 2015; Wilson et al., 2013).

This finding not only suggests PI continues to change over time but also increased time in the field can increase strength of PI. There are, however, other potential reasons the experienced PTA had an overall higher rating of PI. It is possible PTAs with lower PI chose not to participate; although, if this were the case one might expect this to be true with the novice population as well. It is also possible PTAs with lower PI have self-selected out of the field and no longer practice. In research on longevity in nursing, a positive PI was shown to increase the length of time a nurse remained in the field (Cowin, 2002). If this is true with PTAs, it is possible PI does not change but those with lower PI are no longer practicing, artificially raising the relative PI ratings for the more experienced PTAs.

It is more difficult to compare overall ratings of PI in the PTA with other fields. Adams et al. (2006) suggested PT students showed higher PI ratings than other health care fields, which cannot necessarily be extrapolated to practicing PTAs. Healey and Hays (2012) reference overall PI rating in participants, but did not provide the data. Eason et al. (2018) does not provide calculated totals of overall PI ratings for athletic trainers, but does provide means for each item in the survey. Utilizing the means provided in the data from the 19 Likert scaled items of the validated PIVS with athletic trainers (Eason et al., 2018) an overall PI was calculated at 4.62 utilizing the same technique with mean ratings the PTAs in this research scored an average mean PI of 4.86, again higher overall and both groups are higher than the athletic trainer average. This trend would also suggest the average PTAs PI rating is relatively high.

Change in PI Rating from Questionnaire to Interview

PI ratings from the interview enrollment questionnaire changed for many interviewees when compared to interview ratings (Table 4.26) of PI. Cowin et al. (2013) administered five different psychometric surveys to first and third year nursing students, four of the five surveys found drops in PI from the first to the third year. While not part of the validated surveys this research saw changes in individual PI ratings from taking the survey to the semi-structured interviews approximately four months later. There are several potential reasons for this change. One potential reason is because the question was not asked in the exact same way. In the interview enrollment questionnaire participants were asked: “Please move the slider to indicate how strongly you identify as a PTA. From 0 "not at all" to 10 very strongly” (Appendix E) and they would move the slider to correspond with a number. In the interview the interviewee was asked to rate their how strongly they identify with being a PTA like they would using a pain scale (a common PT practice). Just the change from the slider to using a verbal scale and changing the wording slightly may account for the difference.

Another potential reason is the interview enrollment questionnaire was filled out four to five months prior to the interviews. This time gap could have affected the change in PI. The individual could have had multiple experiences in the intervening months which may have subtlety, or profoundly impacted their PI in either a positive or negative manner. Additionally, taking either the mPIFFS or mPIVS could have sparked thoughtful interrogation of the individual’s thoughts on PI. Eleven of 12 individuals interviewed stated they had not heard of PI prior to taking the survey; the items in the survey may have caused subsequent reflection on PI affecting the ratings.

Where the question was asked during the interview may have also impacted the rating. While the interviewer did not give a definition of PI, the question was asked mid-interview, after asking the individual to define PI and PT. It is possible the individual's discussion and attempting to define PI prior to asking the rating influenced a change.

Technology may have play a role in explaining this change. Understanding how to use the slider may have had an impact, when looking at all the ratings for PI using the slider, there were multiple answers at either extreme, that is zeros and tens while no interviewee rated their PI as zero or 10. Finally, the format was also different, in one case it was electronic and the other was face to face with the interviewer; each individual may have been affected by the format. Therefore, both ratings must be considered, both may have been accurate at the time of rating and both may have been altered by the way in which the question was asked.

While the two rating numbers cannot be directly compared for reasons noted above, if the ratings are even somewhat accurate reflections of the individual's PI at the time they were asked, the dynamic nature of PI should be examined. Changes in PI ratings of up to five points on a ten-point scale in a four to five-month span suggests PI can increase and decrease on a short term basis (Holden et al., 2012; Sharpless et al., 2015, 2015).

Factors

The factors in the survey of SPTAs did not align exactly with the factors found in Tan et al.'s (2017) original research. The data from the mPIFFS for SPTAs was factored and subjected to a direct Oblimin rotation yielding eight factors (Table **3**.**5**) rather than the original five factors. While the items the original researchers associated with five factors: (a) knowledge of practice, (b) experience with the profession (c) professional role models, (d) professional self-efficacy,

and (e) preference for a profession (Tan et al., 2017) do not align exactly with this research, the same themes did arise in the qualitative data.

There are a variety of possible explanations for this. The low sample size with a potential 10-11% margin of error may contribute. While overall differences in strength of PI between professions (Tan et al., 2017) might be expected, despite the fact there were no PT or PTA students in the original research, it would seem reasonable to find the same factors in the PTA student as Tan et al.(2017) found in their research. However, Tan et al. (2017) does not break their findings down between educational interests, degree plans or professions so the reader cannot compare overall PI ratings of subgroups in this research. There is evidence student PTs have higher overall PI ratings (Adams et al., 2006) than their pre-professional counterparts and this research suggests SPTAs have an overall all high PI ratings as well with only three surveyed students not falling in Tan et. al.'s (2017) high overall PI category, These findings suggest SPTAs as with PT student have an above average sense of PI. It may be due to different forces acting on different professions.

The greatest likelihood for difference, however, is the statistical analysis run on the original research. The researchers in the Tan et al. (2017) study were analyzing whether their hypothesis, which was, the predetermined five-factors were a reliable fit to the data collected. In contrast, the analysis of this research allowed the data to determine the factors.

Considering the eight identified factors in this research in the order they were found to affect variance (Table **3.5**) (a) self-efficacy, (b) experience with the profession, (c) role models, (d) knowledge of professional practice, (e) fitting in, (f) confidence, (g) prior knowledge of the profession, and (h) active pursuit of the profession vs. the five factors postulated by Tan et al. (2017), (a) knowledge about professional practice, (b) having professional role models, (c)

experience with the profession, (d) preference for a profession, and (e) professional self-efficacy, three of eight factors have items which could all be aligned with Tan et. al.'s (2017) factor of professional self-efficacy.

The first factor in this research was named "self-efficacy". The factors are listed in order of their effect on the variance of the data, this first factor had the greatest influence. There were three items identified in this factor:

- I am sure I will have no problem dressing and behaving professionally in my industry
- I concentrate in my studies on what I believe I would need to know and be able to do when I enter my future occupation
- I believe I can already think and reason like a professional in a company or organization.

Talking about self-efficacy, Bandura (2006) states, "Perceived self-efficacy is concerned with people's beliefs in their capabilities to produce given attainments" (p. 307). These three items all speak to the individual's belief they can achieve a goal and in this factor analysis this belief has the largest connection to strength of PI. Two additional factors in this research (e) fitting in, (f) confidence, the fifth and sixth factors also both speak to self-efficacy. The items related to the factor "confidence" include the items:

- I have no doubt that I will master all the skills necessary to succeed in my future work
- I'm confident that I can do an excellent job in the future

Again, these are statements of self-efficacy, again aligning with Tan et. al.'s (2017) factor of professional self-efficacy

Two additional factors which resulted from the factor analysis of the mPIFFS which were, "knowledge of professional practice" and "prior knowledge of the profession" (Table 5.1) align with Tan et al.'s (2017) factor of "knowledge of practice." Not only do these factors align well for the SPTA but they also suggest the learner is taking an active role in learning and developing PI, which aligns with Kolb's (1984) experiential learning model.

The second factor in this research was “experience with the profession”. It had the second greatest influence on the strength of PI. All the items in these two factors require the student to participate in learning and pursuing a field. Survey items contributing to these factors include, following the profession through media, participating in an interest group, and interacting with someone in the field. All these items require active participation in process. Two of these items, joining an interest group and following developments in the media, would require time outside of traditional coursework to complete. If self-efficacy is about believing oneself to be capable, these results would suggest the belief is being bolstered by action. The individual’s belief in oneself based on actively pursuing the profession through studying appropriate material, joining interest groups and following the profession in the news.

When comparing the items from the survey Tan et. al. (2017) grouped with each of their factors, the themes do align (Table 5.1).

Table 5.1.

Thematic Alignment of Research with Tan et. al.'s Five Factors

Factor Analysis Themes from this Research	Tan et. al.’s Five Factors
self-efficacy confidence fitting in	
role models	professional role models
knowledge of professional practice, prior knowledge of the profession	knowledge of practice
active pursuit of the profession	preference for a profession
experience with the profession	experience with the profession

Statistical Significance Between SPTAs

Data analysis for the mPIFFS yield significant differences between first and second-year students in three items concerning following developments in the field, understanding the nature of future work, and understanding the rules and regulations in the field. For each item the second-year student reported on average a statistically significant higher rating than first-year students. These differences, however, were not great enough to cause second-year students to have an overall higher PI rating. It would not be surprising as students get closer to graduating and entering the workforce they would be closer to determining their area of practice, understanding rules and regulations from coursework and experience and to begin taking notice of developments in the field which may impact their future work.

Significance Between the PTA Groups

There were three basic areas in which the experienced PTA and the novice PTA showed significant statistical difference, career path, confidence in the role of the PTA and experience.

Career

In the quantitative survey, statistical significance was shown between novice and experienced PTAs regarding developing an approach that is congruent with personal ways of being and in developing a role that is congruent with their individuality. These items address integrating PT with the individual's own more general identity, suggesting a strong PI is related to this type of integration. This research supports Johnson et al.'s (2012) conclusion, PI is linked to more general identity and self-concept. In other words, this suggests the individual does not have a general self and a professional self, but the two must be integrated. These findings also suggest activities or strategies employed by mentors and supervisors to build confidence in skill would subsequently strengthen PI. When looking at the qualitative data, the SPTA tended to use

examples outside the clinic, when discussing how to think and act like a PTA. Second-year student, Beth, discussed her faith, "Well, first of all my faith in God, is my priority." First-year student Kevin discussed lab work, which is in the profession but out of the clinic. First-year student, Kat discussed health care in general, "Well, to be in any kind of health care of helping anybody you have to have the same kind of qualities." While experienced PTAs like Julia speak to experience in the field when discussing how she knows how to think and act like a PTA, "Oh. I probably would say getting patients that I wasn't prepared for, that would probably be the biggest one." As the individual increases the number of physical therapy experiences they are more likely to reference these clinical experiences as being impactful to PI development.

Role as PTA

A difference was also seen in confidence between the novice and experienced PTA. Quantitatively a significant difference was seen in ratings of comfort level and confidence level between the two groups. It seems reasonable a more experienced PTA with more experience would subsequently be more comfortable and confident in their role as a PTA. In writing on self-efficacy and behavioral change, Bandura (2006) states, "It is performance-based procedures that are proving to be most powerful for effecting psychological changes. Consequently, successful performance is replacing symbolically based experiences as the principle vehicle of change" (p. 191). Kolb's (1984) experiential learning model postulates learning includes concrete experience, reflection on the experience, forming abstract concepts from these reflections and test them in a new situation. SPTAs made multiple, "I think" statements, for instance, first-year student, Kevin, discussed how society perceives the PTA, "I think it will be just like a tier down." These "I think" statements suggest the student may have reflected and formed concepts but has not had enough experiences to do more than speculate on the topic. Considering, higher

overall strength of PI of the experienced PTA, the statistically significant higher rated items above by experienced PTAs, placed in the context of Johnson et al. (2012), Bandura, (2006) and Kolb (1984) provide ample evidence experience is a key factor to PI.

Experience

A specialty in the field may improve PI. If Cowin (2002) is correct that stronger PI increases job satisfaction, then having a specialty may be one way to improve job satisfaction. Encouraging novice PTAs to explore specialties may be a way to improve PI and job satisfaction. The negative correlation of the following items adds strength to this argument. The following two items with a t-value of -4.47 and -2.43 indicate individuals with stronger PI, the experienced PTA is more likely to disagree with the idea they are still developing a professional approach, or they are unsure of who they are as a PTA.

- I am still in the process of determining my professional approach [$t(73)=-4.47$, $p<.001$].
- I am unsure about who I am as a physical therapist assistant [$t(73)=-2.43$, $p=.018$)].

The negative t-value of these items indicate the individual has developed a professional approach and are sure of who they are as a PTA. The largest difference between these experienced and novice PTAs is time in the field. With increased time in the field the experienced PTA has had a much greater breadth of experience. The experienced PTA has had more time to develop a sense of who they are as a PTA and to determine their professional approach. The experienced PTA has had many more experiences to evaluate potentially leading to new ways of thinking and being. They have had many more experiences with patients, coworkers, and other health care workers than their novice counterparts.

SPTA and PTA Commonalities

Defining Professional Identity

Of those interviewed only one interviewee reported more than a cursory knowledge of PI, but both student and practicing PTAs wer able to relate stories, experiences and voice the concepts of PI without formally defining it. Roles, were defined, philosophy and approaches were discussed. Ultimately, they each had a professional identity.

The definition of PI used in this research, "Understanding a chosen profession in conjunction with one's own self-concept, enabling an individual to articulate their role, philosophy, and approach to others within and outside of their chosen field" (Healey & Hays, 2011, p. 9). First-year student, Kevin, is the only individual interviewed who reported previously hearing of the phrase professional identity prior to participating in this research, he addressed experiencing self as a professional and knowing how to act as a PTA. Kevin's definition aligns well with the definition utilized with this research from Healey and Hays (2011). Not having heard the phrase, PI does not mean the individual's do not have a PI and it does not mean they have not considered, who they are as a professional, their place in the profession or role in the health care setting. As evidenced by the SPTAs rating their PI in what Tan et. al. (2017) classified as "high" PI indicates the individual does not need to have heard the phrase professional identity or have a ready definition of PI to have a strong PI. Additionally, high ratings on items such as, "at this stage in my career, I have developed a professional approach that is congruent with my personal way of being" by practicing PTAs also shows integration of the self and professional in the practicing PTA.

While denying prior knowledge of PI by both student and practicing PTAs does not preclude PI, it does suggest PI is not formally addressed in school or the workplace specifically.

An individual may be told how to behave in clinicals, as pointed out by Kerry in the interviews. However, this does not address the integration of their role as a health care worker. This finding would support Plack's (2006) assertion PI is rarely addressed in a formal setting even when there are problems and typically left to chance. However, when asked questions related to PI, for instances, what are characteristics of good and bad PTAs, what is the relationship between PTA and PT, or how do they know how to act like a PTA, the interviewees were able to speak to these subjects. Common themes were seen for traits of a good PTA such as flexible, empathetic, good listener and patient. These individuals have a sense of what PI is without being given a definition.

The implication here is an individual does not need to have formalized training about PI to have PI or PI will develop despite intentional training. Most of the participants in this study could not define PI, but as a group were able to describe PI in alignment with academics and researchers. This does not negate the possibility these individuals might have benefited from a formal process emphasizing PI formation, for example the learning model proposed by Holden et al. (Holden et al., 2012, 2015).

Characteristics of Good PTAs

When 12 interviewees were questioned about the characteristics of good PTAs, many of the characteristics listed can also be found in framework developed by Holden et al.'s (2015) to address PI formation in medical school. In earlier writing on professional identity formation (PIF), Holden et. al. (2012) writes, "We posit that PIF reflects a very complex process, or series of processes, best understood by applying aspects of important overlapping domains: professionalism, psychosocial identity development, and formation" (p. 246). Holden et al. (2012) proposed to shorten the overall length of medical school. They reported one of the key

changes was to begin, not just addressing, but emphasizing PI formation. In later action, a task force was created and a framework for PIF was developed (Holden et al., 2015). The result was "the task force reached consensus on 10 key characteristics that the group considered foundational to professional identity in physicians: adaptable, altruistic, curious, empathic, ethical, honest, reflective, responsible, self-aware, and trustworthy" (Holden et al., 2015, p. 762). All ten characteristics listed above were mentioned specifically or described as characteristics of a good PTA by interviewees in this research.

Forces Impacting Professional Identity

From the literature, the forces contributing to the creation of PI include; previous experience, social roles, group identity, available role models, organizational influence, personal characteristics, and how the individual integrates these forces. All contribute to the individual's self- concept and specifically their professional identity (Ibarra, 1999; Jebril, 2008; Wald, 2015). The findings of this research align with this list. Both students and practitioners, identified these forces: personal experiences inside and outside the field, perceived characteristics of good and bad PTA, role models, societal influence, the PT/PTA relationship, personal values and patient interaction.

The difference is how and when the forces impact the individual. In this research, the student relies more heavily on the influences outside the field of physical therapy, likely because they have had fewer in field experiences. The student also relies more on anticipated relationships based on their current level of knowledge and experience as noted in discussing the PTA/PT relationship, where the student is more apt to be speculating about the relationship rather than describing experiences with the relationship. For instance, first-year student Rhoda, speculates on what she *believes* the relationship, *should* look like, "I think if you get the right job

it should be the team for sure." Second -year student Beth, discusses, how she, *thinks* and *hopes*, the PTA/PT relationship will be. Novice PTA, Alice, however, speaks from experience, how she finds the PTA/PT relationship to be, not how she would like it to be Once the SPTA has gained additional experience with the PT/PTA relationship, they are likely to also speak from experience, but until this time the SPTA will speculate on the future relationship.

Similarly, as noted above, SPTAs were more likely to name role models outside the field than the PTAs. All three first-year SPTAs referenced role models outside the field. For the second-year students, the role models start to shift toward physical therapy role models. One, second-year students (Lynn), mentioned a PTA she met at work, one (Beth) an instructor and a clinical instructor, and one (Lou) individual's outside the field. While all three novice clinicians referenced someone in the field. Here again, one might expect as the SPTA becomes a novice clinician the role models will more likely be someone in the field. The novice clinician appears to be focusing on examples in the field to model their behavior providing easier translation of experience into action. The above data suggests, as time passes and the individual has more experiences in the field reflect on the experience, develop new concepts and test them out in new situations (Kolb, 1984). This may help explain the statistically higher PI rating experienced PTAs over novice PTAs. As experiences become more specific to a situation, an individual can have greater confidence in their decisions.

Multiple authors have reported PI is not typically addressed in formal education (Crigger & Godfrey, 2014; Plack, 2006; Wald, 2015). A concern voiced by these authors in not addressing PI formally in education is the student may unknowingly pick inappropriate role models to emulate, not knowing their behavior is inappropriate or unethical (Crigger & Godfrey, 2014; Plack, 2006; Wald, 2015). However, several individuals interviewed for this research

indicated they learned as much from bad examples as good. Experienced PTA, Julia, when asked if bad examples or good examples of behavior were more influential stated, “Probably 60% the bad ones and 40% the good ones.” Lou, a second-year student, stated, “I would say it’s pretty much equal.” The question arises how they know what is a good and bad example and will they always know when they have seen a bad example? However, students and PTAs were asked how they know what a good example from a bad example. They arrived at these concepts from different experiences. The SPTA was more likely to rely on generalities from outside the field and their own moral code, while the PTA was more likely to relate real world experiences with PTAs.

A recommendation from this research is to include formal education to help the student integrate the professional identity with the self rather than educating the person to act in a particular manner which would be considered training in professionalism. Wilson(2013) points out people may behave in manner which does not truly reflect who they are. However, “A PI is critical to a person’s sense of self: It is about connecting with roles, responsibilities, values and ethics unique to a specific profession” (Goltz & Smith, 2014, p. 785). Teaching behavior is appropriate, but does not go far enough, educators also need to help the learner make connections to the roles, responsibilities, values and ethics of the field.

Forces impacting Professional Identity

The listing of forces impacting PI development in SPTAs and PTAs in this research align with previous research studies both inside and outside the field of physical therapy (Barradell et al., 2018; Ibarra, 1999; Jebril, 2008; Plack, 2006; Wald, 2015). This research further illustrates how the forces differ for the SPTA and the PTA.

As Megan a novice PTA pointed out, she has always been this way, it just needed to be translated to PT. This research suggests translating the non-PTA self into the PTA self is a continual process over time. As the individual gains knowledge about the profession and gains experiences in the profession, the forces become less general and more specific to the field. The significant finding, experienced PTAs having a higher rated PI than the novice was influenced by the rating of integrating self-concept with PI, integrating treatment approaches with self-concept and developing a specialty.

The difference in the forces is likely related more to the amount of PT experience rather than differences in how PI is created. PI is progressive, as the individual moves through their career, based on increased experiences with greater applicability/relevance.

A final interesting point about PI development, only one individual, first-year student Rhoda, mentioned formal learning. No interviewee mentioned formal learning or the APTA's Code of Ethics (Swisher & Hiller, 2010) when discussing how they know the characteristics of a PTA or how to think and act like a PTA. From this lack of reference, it cannot be assumed formal education, or a code of ethics impacts PI, but it can be concluded these individuals assign greater importance to experiences.

Previous literature reports ideas about how a PTA will think and behave are impacted by personal characteristics and experience prior to entering school (Jebril, 2008; Wald, 2015; Wilson et al., 2013). This research supports this conclusion in several areas. The PTA and SPTA routinely attribute knowing what are good and bad characteristics of a PTA to experience prior to entering school and to their personal code of ethics. Additionally, the high rating of PI for even first year students in the quantitative data suggests SPTAs begin school with a high PI even before they have had an opportunity to be taught about or experience the profession.

Additionally, previous literature also suggests a variety of contributors to PI formation that are less tangible or harder to quantify including: previous experience, social roles, group identity, available role models, organizational influence, personal characteristics (Ibarra, 1999; Jebril, 2008; Wald, 2015). While this research did not explore each of these areas both quantitative and qualitative data supports previous experience, role models, organizational influence and personal characteristics impact PI formation.

Impact of PT

As important as what forces are impacting PI development, forces which are not impacting PI development should be considered. In the pilot study both the SPTA and PTA student referenced plans to go to PT school not coming to fruition. This theme was explored in this research as a potential negative influence on PI. Additionally, the theme arose showing SPTAs and PTAs believe society including health care workers and even PTs (Hawthorne et al., 2018) do not understand the qualifications and roles of the PTA. This theme was also explored as a potential negative force on PI.

Eleven of 12 participants reported they considered going to PT school. The one person who reported they did not, cited being too old when they decided to return to school, but had they discovered the field earlier they would have considered PT school. The number one factor for not attending PT school was excessive cost and excessive time commitment. Each participant denied this was the case. When asked if going to PTA school after wanting to go to PT school felt like a “step back” or “settling”, each participant denied this to be the case. They all reported high levels of satisfaction with their choice.

Two individuals are still considering going back to PT school. Two reported knowing what they do now about the roles, they would not have considered PT over PTA. It cannot be

concluded failure to achieve this goal had a negative impact on these individual's PI. While it cannot be reported as a positive or negative impact, switching from wanting to be a PT to a PTA cannot be rejected as a force impacting PI formation.

Implications of Research

Theoretical Implications

Multiple theories were considered prior to resting on Kolb's experiential learning theory (ELT) to be used as the theoretical framework for this research. Theories considered prior to beginning data collection included: social/human capital theories, social network theory, social learning theory, intrinsic/extrinsic motivation theories, pedagogy/instructional theory and social identity theory. After completion of data collection and analysis, previous arguments for utilizing ELT over the other theories are supported by the evidence. Time and time again interviewees referenced experiences, experiences with good and bad PTAs, experiences prior to beginning PTA school, experiences with clinical instructors and patients and mentors. Almost unanimously interviewees reported experience as the common thread for how they know what good and bad characteristics of a PTA are and what has influenced their ability to think and act like a PTA.

The simplicity of this model is its strength. The concept of having an experience, observing and reflecting on it, drawing conclusions, testing those conclusions and having a new experience are universal. The experience can be anything, an interaction with a family member, a patient a teacher, a mentor, another health care worker. All the individual needs to do is experience, reflect and test. Often this cycle is not a consciences process. These experiences can facilitate informal learning. Experiences can include reading a book, or an article and these types of experiences can lead to testing new concepts leading to new experiences.

ELT (experience, reflection/observation, concept formation, and application) can be used to understand how individuals develop a concept of PI before they enter school. High ratings of PI for first year SPTA students supports previous writing reporting PI formation begins before entering professional school as the individual has experiences in the field (Holden et al., 2012; Sharpless et al., 2015; Wald, 2015). While experiences were discussed by the participants, there was also reflection involved as they recalled the events in their lives. Half of interviewees report knowledge of PTA for 20 years or more prior to beginning school. Seven of 12 reported personal experiences with PT prior to entering school and all interviewees completed observations in the field prior to course work.

Understanding the effects of experience can help instructors and administrators of PTA programs understand how the first-year student incorporates past experiences and school experiences and how their PI is constantly changing. ELT can be used to understand how the novice PTAs PI may grow and strengthen through experiences as they develop new concepts integrating their self-concept with their PI and as their PI increases through finding areas of specialty. ELT can even be used to understand the potential dramatic shifts in PI between interviewees filling out the interview questionnaire and participating in the interview several months later. It is possible these individuals have experiences, develop new concepts and alter their PI, try it out and alter it again. It is also possible to incorporate observations as a part of what they use to develop PI. The experiential learning model allows for PI to be fluid and change. It allows multiple forces, those theorized and those not, to have an impact on PI development. It allows for those interviewed to have a PI without having a definition of PI.

ELT can apply to formal, informal and non-formal learning situations. It does not require a classroom or a teacher or textbook. Students and PTAs experience all types of learning and all can impact PI.

Practice Implications and Recommendations

The fluidity of PI and the fact it can be affected by so many different forces informs academics and mentoring. The power of experiences needs to be explored. Because students have such varied backgrounds and experience or lack of experience with the field of PT, it may be appropriate to explore beliefs brought by the individual very early in the process. This could vary from formal education to informal discussion. PI is such a large part of who an individual is at work, it may be appropriate to discuss professional identity to plan activities or even as part of a job interview.

From this research, PTA programs should consider formalizing education on PI, what it is, and the different aspects of PI development. It would benefit learners if educators would define PI and discuss how being a PTA or health care professional is more than behavior but thinking and acting like the professional. It is not enough to present a code of ethics; the educator needs to provide examples of situations of how the code may be applied in a specific situation. For instance, providing a situation where the learner must identify questionable behavior and have the student explain how the situation is related to the code or have the student watch for examples of questionable practice while working in the clinic and write reflections about why it is questionable behavior and how they might react in a similar circumstance.

Due to the longitudinal aspect of PI development, it would be appropriate to revisit these concepts throughout the learning process and into practice. Assessing the status of an individual's PI in various points of an educational process through surveys, reflections, or essays

may provide educators and mentors more information about the forces influencing the individual's PI.

While SPTAs and PTAs had similar ideas about good and bad, the warnings of Crigger and Godfrey (2014) must be heeded. The learner, especially the new learner, may not recognize when an experience is bad or when a role model is modelling inappropriate behavior. There is danger in informal and non-formal learning and the learner needs to know not all behavior seen in the school or clinic is appropriate. This research suggests learners believe they recognize bad examples. However, instructors and administrators of PTA programs should incorporate this aspect into their formal curriculum.

Patient empowerment, partnering and respecting individuality were the factors with the highest PI ratings. Educators should consider incorporating patient activities pertaining to building this understanding or thought processes into their education emphasizing the patient as an individual; the PTA as coach rather than "healer", or partner rather than magician.

In research on skills acquisition, Benner et al. (2005) concluded "At the heart of good clinical judgment and clinical wisdom lies experiential learning from particular cases" (Benner et al., 2005, p. 189). This research supports this assertion and would suggest case studies would be appropriate to aid in PI development. A case study not just on what treatment would be rendered, but also insight into how decisions are made, the effects of behavior, ethics and other forces which impact decision making.

This research suggests SPTAs and PTAs do not believe society and possibly even their supervising PTs understand their role. Preparing SPTAs for this potentiality is appropriate. The PTA/PT relationship is inextricably close, the relationship is legally bound by the need for the PTA to be supervised by the PT. This research showed the perception of practicing PTAs is the

PT often does not understand the educational background or scope of practice of the PTA complicating this important relationship. It is incumbent upon educators, supervisors and mentors, especially PTs to understand and educate PTs about the scope of practice, education and role of the PTA. Interprofessional education at the school or practice level to address the PTA/PT role is also recommended.

Recommendations for Future Research

Because PI has received limited attention in research and the PTA even less there are multiple areas appropriate for future research:

A. This research found SPTAs have relatively high ratings of PI even in their first-year of school, which complemented the findings by Adams et al. (2006) where PT students showed higher PI than other health care fields including doctors and nurses. However, neither explored why. Further research should continue to investigate SPTA's PI development and expand on why the PI is high for first-year students.
B. The item "Based on my level of experience with the physical therapy profession I have begun developing specialization within the field" in the mPIVS was on average rated higher for experienced PTAs than novice PTAs and contributed to overall higher ratings of PI. Further research should investigate the connection between having a specialization, job satisfaction and PI.
C. This research focused on students and practicing PTAs. Further research should explore educators, supervisors and mentors to better understand their beliefs about their roles in PI development and the forces they believe impact PI formation.
D. This research reported the forces impacting PI often began with role models and experiences which were more general, either outside of health care or from health care in

general for students to PT specific experiences with the practicing PTA as the participants moved through the continuum from student to experienced PTA. Additionally, the literature indicates there is a concern with students entering the clinic early in their studies, before they have had ample opportunity to develop an appropriate PI (Holden et al., 2015; Wald, 2015; Wood, 2001). A study assessing PI development in programs where first clinical experience begins earlier vs. later in the educational process would be informative into PI development. That is, looking at whether early entry into the clinical setting helps the individual develop an appropriate PI or potentially impedes the development of PI.

E. This research could not use the same instrument to evaluate the PI development of both students and practicing PTAs. Because two separate surveys were required to assess the strength of PI for the SPTA and PTA a direct comparison of PI strength between SPTAs and PTAs was not possible. For instance, the strength of PI between the second-year SPTA and the novice PTA could not be compared quantitatively so it could not be determined if there was an increase, decrease or no change in PI levels as the student moves into practice. The ability to compare levels of PI as the student moves into practice would be very informative. To truly understand the development and growth of PI from the cursory knowledge of the new student to the experienced PTA a single scale which could be administered to both students and practicing clinicians would be beneficial. Future research to develop and validate a single survey instrument to assess PI in both the student and clinician would allow more direct comparison of the two groups and would provide more in-depth information on the transition from school to the workforce.

F. This research suggests societal perception is a force impacting PI development. This research found SPTAs and PTAs believe society in general does not understand the role of the PTA. Additional research should be conducted into the potential impact of believing society does not understand the PTA's role in the health care system.

G. Several of the participants in this research indicated frustration with student PTs and PTs in the field have limited understanding of the scope of practice and knowledge possessed by the PTA. This potential lack of understanding of the PTAs ability by someone supervising them is an area for potential conflict and frustration for both parties. Further research into the actual understanding of the PTAs role by the PT would be beneficial to both the PTA, the PT and the PTA/PT relationship. Further research into the PTA/PT relationship and its impact on PI of both individuals and patient success would be beneficial for educating both professions.

H. As noted above one potential explanation for the overall high rating of PI for SPTAs was related to the intention of the PIFFS, in creating the PIFFS. One of the stated reasons for its creation was to create a general tool which could assess PI of students with a wide range of interests (Tan et al., 2017). Tan et al. (2017) noted there are a variety of tools to measure PI which are profession specific, but stated there is not a valid tool useful with multiple different fields. The population researched here is somewhat unique in that the students have selected a career and gained admittance to a selective admission program. Research using this tool with multiple selective admissions career programs would be beneficial.

I. As discussed above, a concern voiced by several authors in not addressing PI formally in education is the student may unknowingly pick inappropriate role models to emulate, not

knowing their behavior is inappropriate or unethical (Crigger & Godfrey, 2014; Plack, 2006; Wald, 2015). Those interviewed in this research discussed a variety of ways they determine what good and bad examples are, including personal moral codes and experiences with clinicians they believed to make questionable decisions. What was not explored in depth was how individuals know these are bad examples or if they recognize all examples of inappropriate behavior, this warrants additional research.

J. There is concern voiced in the community surrounding unstructured PI development, especially when the student is exposed to inappropriate professional behavior which may not be recognized as such (Crigger & Godfrey, 2014; Plack, 2006; Wald, 2015). However, the qualitative research participants expressed confidence in the ability to recognize characteristics of good and bad PTAs. More research is needed to explore the veracity of their beliefs. It would be appropriate to research whether students can correctly identify inappropriate behavior and if so, how do they know.

K. Holden et al. (2015) argued professional identity includes many less tangible skills, for instance cultural competence, resilience, empathetic labor, reflection, humanism and others values and beliefs specific to a profession. While this research argued reflection as part of experiential contributes to PI and showed examples of resilience research in these less tangible skills would add insight into the PI development in many health care careers.

Closing Remarks

The research demonstrated the forces impacting PI development are varied. Each individual's unique experiences cause them to begin and end at different levels of PI and no two people will draw the same conclusions or have the same professional identity from their

experiences. This research also contributes to the body of literature on professional identity development in the physical therapist assistant. It supports research suggesting PI begins prior to beginning school and continues throughout the individual's career.

Despite differences in PI, communalities were seen in the forces impacting PI development. The influence of role models both inside and outside the field of physical therapy influence PI development in both students and clinicians. This suggests the importance of modeling appropriate behavior by educators and senior clinicians. The impact of role models also supports the creation of formal mentoring programs for students and novice clinicians. A mentoring program would allow for discussion day to day issues, ethics, and the processing of experiences both good and bad which may impact PI.

Additionally, the overarching influence of experiences on PI development is pivotal. This research supports the idea PI comes from experience which is evaluated by the individual creating new ideas and concepts to be tested. The experiential nature of PI development suggests clinical work, interprofessional, and intraprofessional education early in the educational process can positively impact PI development if appropriately guided, rather than waiting an indeterminant time to allow PI to sufficiently develop before introducing these activities.

This research also supports the idea there should be more formal education surrounding PI instead of focusing on professionalism, because professional identity impacts all aspects of our professional life. It is incumbent upon educators to not only educate future clinicians in how to act but to also educate them on why clinicians should behave in a particular way. In an experiential learning model this may include reviewing ethical scenarios, journaling, and other reflective activities.

The greatest difference in PI development between the student and the professional PTA is not a particular force but breadth of experience. It is important to recognize each individual will have significantly different experiences prior to school, in school, and in the clinic. The most important thing for the conscientious individual to do is to recognize the potential impact of experience, to question outcomes, to seek input, and to consciously evaluate experiences for the impact on their identity.

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Appendix A - Interview Enrollment Questionnaire

Terms of participation: I understand this project is research, and that my participation is voluntary. I also understand that if I decide to participate in this study, I may withdraw my consent at any time, and stop participating at any time without explanation, penalty, or loss of benefits, or academic standing to which I may otherwise be entitled. I verify that by clicking "Yes" (below) that I indicate I have read and understand this consent form, and willingly agree to participate in this study under the terms described. If you choose to not participate, please click "No" and you will exit the survey.

- ○ Yes, I chose to participate in this research (1)
- ○ No, I chose to not participate in this research (2)

Skip To: End of Survey If Terms of participation: I understand this project is research, and that my participation is volun... = No, I chose to not participate in this research

Q2 Please move the slider to indicate how strongly you identify as a PTA. From 0 "not at all" to 10 very strongly

	0 1 2 3 4 5 6 7 8 9 10
Click to write Choice 1 ()	

Q3 My Current educational or work status is:

- ○ First year SPTA (1)
- ○ Second year SPTA (2)
- ○ PTA with less than 3 years experience (3)
- ○ PTA with 3 or more years of experience (4)

Q4 Please provide your preferred contact method by providing an email address or phone number.

_____

_____

_____

_____

_____

Appendix B - The Professional Identity Five-Factor Scale with Modifications

Key: Questions 28 and 29 are new information for this survey. The first 26 items are rated on a five-point Likert scale with 1: *Never True*, 2*: Not Really True*, 3: *Neutral*, 4: *Somewhat True* and 5: *Definitely True*" (Tan et al., 2017, p. 1511).

Table B.1.

PIFFS with Changes to mPIFFS

PIFFS	mPIFFS
I am already pretty sure what kind of profession I will enter after completing my education.	I am already pretty sure what field of physical therapy I will enter after completing my education
I am not sure about the kind of challenges faced by the professional in the industry I will work.	I am not sure about the kind of challenges faced by the profession of physical therapy
I have no doubt that I will master all the skills necessary to succeed in my future work.	No change
I'm confident that I can do an excellent job in the future.	No change
I believe I will get along with my future colleagues, get their cooperation, and have informal conversations with them.	No change
I feel poorly prepared for a real job.	No change
I am sure I will have no problems dressing and behaving professionally in my industry.	I am sure I will have no problems dressing and behaving professionally as a PTA
I admire professionals who are already working in my future work environment.	No change

I admire most those teachers who are professionals in the area that I would like to enter.	No change
I believe I can already think and reason like a professional in a company or organization.	No change
I know the nature of the work I will do in my future profession.	I know the nature of the work I will do in my future as a PTA
In most work environments, professionals with different backgrounds work together. I know of the different types of professionals I will be collaborating with.	No change
I have a good idea about the roles and responsibilities of my future job.	No change
I know what kind of applications, tools and equipment I will handle in my future occupation.	I know what kind of applications, tools and equipment I will handle in my future as a PTA
I am aware of the impact of the decisions I make as a professional in the industry.	No change
I have a good idea about the rules and regulations in the industry.	No change
I work part-time in a business related to what I am studying.	I work part-time in physical therapy while I am studying
I am part of an interest group (inside or outside of school) related to my profession.	No change
I know personally some people who work in my future profession.	No change
I follow developments in my future industry in newspapers and on television.	I follow developments in health care in the media, for instance online or on television

Before I entered college, I already had some prior work experience related to the profession of my choice.	Before I entered college, I already had some prior work experience related to physical therapy
I have interacted with professionals in the industry outside of college or through events organized in the college.	No change
When working on problems in class, I imagine myself to be in the shoes of a professional in my future work environment.	No change
I concentrate in my studies on what I believe I would need to know and be able to do when I enter my future occupation.	No change
I believe I can already think and reason like a professional in a company or organization.	No change
Do you already know what kind of work or profession you prefer (Y/N)	Do you already know what kind of work in the profession you prefer? (Y/N)
What semester of school are you currently in? 1 ☐ 2 ☐ 3 ☐ 4 ☐	New item
Physical Therapy will be a second career for me ☐ Yes ☐ No	New item

Appendix C - The Professional Identity and Values Scale with Modifications

Key: The left column shows the original item, while the left shows modifications to the professional identity values scale. Item 20 is a new item not on the professional identity values scale.

The PIVS includes a 6-point Likert-type rating for each item, 1: Strongly Disagree, 2: Disagree, 3: Disagree Somewhat, 4: Agree Somewhat, 5: Agree and 6: Strongly Agree (Eason et al., 2018; Healey, 2009).

Table C.1.

PIVS with Changes to mPIVS

PIVS	mPIVS
At this stage in my career, I have developed a professional approach that is congruent with my personal way of being.	No change
I have developed a clear role for myself with the athletic training profession that I think is congruent with my individuality.	I have developed a clear role for myself with the physical therapy profession that I think is congruent with my individuality.
I feel comfortable with my level of professional experience.	No change
I feel confident in my role as an athletic training professional	I feel confident in my role as a professional physical therapist assistant.
Based on my level of experience within the athletic training profession, I have begun developing specialization within the field.	Based on my level of experience within the physical therapy profession, I have begun developing specialization within the field.
I have developed personal indicators for gauging my own professional success.	No change

I always gauge my professional competence based on both internal criteria and external evaluation.	No change
In making professional decisions, I balance my internal professional values and the expectations of others.	No change
Feedback from my supervisors and experts serve as the primary means by which I gauge my professional competence.	No change
Assisting athletes in advocating for their needs is an important component of one's role as an athletic trainer.	Assisting patients in advocating for their needs is an important component of one's role as a physical therapist assistant.
Athlete empowerment is a fundamental component of one's role as an athletic trainer.	Patient empowerment is a fundamental component of one's role as a physical therapist assistant.
Therapeutic interventions should be flexible with regard to an athlete's presenting concerns.	Therapeutic interventions should be flexible with regard to a patient's presenting concerns.
Building strong professional relationships with other athletic trainers is important to me.	Building strong professional relationships with other physical therapy professionals is important to me.
It is important for athletic trainers to be involved in promoting the athletic training profession.	It is important for physical therapist assistants to be involved in promoting the physical therapy profession.
My work as an athletic trainer is fundamentally connected to my personal spirituality.	My work as a physical therapist assistant is fundamentally connected to my personal spirituality.
Athletic trainers work best when professional expectations match personal values.	Physical therapist assistants work best when professional expectations match personal values.
I understand theoretical concepts, but I am unsure how to apply them	No change
I am still in the process of determining my professional approach	No change

I am unsure about who I am as an athletic trainer	I am unsure about who I am as a physical therapist assistant
Physical Therapy is a second career for me ☐ Yes ☐ No	New item

Appendix D - Interview Questions

1. How long have you been aware of PT as a profession? PTA?
2. How did you become interested in Physical Therapy?
3. Why did you decide to pursue this care? That is, what attracted you to PT.
4. Did you consider any other profession(s) or was this your first choice?
5. Did you consider becoming a DPT? (if "yes" ask 3a-3d)
    a. How did you come to PTA?
    b. Do you consider this a step back?
6. Has the recent issues with Corona Virus impacted your thoughts on entering the field?
7. What are some words you would use to define yourself? i.e. mother, child, runner, ….
8. If someone approached you at a party and asked you what you do what do you tell them?
    a. If they don't know what a PTA is, what do you tell them?
9. Merriam Webster comes to you and says, "We need you to define Physical Therapy for us for our next dictionary", what do you tell them?
10. What does it mean to be a (S)Physical Therapist Assistant? How do you know this?
11. Have you noticed a change in what you see as the role of the PTA from when you first chose the field and now?
12. What are some characteristics of a "good" PTA? How do you know this?
13. What are some characteristics of a "bad" PTA? How do you know this?
14. Can you give me some examples of what or who has influenced your ability to think and act like a PTA?
15. Who are your role models?

16. We are all familiar with the pain scale, 0-10. If I asked you to rate how strongly you identify as a PTA on a 0-10 scale, what number would you give yourself?
17. Tell me about an experience that has confirmed your choice to become a PTA.
18. Has there been a time when you felt unqualified to be a PTA? Can you tell me about that?
19. How do you think society sees the PTA?
20. What is the role of the PTA on the treatment team?
21. What is the relationship between the patient and the PTA?
22. What is the relationship between the PT and PTA?
23. How important is PT for successful patient outcomes?
24. Are you or have you ever been a member of the APTA, why or why not?
25. What is the relationship between PTA and RN or PTA and MD?
26. Tell me about a time when you really felt like a PTA.
27. Can you Tell me about a time when you questioned your decision to become a PTA?
28. Prior to the survey and this interview had you ever heard the phrase, "professional identity"?
29. Can you define professional identity in your own words?
30. What do you believe the future of PTA is?
31. How strong do you think your PI is? Or how strongly do you identify with PT as a profession
32. Tell me about your most memorable patient.
33. How different is PTA from what you expected when you entered school?
34. Tell me about your most memorable time in PTA school.
35. If you heard someone was going to go to PTA school, what advice would you give them?

36. Can you think of any questions I should have asked that I did not?

37. Is there anything else you would like to say about PI?

38. What didn’t I ask you, that I should have?

Appendix E - Statement of Participation for Online Surveys

Informed Consent - Survey

Development of professional identity in the physical therapist assistant

PROJECT APPROVAL DATE/ EXPIRATION DATE: 02/18/2020 – 02/23/2020

LENGTH OF STUDY: Approximately six months.

PRINCIPAL INVESTIGATOR: Royce Ann Collins, Ph.D., Associate Professor, Adult Learning and Leadership, Educational Leadership Department

CO-INVESTIGATOR(S): Randall Leighton, doctoral student
CONTACT NAME AND PHONE FOR ANY PROBLEMS/QUESTIONS: Dr. Royce Ann Collins, (913) 307-7353

IRB CHAIR CONTACT INFORMATION: If you have any questions regarding consent to participate in this research feel free to contact one of the following Kansas State University Institutional Review Board Members:

Rick Scheidt, Chair, Committee on Research Involving Human Subjects, 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506, (785) 532-3224; Cheryl Doerr, Associate Vice President for Research Compliance, 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506, (785) 532-3224

PURPOSE OF THE RESEARCH: The purpose of this research is to explore the development of professional identity in the current and future physical therapist assistant and the forces influencing its development throughout the professional journey from the classroom into practice.

PROCEDURES OR METHODS TO BE USED:

If you agree to participate in this research, you will complete a survey concerning professional identity. The survey should take you no longer than 10 minutes to complete. The survey will be conducted online through a program called "Qualtrics" where identifying information including IP addresses will be kept from the researcher. The survey does not ask questions that would allow the researcher to identify you.

RISKS OR DISCOMFORTS ANTICIPATED: There are no expected discomfort or risks related to this study. Participants may voluntarily withdraw from the survey at any time.

BENEFITS ANTICIPATED: A potential benefit is you may develop a greater understanding of the factors related to your own development of professional identity.

EXTENT OF CONFIDENTIALITY: The survey results are anonymous. Data downloaded by the researcher will be anonymous and secured on a password protected local hard drive. All electronic documents will be maintained in a password protected electronic format for 5 years after publication on a hard drive kept in a locked cabinet.

Terms of participation: I understand this project is research, and that my participation is voluntary. I also understand that if I decide to participate in this study, I may withdraw my consent at any time, and stop participating at any time without explanation, penalty, or loss of benefits, or academic standing to which I may otherwise be entitled.

I verify that by clicking "Yes" (below) that I indicate I have read and understand this consent form, and willingly agree to participate in this study under the terms described.

If you choose to not participate, please click "No" and you will exit the survey.

Confirmation of Status of PTA

Yes – I choose to participate in this research. – I verify that I am a currently licensed and practicing PTA. (1)

No – I decline participation in this survey. (2)

Confirmation of Status of PTA Student.

○ Yes – I choose to participate in this research. – I verify that I am a current student in a PTA program. (1)

○ No – I decline participation in this survey. (2)

Appendix F - Original Informed Consent

Development of professional identity in the physical therapist assistant

PROJECT APPROVAL DATE/ EXPIRATION DATE: 2-18-20/2-18-23

LENGTH OF STUDY: Participants are asked to participate in an interview that will take between 30 and 60 minutes, with follow up for the participant to review transcripts and conclusions drawn from the interviews. The participants participation will span approximately six weeks.

PRINCIPAL INVESTIGATOR: Royce Ann Collins, PhD

CO-INVESTIGATOR(S): Randall Leighton, doctoral student

CONTACT NAME AND PHONE FOR ANY PROBLEMS/QUESTIONS:

Principal Investigator:	Graduate Investigator:
Dr. Royce Ann Collins	Randall Leighton
(913) 307-7353	913-302-9052

IRB CHAIR CONTACT INFORMATION: If you have any questions regarding consent to participate in this research feel free to contact one of the following Kansas State University Institutional Review Board Members:

Rick Scheidt, Chair, Committee on Research Involving Human Subjects, 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506, (785) 532-3224

Cheryl Doerr, Associate Vice President for Research Compliance, 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506, (785) 532-3224.

PURPOSE OF THE RESEARCH: This is a research studies the development of professional identity in the current and future physical therapist assistant and the forces influencing its development throughout the professional journey from the classroom on into practice. It is important for health care workers to have appropriate professional identity to interact appropriately in the team and with the people we care for. By exploring snapshots of your individual journey to becoming a Physical Therapist Assistant (PTA) the research is intended to add to the body of knowledge on the development of professional identity. With this knowledge, the research will inform educators on the process and factors of professional identity development; potentially providing information for those designing the educational experience of the PTA to not only maximize growth but assist in determining when the student will benefit from experiential learning, interprofessional education, mentoring and other educational tools designed to help the learner gain professional identity.

PROCEDURES OR METHODS TO BE USED:

If you agree to participate in the interview process you will be given pseudonym and information you provide will not be presented in a way that your identity could be discovered. Interviews will be approximately one hour long, and cover information related to why you chose the field of physical therapy and factors that affected your identification as a physical therapist assistant or student physical therapist assistant. Follow up interviews may be completed to clarify information and to allow the participant to give feedback on conclusions drawn. We will complete the interviews in a location convenient to you, for instance your school or your work.

ALTERNATIVE PROCEDURES OR TREATMENTS, IF ANY, THAT MIGHT BE ADVANTAGEOUS TO SUBJECT: There are no alternative procedures or other participant groups associated with this study.

RISKS OR DISCOMFORTS ANTICIPATED: There is no anticipated risk or discomfort anticipated by individuals participating in this research.

BENEFITS ANTICIPATED: A potential benefit is you may develop a greater understanding of the factors related to your own development of professional identity. Awareness of these factors may inspire you to take an active role in mentoring the next generation of clinicians. This research has the potential to contribute to academic decisions on educational design to foster professional identity in students.

EXTENT OF CONFIDENTIALITY: The survey will be conducted online through a program called "Qualtrics" where identifying information including IP addresses will be kept from the researcher. The survey does not ask questions that would allow the researcher to identify you. Each interviewed participant will be assigned a pseudonym which will be used for all documents and reports, except personal correspondence with the participant. The school and any work locations will also be given pseudonyms to aid in confidentiality.

Each interview participant will have the opportunity to review transcripts to identify potentially sensitive data for exclusion. Printed copies of interview transcripts will be used for review purposes in the presence of the researcher with no copies leaving the possession of the researcher. Hard copies will be kept in a locked cabinet in the researchers locked office and shredded by a licensed confidential shredding company three years after the completion of the dissertation.

All electronic documents will be maintained in a password protected electronic format for 3 years after publication on a hard drive kept in a locked cabinet.

Terms of participation: I understand this project is research, and that my participation is voluntary. I also understand that if I decide to participate in this study, I may withdraw my consent at any time, and stop participating at any time without explanation, penalty, or loss of benefits, or academic standing to which I may otherwise be entitled.

I verify that my signature below indicates that I have read and understand this consent form, and willingly agree to participate in this study under the terms described, and that my signature acknowledges that I have received a signed and dated copy of this consent form.

PARTICIPANT NAME:			
PARTICIPANT SIGNATURE:		**DATE:**	
WITNESS TO SIGNATURE: (PROJECT STAFF)		**DATE:**	

Appendix G - Informed Consent Used for Video Conferencing

Development of professional identity in the physical therapist assistant

PROJECT APPROVAL DATE: 02/18/2020

EXPIRATION DATE: 02/18/2023

LENGTH OF STUDY: Approximately six months.

PRINCIPAL INVESTIGATOR: Royce Ann Collins, Ph.D., Associate Professor, Adult Learning and Leadership, Educational Leadership Department

CO-INVESTIGATOR(S): Randall Leighton, doctoral candidate

CONTACT NAME AND PHONE FOR ANY PROBLEMS/QUESTIONS: Dr. Royce Ann Collins, (913) 307-7353

IRB CHAIR CONTACT INFORMATION: If you have any questions regarding consent to participate in this research feel free to contact one of the following Kansas State University Institutional Review Board Members:

Rick Scheidt, Chair, Committee on Research Involving Human Subjects, 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506, (785) 532-3224; Cheryl Doerr, Associate Vice President for Research Compliance, 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506, (785) 532-3224

PURPOSE OF THE RESEARCH: The purpose of this research is to explore the development of professional identity in the current and future physical therapist assistant and the

forces influencing its development throughout the professional journey from the classroom into practice. By exploring snapshots of your journey to becoming a Physical Therapist Assistant (PTA), this research will add to the body of knowledge on development of professional identity. With this knowledge, this research will potentially inform educators on the process of professional identity development.

PROCEDURES OR METHODS TO BE USED:

If you agree to participate in this research, you will be asked to participate in an interview approximately one hour long. The interviews will be audio-recorded and held in a secure location by the researcher. If you prefer, we may schedule an interview remotely using password-protected Zoom link. The video file will be deleted, and the audio file retained for transcription purposes. You will be assigned a pseudonym and all identifying information will be removed. You will be provided the opportunity to review all interview transcripts for accuracy. Follow up interviews may be completed to clarify information and to allow you to give feedback. We will complete the interviews in a location convenient to you and to recording, for instance your school or your work.

RISKS OR DISCOMFORTS ANTICIPATED: There are no expected discomfort or risks related to this study. Participants may voluntarily withdraw from the study at any time. If you withdraw from the profession, then the researcher will need to withdraw you from the research.

BENEFITS ANTICIPATED: A potential benefit is you may develop a greater understanding of the factors related to your own development of professional identity. This research has the potential to contribute to academic decisions on educational design to foster professional identity in students.

EXTENT OF CONFIDENTIALITY:

Each interviewed participant will be assigned a pseudonym which will be used for all documents and reports, except personal correspondence with the participant. The school and any work locations will also be given pseudonyms to aid in confidentiality.

Each interview participant will have the opportunity to review transcripts to identify potentially sensitive data for exclusion. Printed copies of interview transcripts will be used for review purposes in the presence of the researcher with no copies leaving the possession of the researcher. If necessary, reviews can be handled over a password-protected Zoom link with the researcher sharing his screen to display the interview transcript. Hard copies will be kept in a locked cabinet in the researchers locked office and shredded by a licensed confidential shredding company three years after the completion of the dissertation.

The information that will be collected, as part of this research, will not be shared with any other investigators.

Each participant will have the opportunity to review the manuscript prior to publication if they desire.

All electronic documents will be maintained in a password protected electronic format for 5 years after publication of the dissertation on a hard drive kept in a secure locked cabinet.

Terms of participation: I understand this project is research, and that my participation is voluntary. I also understand that if I decide to participate in this study, I may withdraw my consent at any time, and stop participating at any time without explanation, penalty, or loss of benefits, or academic standing to which I may otherwise be entitled.

I verify that my signature below indicates that I have read and understand this consent form, and willingly agree to participate in this study under the terms described, and that my signature acknowledges that I have received a signed and dated copy of this consent form.

(Remember that it is a requirement for the P.I. to maintain a signed and dated copy of the same consent form signed and kept by the participant).

PARTICIPANT NAME:			
PARTICIPANT SIGNATURE:		**DATE:**	
WITNESS TO SIGNATURE: (PROJECT STAFF)		**DATE:**	

Appendix H - Email Sent to SPTAs

Dear Student PTA,

I am writing to ask you to participate in short survey that should take less than 3 minutes. I know you are busy so I will get right to the point. My name is Randy Leighton, I am a PT and a doctoral student at Kansas State University. I am studying the forces that impact SPTAs and PTAs development of their professional identity. With this research I hope to help instructors and employers better understand how they can intentionally help SPTAs and PTAs develop their professional identity. One of the current buzz phrases in health care right now is "evidenced based practice" this is an opportunity to participate in the gathering of evidence and potentially contribute to the profession.

If you chose to participate in the survey all the information you provide will be anonymous. No one will be able to link your information or answers to you or your IP address, this includes your instructors and me.

Because your answers will be anonymous neither your instructors or myself will know if you participate, so there is no requirement to participate or penalty for not participating.

By opening the survey and clicking on the "No, I do not want to participate in this research" button you will be removed from the survey pool and will not be sent reminders requesting participation.

CLICK TO ENTER SURVEY

By clicking on the "Survey" button you will be taken to the Qualtrics web site where you will complete a short survey. As part of the survey you will be asked if you would be willing to participate in a one on one interview about your development as a future PTA. This interview would take between 30 and 60 minutes at a location and time of your choosing. If you are willing to participate in this short interview you will be asked for some contact information that will not be associated with your survey in any way. After the surveys have been completed, I will contact you about potentially setting up an interview.

CLICK HERE IF YOU ARE WILLING TO BE INTERVIEWED

Thank you for considering contributing to the field of PT and to my educational goals.

Randy Leighton, PT
Kansas State University
RLeighton@k-state.edu

Appendix I - Email Sent to PTAs

Dear PTA,

I am writing to ask two favors, one to participate in short survey that should take less than 3 minutes. The second, to consider participating in a short face to face interview. I know you are busy so I will get right to the point. My name is Randy Leighton, I am a doctoral student, at Kansas State University. I am studying the forces that effect SPTA and PTAs development of professional identity. With this research I hope to help instructors and employers better understand how they can intentionally help SPTAs and PTAs develop their professional identity. One of the current buzz phrases in health care right now is "evidenced based practice" this is an opportunity to participate in the gathering of evidence and potentially contribute to the profession.

If you chose to participate in the survey all the information you provide will be anonymous. No one will be able to link your information or answers to you or your IP address, this includes employers and myself.

Because your answers will be anonymous no one will know if you participate, so there is no requirement to participate or penalty for not participating.

All data will be kept anonymous by using Qualtrics and any data downloaded by the researcher will be anonymous and secured on a password protected local hard drive.

CLICK HERE TO PARTICIPATE IN THE ONLINE SURVEY

By opening the survey and clicking on the "No, I would not like to participate in this research" button you will be removed from the survey pool and will not be sent reminders to participate.

Additionally, if you are willing to be interviewed, the interview will take between 30 and 60 minutes at a location and time of your choosing. If you are willing to participate in this short interview you will be asked for some contact information that will not be associated with your survey in any way. After the surveys have been completed, I will contact you about potentially setting up an interview.

CLICK HERE IF YOU ARE WILLING TO BE INTERVIEWED

This research is open to all practicing PTAs so please consider forwarding it to anyone you know that might be willing to participate.

Thank you for considering contributing to the field of PT and to my educational goals.

Randy Leighton, PT
Kansas State University
RLeighton@k-state.edu

Appendix J - Facebook Post

I am currently working on my doctorate at Kansas State University. I am studying the forces that influence the development of professional identity in PTAs. I am posting this to ask that you participate in a short survey (it should take less than 5 minutes) as part of my research. The survey is completely anonymous, there is no way for me to track who participates and who does not.

I am also asking for you to consider separately participating in an interview.

The interview will take between 30 and 60 minutes. After the survey data has been collected, I will contact you about the interview. We can arrange the interview around your schedule and at a location of your choosing.

This research is not limited to Penn Valley grads, so if you know a PTA that would be willing to participate in either the survey or interview, please tag them with the link.

Thank you so much for considering participating in this research.

Please click this link to take the survey

https://kstate.qualtrics.com/jfe/form/SV_3UbbAJzWnYjSn3f

and this one to participate in the interview or IM me.

https://kstate.qualtrics.com/jfe/form/SV_3mlKPRaJBt4K4Zv

Randy