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FACTORS AND EXPERIENCES THAT INFLUENCE PHYSICAL THERAPY STUDENTS' CONSIDERATIONS TO PRACTICE PEDIATRIC PHYSICAL THERAPY

by

Amy Joleen Elbert
Bachelor of Science in Physical Therapy, University of North Dakota, 1976
Master of Science, Educational Leadership, University of North Dakota, 2004
Doctor of Physical Therapy, University of South Dakota, 2015

A Dissertation

Submitted to the Graduate Faculty

of the

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for the degree of

Doctor of Philosophy

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2019

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This dissertation, submitted by Amy Joleen Elbert in partial fulfillment of the requirements for the Degree of Doctor of Philosophy from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done and is hereby approved.

Dr. Myrna Olson, Chair

Dr. Kari Chiasson

Dr. Steven LeMire

Dr. Cindy Flom-Meland

This dissertation is being submitted by the appointed advisory committee as having met all of the requirements of the School of Graduate Studies at the University of North Dakota and is hereby approved.

Dr. Chris Nelson, Associate Dean
School of Graduate Studies

4/25/19
Date

PERMISSION

Title	Factors and Experiences That Influence Physical Therapy Students' Considerations to Practice Pediatric Physical Therapy
Department	Teaching and Learning: Higher Education
Degree	Doctor of Philosophy

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Amy Joleen Elbert
May 1, 2019

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ABSTRACT

The purpose of this quantitative non-experimental research study was to explore the difference that life experiences, educational experiences, and clinical experiences made on physical therapy students' considerations to practice pediatrics. There has been a lack of research regarding how different experiences with children integrated into the curriculum in pediatric physical therapy education positively influences students' interests and considerations to practice pediatrics. This research study investigated the problem using the framework of adult learning theory and experiential learning. Physical therapy students from three Upper Midwestern physical therapy programs (Years 1 through 3) voluntarily participated in this survey research.

A survey was developed to assess which experiences positively influenced students' considerations to practice pediatrics after graduation from college. Results from respondents who were considering pediatrics indicated they had completed an observation with children with functional, activity, and participation limitations. Most respondents indicated they had an interest in pediatrics in Year 1. There was a significant difference found between life experiences, educational experiences, and clinical experiences of students who considered practicing pediatrics and those who were not considering practicing pediatrics. Implications from this study are that positive life experiences, educational experiences, and clinical experiences with children strongly influenced student respondents' considerations to practice pediatrics. Integration of these experiences earlier and throughout a physical therapy program can positively influence students' considerations to practice pediatrics.

Keywords: pediatric physical therapy, life experiences, educational experiences, clinical experiences

CHAPTER I

BACKGROUND

Introduction

The American Physical Therapy Association (APTA) formally acknowledged pediatrics as a specialty in 1973 by forming the *Section on Pediatrics* (Schreiber, 2014, p. 2). The Section on Pediatrics was incorporated in 1974 (T. St John, personal communication, March 26, 2019). The APTA Section on Pediatrics became the Academy of Pediatric Physical Therapy (APPT) in 2016 (T. St John, personal communication, March 26, 2019). "Pediatric physical therapists (PTs) work with children and their families to assist each child in reaching their maximum potential to function independently and to promote active participation in home, school, and community environments" (Rapport, Chiarello, & Jeffries, 2019, p. 1).

Using data from the National Health Interview Survey (NHIS), Zablotsky, Black, and Blumberg (2017) found the prevalence of children aged 3-17 years old "ever diagnosed with any developmental disability significantly increased, from 5.76% in 2014 to 6.99% in 2016" (p. 2). Kenyon, Anderson, and Frost (2017) projected a shortage of 25,000 to 46,000 PTs by 2020. These numbers do not specifically list the number of pediatric physical therapists who will be needed by 2020 (Kenyon et al., 2017; Landry et al., 2016). In 2013, the APTA did a survey on demographics of their members (Commission on Accreditation in Physical Therapy Education [CAPTE], 2015; Kenyon et al., 2017). This survey detailed that 3.8% of those surveyed practiced in a school system. PT shortages in the school system alone were calculated to be about 1000 in

number by 2020 (Kenyon et al., 2017). These statistics emphasize a need to have physical therapy graduates consider practicing pediatrics after graduation to fulfill the needs of the workforce and society.

How do students become interested in pediatrics during their physical therapy education and consider practicing pediatrics after graduation? This quantitative study researched factors and experiences that led physical therapy students in three midwestern physical therapy programs to consider practicing pediatrics. It explored whether there is a difference between physical therapy students who consider working in pediatrics and those who do not with regards to the influences of their experiences with children. This study will add to evidence found in the literature regarding implementation of experiential learning concepts and adult learning theories into physical therapy pediatric education.

Need for the Study

Growth in the profession of pediatric physical therapy has occurred partially related to federal law enactments to ensure children receive necessary services related to the children participating in activities within their homes, schools, and communities (Kenyon et al., 2017). In 1975, The Education for All Handicapped Children Act, Public Law 94-142, was passed by the United States Congress. This act mandated that all children with disabilities from ages 6 to 21 were entitled and guaranteed a "free appropriate public education" (Education for All Handicapped Children Act of 1975, Section 4(4), para. 3) in a least restrictive environment (Effgen & Kaminker, 2012; Office for Civil Rights, 2013; Thomason & Wilmarth, 2015). In 1986, the law was re-authorized as Public Law 99-457, the Education of the Handicapped Act Amendments of 1986. The law was amended to extend services to infants, toddlers, and preschoolers with disabilities and to their families (Effgen & Kaminker, 2012).

In 1991, Public Law 94-142 and Public Law 99-457 became Public Law 102-119 and was named the Individuals with Disabilities Education Act Amendments of 1991 (IDEA) (Effgen & Kaminker, 2012). Improvements continued with amendments in 2004 creating Public Law 108-446 (Individuals With Disabilities Education Improvement Act, 2004). Part A of IDEA dealt with defining disability and expanded what educational goals could be considered relevant; Part B described the rights of children ages 3-21 to a free appropriate public education; and Part C covered services to infants and toddlers (Effgen & Kaminker, 2012; Pub. 1, 2012). The result of these federal laws has been an increased number of children, ages 0-21, who are legally entitled to have services in their natural environments. The law also included services to assist the transition of adolescents and young adults with disabilities into independent living environments and the workplace (Office for Civil Rights, 2013; Thomason & Wilmarth, 2015).

Section 504 of the Rehabilitation Act of 1973 (Public Law 93-112) ensured schools who received federal funding provided equal opportunities to people with disabilities (Effgen & Kaminker, 2012). In 1996, the law broadened students' eligibility for related services, including physical therapy. The Rehabilitation Act has been found to cover only 1.2% of public-school children who do not require special education services under IDEA (Effgen & Kaminker, 2012). Interpretation of Section 504 varies among states and even school districts within a state. In some school districts, students under Section 504 may receive physical therapy services and in others they may not (Effgen & Kaminker, 2012). In 1990, the Americans with Disabilities Act (ADA), Public Law 101-336, became law. This law has aided children's accessibility to transportation, childcare centers, schools, and work environments (Effgen & Kaminker, 2012).

The International Classification of Functioning and Health model (ICF), created by the World Health Organization (WHO), described the role of a physical therapist, who as a team

member works with clients with functional, activity, and participation limitations (WHO, 2001). Physical therapists have opportunities for employment in early intervention programs, schools, hospitals, rehabilitation centers, and outpatient clinics, where they work with children of all ages at various stages of their lives. Pediatric physical therapists work with families, caregivers, teachers, and community members to provide consultation and interventions for children 0-21 years old in all environments where they live, attend school, work, and recreate. Physical therapy graduates are needed to meet the needs of children as dictated through public law (Kenyon et al., 2017). How do physical therapy students perceive pediatrics as a career specialty or consider practicing pediatrics to meet this need?

Studies are limited regarding physical therapy students' perceptions of pediatrics as a career specialty, yet several comparable studies have been done. One research study (Akram, Malik, Siddiqi, & Amjad, 2013) found Pakistan physical therapy students rated their career interests higher in academics compared to clinical practice. They found gender differences in the choices of specialty interests also. Most males were interested in musculoskeletal and sports medicine. Females selected neuromuscular rehabilitation as their first choice. They found personal interest (66%) and an individual's social issues (8%) were the most influential factors in a student's choice of specialty.

Canadian physiotherapy students were surveyed regarding their career choices and professional preferences in a study by Öhman, Solomon, and Finch (2002). Several questions explored in Öhman et al.'s study were compared to Akram et al.'s (2013) study. Do students have preferences as to the type of healthcare setting they prefer and clients they wish to serve? Are there differences between female and male students in their career choices and preferences? The Öhman et al. study was conducted with a cohort of students in 1997 and again in 1999.

Results showed preferences of students for working with adult patients was 37.5% in 1997 and the same (37.5%) in 1999. A caseload of "various age groups" was also rated highly, 40% in 1999 compared to 32.5% in 1997. Children as preferred clients decreased during the program from 22.5% in 1997 to 12.5% in 1999 (Öhman et al., 2002). There was no significant statistical difference between genders.

Reeve, Skinner, Lee, Wilson, and Alison (2012) completed an investigative research study on factors that influence opinions of physical therapy students in New Zealand and Australia on cardiorespiratory physical therapy as a career specialty. They found that variety and timing of clinical education experience, as well as educational and clinical supervision received, were key factors that influenced students' negative or positive opinions about the specialty of cardiorespiratory physical therapy (Reeve et al., 2012).

A study conducted in May of 1996 by Warriner and Walker researched factors that affect job selections of physical therapy graduates. Warriner and Walker reported, in their secondary findings, that 15 of their 40 respondents preferred pediatrics be included within their clinical educational experiences (Warriner & Walker, 1996). Buchanan, Noonan, and O'Brien (1994) surveyed 216 students from 19 physical therapy programs in the United States and reported the factors that ranked highest in job selection included location, salary, and clientele.

A more recent study by Golub-Victor and Dumas (2015) researched PT graduates' perceptions of an early intervention training program in higher education. Golub-Victor and Dumas concluded that this certification course had a positive influence on graduates' employment and preparation for a career in Early Intervention (EI). They also felt that their research provided more information for national discussion regarding program outcomes,

pediatric physical therapy curricula, practice in EI after graduation, and entry-level versus advanced practice in physical therapy higher education (Golub-Victor & Dumas, 2015).

Several research studies have been conducted on physical therapy students' perceptions, attitudes, and opinions regarding people with disabilities (Yorke, Ruediger, & Voltenburg, 2017), professional roles (Fincher Corb, Pinkston, Harden, O'Sullivan, & Fecteau, 1987), career choice (Öhman et al., 2002), community engagement (Furze, Black, Peck, & Jensen, 2011), geriatrics (Reneker, Weems, & Scaia, 2016) and cardiorespiratory physical therapy (Reeve et al., 2012). Recent studies have been done on academic and clinical educators' perspectives on how, what, when, and where content should be taught in physical therapy programs regarding pediatrics (Birkmeier, Plack, Wentzell, & Maring, 2017; Chapman & Sellheim, 2017; Kenyon et al., 2017; Kenyon, Dole, & Kelly, 2013; Martin, Van Veld, & Kindred, 2017; Schreiber et al., 2011; Schreiber et al., 2015; Tovin, Fernandez-Fernandez, & Smith, 2017). There is less literature available on students' perspectives on how, what, when, and where content on pediatrics should be taught in physical therapy curricula to prepare them for practicing pediatrics. When and how much clinical experience is needed so students feel confident practicing pediatrics? What perceptions do students develop about pediatrics during their educational careers, and what factors and experiences influence their considerations to practice pediatric physical therapy after graduation? There was need for this study to search the literature and survey students regarding these questions in order to interest more students in practicing pediatrics. Research evidence of experiential learning provides educators with a framework to increase knowledge, skill, ability, and interest in pediatrics for all physical therapy students.

Statement of the Problem

It is important for physical therapy students to have experiences with clients of all ages in order to reach the goal of becoming an entry level physical therapist upon graduation from an accredited physical therapy program (APTA, Section on Pediatrics, 2008). This need includes experiential learning during their lifespan courses in order to demonstrate knowledge, skills, and abilities needed to work with children. Adult learning theory tells us the concept of experience together with reflection and guidance increases students' awareness and confidence in their pediatric knowledge, skills, and abilities (Merriam & Bierema, 2014). However, research literature indicates that there are variances in timing, content, and experiences physical therapy students have with children who are integrated into a physical therapy program's curriculum (Schreiber et al., 2011). Students may not have exposure to experiences with children during their physical therapy programs of study. This lack of experience can influence a student's interest in pursuing further elective courses or clinical experiences in pediatrics during their education. One problem is a lack of research regarding whether experiences integrated into a curriculum in pediatric physical therapy education influences students' interests in practicing pediatrics.

There is also limited research about students' perspectives on the influence of experiences with children when they consider practicing pediatrics. Questions unanswered in research literature include:

1. Are observational experiences of children beneficial to increasing a student's interest in practicing pediatrics?

2. When should pediatric content and educational experiences with children occur in curricula of physical therapy programs to increase student interest in practicing pediatrics?
3. Do educational experiences with children positively influence students' practice decisions?

Therefore, it is important to survey students to determine what factors and experiences they feel are influential and make a difference in their considerations to practice pediatric physical therapy. If more students could be prepared to enter pediatrics practice through their educational experiences and clinical experiences, there may be more graduate physical therapists who would consider practicing pediatrics. These graduates, through their physical therapy practices, could meet current and future needs of children and families in their homes, schools, and communities.

Statement of the Purpose

The purpose of this study was to explore whether the subconstructs of *life experiences*, *educational experiences*, and *clinical experiences* make a difference in physical therapy students' considerations to practice pediatrics after graduation. Life experiences are individual and are not able to be provided or evaluated by an educational program. However, educational experiences and clinical experiences are part of pediatric curricula in physical therapy programs. What educational experiences and clinical experiences in physical therapy curricula positively influence students' considerations to practice pediatrics? This study explored factors related to demographics, personality traits, mentors, life experiences, and year in an educational program that can make a difference on students' considerations to practice pediatrics.

Study Rationale

Research on students' perceptions about their experiences with children is needed to improve the ability of educators to provide a curriculum that makes a difference in a student's consideration to practice pediatrics and fill the need for more pediatric physical therapists. A critical need is to have a larger number of students to first consider, then enter the field of pediatric physical therapy (Kenyon et al., 2017). Research studies at the time of this report on perceptions of physical therapy students regarding pediatric education indicate that students' career choices are often influenced by their experiences observing, volunteering, and working with children. Students reported in one research study (Reeve et al., 2012) and in a qualitative pilot study (Elbert, 2018) that the variety and timing of clinical education experiences, as well as educational and clinical supervision students received, were key factors that influenced their perceptions about practicing a specialty. Therefore, there is a need to research what experiences make a difference in students' considerations to practice pediatric physical therapy. There is also a need to determine when in their educational program student experiences make the most difference in students' considerations to practice pediatrics. Educators can then determine if experiences should be introduced into a curriculum in the first, second, or third year of students' education. Alternatively, should integration of a pediatric curriculum start in the first year and continue throughout the next two years?

The goal of this research study was to gather evidence related to which experiences make a difference on students' decisions to practice pediatrics full time or even consider incorporating pediatrics into their general practice. The theoretical framework is based on adult learning theories, social cognitive theory, and experiential learning, utilizing the construct of experience.

Three subconstructs of experience that were researched include life experiences, educational experiences, and clinical experiences (where a student might work with children).

Students enter a physical therapy program with previous life experiences related to family, observation, volunteer, and employment experiences with children. Some students may have had a family member with a disability, observed a pediatric physical therapy session, volunteered as a coach or camp counselor, or been employed in a profession that works with children, such as teaching. Research on these life experiences may determine if family, observation, volunteer, and employment experiences influence student decisions regarding students considering practicing pediatrics.

Research on educational experiences and clinical experiences can assist with curriculum decisions and design, building on life experiences. Research on experience can also discover how to promote interest in pediatrics during a student's academic and clinical education, motivating students to consider working with children in their future practice or even deciding to specialize in pediatrics. Limited research is available on experiential learning in pediatric physical therapy education, and which experiences strongly influence student's decisions to consider pediatric practice after graduation. Nevertheless, research that does exist emphasized integrating pediatric experiences into a curriculum. The literature also indicated early pediatric experiences might encourage students to consider a career in pediatrics. This study surveyed factors and perceptions of students regarding the influence of their experiences with children, using the theoretical framework of adult learning theory, experiential learning, and social cognitive theory and compared them to the literature that exists. The rationale for this study was based on the literature and pilot study findings on a need to research factors and experiences that influence physical therapy students' considerations to practice pediatrics.

Pilot Study

In an institutional review board (IRB) approved qualitative pilot research study, six second year physical therapy students who attended a midwestern university were individually interviewed to determine factors and experiences that influenced their decisions to be open to pursuing a career in pediatric physical therapy (Elbert, 2018). Three classroom lectures and laboratory sessions on introductory orthopedics were observed. These observations were done to determine if faculty presented pediatrics in these early classes, and how it was received by students. A grounded theory was developed from the data obtained from students during the interviews and observations of first year classes.

The quality of information students gained from their academic experiences, along with experiences with mentors, were found to be the main influential factors in determining their decisions about whether they planned to practice pediatrics. One factor that impacted their decisions included lack of good information about pediatrics before formulating whether they were interested in pursuing an elective pediatric course or clinical affiliation. Lack of information occurred before students selected their final clinical affiliations, which included a mandatory neurological clinical with adults or children. Students also expressed that they formulated perceptions about what type of life experiences are needed to be an effective pediatric physical therapist. These included experiences with family, observations completed, and interactions with mentors early in their academic coursework, or before they entered the PT program. Experiences with children in their life, coursework, and clinicals appeared to influence their perceptions about whether they would be open to practicing pediatric physical therapy. The themes from this qualitative pilot study indicated that life experiences, educational experiences,

and clinical experiences influenced students' decisions to pursue or not pursue pediatric education and practice pediatrics after graduation (Elbert, 2018).

The grounded theory developed through Elbert's (2018) qualitative pilot study will be used as one source for the rationale for conducting a quantitative study. The grounded theory that was developed through the pilot study was that physical therapy students formed perceptions about pediatric practices early in their academic careers, through experiences with normally developing children and children with health conditions. Experiential learning in the academic setting that included pediatrics experiences influenced students' perceptions of pediatrics as a career path. This, in turn, affected their decisions on whether to enroll in a stand-alone advanced pediatric course and/or a pediatric clinical education. The timing of these experiences and quality of these experiences, along with interactions of mentors, assisted in formulating perceptions about pediatrics that influenced students' decisions on whether they were considering practicing pediatric physical therapy after graduation.

The pilot study (Elbert, 2018) and the research reviewed, determined a need for further study of students' perceptions of their educational and clinical experiences with children. Further research was also considered necessary to explore demographic, life, educational, and clinical factors influencing students' interest in pediatrics, using descriptive statistics. There was a need to do quantitative research to include a wider population of students at different stages in their academic careers to explore the influence of experiences on student learning and student perceptions about pediatric practice.

Research Questions

This research study attempted to answer three research questions specifically related to physical therapy students and their experiences with children. Research questions include:

Research Question 1: What percentage of physical therapy students who are interested in pediatrics have completed an observation in pediatrics?

Research Question 2: In what year of their physical therapy education (1, 2, or 3) do most of the physical therapy students become interested in pediatric physical therapy?

Research Question 3: What experiential differences exist between physical therapy students who consider practicing pediatrics and those who do not?

Research Hypotheses

The following research hypotheses were utilized to support the research questions for this study.

H1: A higher percentage of physical therapy students who are interested in practicing pediatrics will have completed an observational experience with children than the percentage of students interested in pediatrics who have not completed an observational experience with children.

H2: A higher percentage of physical therapy students develop an interest in pediatrics in the second year of their educational program compared to any other year.

H3: Physical therapy students are more strongly influenced to consider practicing pediatrics when educational experiences with children are integrated into their educational curricula than when educational experiences with children are not integrated into curricula.

Theoretical Framework

A theoretical framework can be developed through a review of major theories. The framework for this study was based on theories of adult learning that lay a foundation to promote the use of experiences students value that are authentic to increase student interest and learning

in pediatrics. Creating a learning environment in an educational physical therapy program can provide students with learning experiences that lead to students' increasing interest in the further study of pediatrics and students considering practicing pediatrics after graduation.

There is no one theory educators use to encourage learning in an educational environment. A combination of the adult learning theories of andragogy, self-directed learning, and transformative learning (Knowles & Associates, 1984; Mezirow, 1991; Merriam & Bierema, 2014) using experience or experiential learning can enhance the curriculum an educator uses to develop students considering pediatric practice (Kolb, 1984).

Andragogy

Andragogy was the first adult learning theory explored in the literature. Knowles (1980) proposed four assumptions of andragogy and added two more in a later publication (Knowles & Associates, 1984). Assumptions include the following.

1. As a person matures, his or her self-concept moves from that of a dependent personality toward one of a self-directing human being.
2. An adult accumulates a growing reservoir of experience, which is a rich resource for learning.
3. The readiness of an adult to learn is closely related to the developmental tasks of his or her social role.
4. There is a change in time perspective as people mature. . . .
5. Adults are mostly driven by internal motivation, rather than external motivators. . . .
6. Adults need to know the reason for learning something.

(Merriam & Bierema, 2014, p. 47)

The second of the six assumptions states adults collect an ever-expanding amount of experience that is used as a resource to further learning. This assumption, presented by Knowles (1980), has practice implications for college educators who create curriculum and design physical therapy programs according to their missions, goals, and outcomes. The model that incorporates adult learning assumptions, such as those proposed by Knowles (1980) and Knowles and Associates (1984), stresses the importance of a process instead of content. The assumptions of adult learning (Knowles, 1980; Knowles & Associates, 1984) set the environment for students, involving participants in planning, implementation, and assessment of their own learning (Knowles & Associates, 1984). An environment that incorporates experiences that occur in family, community, physical therapy academic and clinical education programs, as well as reflection and feedback after an experience, can lead to increased student awareness and learning about pediatric practice. Awareness and learning about pediatrics can influence students' considerations of whether to practice pediatric physical therapy. Students may begin to make decisions about whether to take further elective pediatric courses or an elective pediatric clinical experience. They may volunteer at a pro bono clinic or choose observational experiences with children. They begin to self-direct their learning about pediatric content and continue to seek further life experiences, educational experiences, and clinical experiences with children.

Self-Directed Learning

Self-directed learning (Brockett & Hiemstra, 1991; Candy, 1991; Hiemstra & Brockett, 2012; Houle, 1961; Knowles, 1980) is a second adult learning theory. It is described as a personal attribute of a learner or as an instructional process (Merriam & Bierema, 2014). Self-directed learning occurs in various contexts or environments. It becomes an important concept as students have been found to become more self-directed in environments where they have some

previous experience (Candy, 1991). Physical therapy students who are exposed to multiple experiences through family, friends, observations, volunteering, and employment should be more comfortable and capable of self-directed learning in their pediatric academic courses and clinical learning environments than students with more limited experiences. Musolino (2006) related that self-directed learning is a feature of continuing professional education in many areas including physical therapy (see Figure 1).

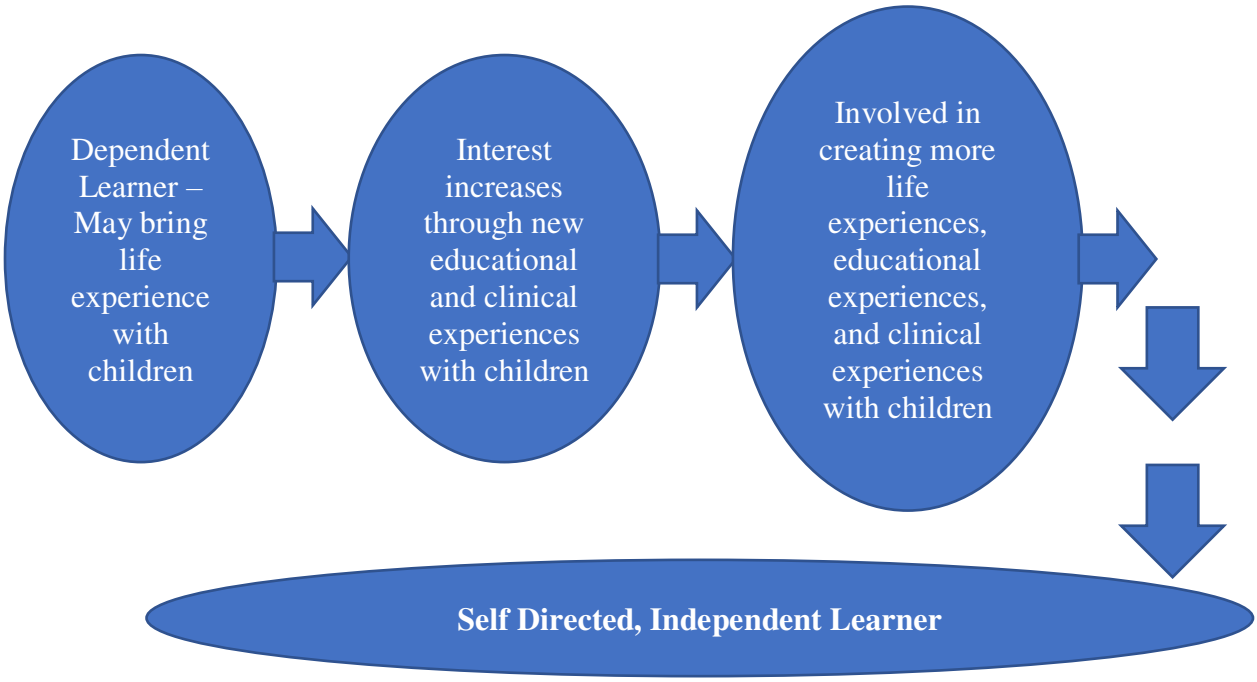


Figure 1. How self-directed learning can develop.

Physical therapy programs have a goal of creating self-directed, lifelong learners and strive to build this goal into their curricula, as recommended by APTA (2009b). Research studies examined a variety of learning experiences that helped create self-directed learners. Some of these included community engagement (Furze et al., 2011), service learning (Deeley, 2010; Hoppes, Bender, & DeGrace, 2005; Reynolds, 2005, 2009), volunteering (Diacin & Vansickle, 2014; Furze et al., 2011; Hoppes et al., 2005; Village et al., 2004). and pro bono experiences

(Black, Palombaro, & Dole, 2013; Hou, Liu, Lin, Lien, Wong, & Chen, 2018; Stickler, Grapczynski, & Ritch, 2013).

Transformative Learning

Transformative learning is the third adult learning theory researched. Clark (1993) defined it by stating, "Transformational learning *shapes* people; they are different afterward, in ways both they and others can recognize" (p. 47). Mezirow's research in 1991 laid a foundation for transformative learning theory. Transformative learning is the process where we make meaning of our experiences (Merriam & Bierema, 2014). Reflection and self-assessment are key components of transformative learning. In a study by Deeley (2010), the strategy of experiential learning was used to enhance the possibility of transformative learning taking place. The study investigated a service-learning research project. Service learning is considered a model of experiential learning where academic coursework is integrated with a voluntary service project in a community. Deeley's inductive, qualitative study developed a grounded theory regarding the effects of service learning that included transformative learning through experience. The conclusion was that intellectual and personal development occurred through a voluntary service-learning experience integrated into a curriculum (Deeley, 2010).

A study by Lähteenmäki (2005) investigated incorporation of reflection into teaching and supervising of physical therapy students. Lähteenmäki felt results of this study demonstrated a model approach to encourage students to learn through reflection, a critical part of transformative learning. The students first observed and then analyzed physical therapy treatment sessions. Following their observations, students discussed their analysis of the session with a supervisor and completed a written reflection. This reflective learning model assisted students to become more self-directed in their learning. Questioning by their supervisor was completed and pause

was given to allow students to answer the questions through their own analysis of literature and evidence. These methods appear to be the "keys" in transformative learning for a physical therapy student. Lähteenmäki (2005) emphasized four phases of the transformative learning process. The first is experience is gained from therapy sessions. The second is a student engages in reflection facilitated by discussion between a supervisor and the student. Third, a planning process occurs which integrates clinical reasoning, and last, a therapy session is completed by a student with guidance from a supervisor. The clinical experience is transformative for a student, related to facilitation, discussion, and supervision provided by a clinical educator.

Experiential Learning

Experiential learning for adults, as described by Kolb (1984), tells us that adult learning occurs when students make sense of their experiences. Experiences provide a way to learn by doing, by getting involved with the experiences of learning. Kolb (1984) provided a cycle of experiential learning that occurs in four stages. The first stage includes concrete experiences such as simulation and realistic depictions that can create learning. Second, reflective observations encourage adult learners such as physical therapy students to gain insights and knowledge through experience-based learning. Demonstrations, then analysis, can occur through case studies or problem-based scenarios. Third, abstract conceptualization uses reflection and exercises designed to encourage critical thinking to form concepts and procedures. Fourth and last, active experimentation such as clinical education experiences can give learners opportunities to learn through hands on experiences. An example that could also occur in an educational setting includes role playing. Active experimentation can then lead to concrete experiences which creates the experiential learning cycle. Kolb's experiential learning cycle is illustrated in Figure 2.

Figure 2. Kolb's experiential learning cycle. Reprinted from "Kolb's Experiential Learning Cycle." In *Learning Styles* by SkillsYouNeed.com, 2016, para. 3. Retrieved March 20, 2018, from https://www.skillsyouneed.com/learn/learning-styles.html. Copyright 2016 by SkillsYouNeed.com.

The theoretical framework of this research study combined adult learning theories of andragogy, self-directed learning, transformative learning, and experiential learning and used principles within these four theories to develop learning and interest in pediatric physical therapy and to help students consider practicing pediatric physical therapy by using life experiences,

educational experiences, and clinical experiences in a curriculum. These learning theories promote the use of authentic, meaningful pediatric experiences to create lifelong adult learners who value the practice of pediatrics. Students perceive meanings in various experiences and bring those meanings to their educational programs. Therefore, it is important to research learners' perspectives on which experiences with children positively influence them to consider practicing pediatrics. This study was developed to determine differences, if any, experiences make for students in their consideration of whether or not to practice pediatrics, adding to evidence already available in the literature.

Assumptions of the Study

1. Students will respond and complete surveys in an honest manner.
2. The research instrument will provide data required to answer research questions.

Limitations of the Study

1. The study was limited to students enrolled in physical therapy programs at three universities in the Upper Midwest.
2. The sample size included the entire number of students in three programs surveyed, approximately 406 participants. Participants completed surveys on a volunteer basis.
3. The survey was a paper and pencil survey distributed with assistance of faculty members at three physical therapy educational programs. On one campus, students in Year 1, Year 2, and Year 3 of their studies completed paper surveys, while on the other two campuses, Year 1 and Year 2 students completed paper surveys. Year 3 students were off campus at these last two universities and completed the same survey online.

4. The difference between three subconstructs of experience on a student's decision to consider practicing pediatric physical therapy was assessed through data from a survey developed and tested through triangulation for validity, and inferential statistical methods.
5. Demographic variables within this study were gender, age, race, marital status, family status, and year in physical therapy school.

Operational Definitions

Experience: "Practical contact with and observation of facts or events" ("Experience," 2019, para. 1).

Experiental learning: Learning through context and experience (Lindeman, 1926/1961; Dewey, 1938/1963; Knowles, 1980). Some "writers use the term 'experiential learning' to represent various conceptualizations of the relationship between experience and learning" (Merriam & Bierema, 2014, p. 108).

Factor: *"*A circumstance, fact, or influence that contributes to a result" ("Factor," 2019, para. 1).

Integrated clinic experience (ICE): " ICE is a curriculum design model whereby clinical education experiences are purposefully organized within a curriculum. In physical therapist education, these experiences are obtained through the exploration of authentic physical therapist roles, responsibilities, and values that occur prior to the terminal full-time clinical education experiences (American Council of Academic Physical Therapy, 2018, p. 757).

Life experiences: Learning situations with respect to work, recreation, family life, and community life (Lindeman, 1926/1961).

Observation: "The action or process of carefully watching someone or something" ("Observation," 2019, para. 1).

Physical therapy academic education: "Situated within higher education, exists for the primary purpose of educating students to attain core knowledge, skills, and behaviors" (Jensen & Mostrom, 2013, p. 126).

Physical therapy clinical education: "Situated within the practice environment, exists first and foremost to provide cost-effective and high-quality care and education for patients, clients, their families, and their caregivers" (Jensen & Mostrom, 2013, p. 126).

Pediatric physical therapy: "Pediatric physical therapy is concerned with the examination, evaluation, diagnosis, prognosis, and intervention of children, aged birth through adolescence, who are experiencing functional limitations or disability due to trauma, a disorder, or disease process" (Campbell Torpey, 2006, para. 1).

Pro bono clinic: A pro bono clinic provides volunteer service to a community, but specifically as related to professional work (Village et al., 2004).

Service learning in physical therapy programs: Service learning in PT is linked to a credited course that includes an educational experience in which students participate in an organized activity in society and is a form of experiential learning. Reflective activities by the students are often included to enhance learning (Bringle, Hatcher, & McIntosh, 2006; Deeley, 2010; Jacoby, 1996; Madsen, 2004).

Specialization: "The process by which a physical therapist builds on a broad base of professional education and practice to develop greater depth of knowledge and skills related to a particular area of practice. Clinical specialization in physical therapy responds to a specific area of patient need and requires knowledge, skill, and experience

which exceeds that of the entry-level physical therapist and which is unique to the specialized area of practice" (APTA, 2009a).

Volunteer: "To offer (oneself or one's services) for an undertaking by choice and without request or obligation" ("Volunteer," 2019, "Volunteer in British" section, para. 5).

Summary

There is a growing need for physical therapy students to consider practicing pediatrics due to an increasing number of children who qualify for services under federally enacted public laws (Effgen & Kaminker, 2012; Zablotsky et al., 2017). In surveys of physical therapy students regarding career interests, it has been noted that experience in a specialty area can increase student interest (Reeve et al., 2012; Reneker et al., 2016). There is limited literature available regarding physical therapy students' perceptions about pediatric experiences during their physical therapy education and the influence of these experiences on their consideration to practice pediatrics. The literature available notes inconsistencies in timing and amount of pediatric experiences of students in physical therapy programs (Schreiber et al., 2011).

A quantitative survey was developed to discover if there is a difference between three subconstructs of experience influencing a student's consideration to practice pediatrics. This research study explored whether educational experiences with children strongly influenced students to consider practicing pediatrics. Demographics, yes/no questions, and open-ended questions were added to the survey to gain descriptive statistics about factors that also influenced student considerations to practice pediatrics. The current study was designed to determine whether observations of children influenced PT students' considerations to practice pediatrics,

and at what point in their educational programs students that became interested in pediatrics developed this interest.

Results of this study have potential to impact curricula used by educators to teach pediatrics. Adult learning theory and experiential learning (Merriam & Bierema, 2014) were explored as foundational educational theories to improve student physical therapists' learning about pediatrics from their life experiences, educational experiences, and clinical experiences. Furthermore, this researcher hoped through this study students and educators may have discovered factors and experiences students employ to consider enrolling in elective pediatric courses, clinical experiences, and practicing pediatric physical therapy after graduation.

CHAPTER II

LITERATURE REVIEW – ADULT LEARNING THEORIES

The concept of students learning through life experiences with children, physical therapy education, and clinical experiences will be reviewed in the literature in this chapter and related to adult learning theory. Learning through experiences, students' perspectives can become more open and permeable (Mezirow, 1991). Experiences provide physical therapy students a chance to reflect and increase self-awareness of their level of comfort and confidence in working with children (Chapman & Sellheim, 2017).

Adult learning theories suggest that students can become more open to considering practicing pediatrics through their transformative experiences in various learning environments (Mezirow, 1991; Knowles & Associates, 1984). Experiential learning or using experiences to enhance learning through life experiences, educational experiences, and clinical experiences in pediatric physical therapy education has become a recent topic of study, although more research continues to be recommended (Schreiber et al., 2015; Stickler et al., 2013; Wynarczuk & Pelletier, 2017). This chapter will contain a review of literature regarding experience (Dewey, 1938/1963) or experiential learning (Fenwick, 2003) in physical therapy students' lives, academic education, and clinical education, and its relationship to the theoretical framework of adult learning that creates students' considerations to practice pediatrics. Adult learning theories that will be reviewed in the literature include andragogy, self-directed learning, transformative learning (Merriam & Bierema, 2014), and experiential learning (Knowles & Associates, 1984;

Kolb, 1984). Theories will first be reviewed briefly, and then the review of literature will continue with research into literature that incorporates these theories into physical therapy education.

Andragogy

Andragogy literally means helping adults learn (Knowles, 1973). Students in physical therapy programs are adult learners. They have completed 3-4 years of undergraduate courses before admittance into a physical therapy program. They may bring lived experiences with children in their families, schools, and communities to their educational experience. They also may have experiences with children obtained during observations of physical therapy clinics, volunteering experiences, and employment experiences. These experiences define the subconstruct of *life experiences* (that may involve children) in this quantitative study.

Experiences in life are a key component to understanding adult learning (Merriam & Bierema, 2014). Merriam and Bierema stated, "Another dimension that differentiates adult learners from children is an adult's life experiences" (p. 12). The aspect of life experiences is an important concept in adult learning, adding value as a resource to teaching and learning in physical therapy education (Merriam & Bierema, 2014; Knowles, 1980, Kolb, 1984).

Self-Directed Learning

Students enter a physical therapy program often as dependent learners that have learned through passive means of lectures and written exams. Upon entrance into a physical therapy educational program, students gain academic educational experiences through some of the following examples: classroom lectures, discussions of case studies, interactions with educators and peers, and laboratory experiences. This is not meant to be an exhaustive list, but provides some examples of educational experiences. Experiences with children may be integrated into

classroom and laboratory sessions in physical therapy programs. These experiences define the subconstruct of *educational experiences* in this study and occur in or during coursework and laboratory sessions in an academic setting.

Physical therapy education also includes clinical education experiences that happen off campus, usually after several semesters of academic education. Students bring their knowledge, skills, and abilities into a clinical setting, working with clients of various ages to participate in clinical experiences. Some physical therapy students elect to complete a pediatric clinical experience, and others may have some limited experience with children during their hospital, outpatient, or rehabilitation clinical experience. These experiences define the subconstruct of *clinical experiences* in this research study. The educational experiences and clinical experiences that students become involved in can create a goal of self-directed learning. A self-directed learner may seek further experiences to gain knowledge, abilities, and skills that create confidence to further seek pediatric courses or clinical experiences that builds more confidence and results in the learner considering pediatric practice after graduation.

Transformative Learning

Transformative learning occurs in the cycle of adult learning when a learner has an "aha" moment. Experiences in pediatric education can provide these insights ("aha" moments) and inspire students to change their minds about pediatrics or interest them further in pediatric physical therapy. Experiences can transform us through changing our perspectives, thoughts, attitudes, and behaviors. Learning takes place when students create new meaning to earlier experiences, such as observations done before a student is admitted to a physical therapy program. Earlier experiences are often reinterpreted through reflection and may be seen in a new light. There are three phases of transformational learning theory (Mezirow, 1991). These phases

include identification of a dilemma or crisis. In the first phase, students are encouraged to dig deeper into information presented in a lecture, case study, discussion, or lab experience. The next phase engages a learner to establish meaning of their experience or relevance to their learning. It can be personal, professional, or social in context. This phase can motivate a student to learn more about pediatrics, when they can see the results of initial efforts to dig deeper. The third phase is critical thinking. Experiences can create opportunities for students to critically reflect and re-examine their attitudes or perspectives about the practice of pediatrics. They can then accept new concepts or perspectives on their thinking about pediatric practice.

The literature review in this chapter will explore studies in health care professions, especially physical therapy, that have done research using the adult learning theories of andragogy, self-directed learning, and transformative learning using life, educational, and clinical experiences to promote interest and consideration in students for practicing pediatric physical therapy.

Student experience plays an important role in learning as documented by Piaget (1966). Havighurst (1952/1972) described using "life situations" (Merriam & Bierema, 2014) as teachable moments. An example of a teachable moment in pediatric physical therapy education would be when a teacher draws on: a student's experience as a parent of a young child, as a sibling, or as a friend of a child with a health condition; observations; volunteer experiences; and educational and clinical experiences with children to teach something. Experiential learning uses experiences to teach pediatric content and improve student learning based on adult learning theory (Knowles, 1980; Knowles & Associates, 1984; Kolb, 1984). Schreiber et al. (2015) defined experiential learning in pediatrics as "activities in which students design and implement an experience that engages a child in meaningful activities, including examination, evaluation,

intervention and/or client/caregiver interaction and instruction" (p. 357). This definition integrates adult learning theory, which includes andragogy and self-directed learning that can create transformational learning through experiences in physical therapy pediatric education.

Experiential Learning

In this literature review, the theory of learning through experience will be examined. Experiential learning as described by Knowles and Associates (1984) and Kolb (1984) will be reviewed in the literature as it relates to physical therapy education. Several studies provided data on experiential learning in pediatric physical therapy education (Chapman & Sellheim, 2017; Kenyon et al., 2017; Moerchen, Dietrich, & Dietrich, 2017; Pritchard, Blackstock, Nestel, & Keating, 2016; Schreiber et al., 2015; Smith & Crocker, 2017). Examples of methods used to explore experiential learning included simulation, integrated clinical experiences, service learning, community patient resource groups, and professional practice opportunities (Pritchard et al., 2016; Smith & Crocker, 2017), pediatric practicum models (Moerchen et al., 2017), pediatric clinical experiences, curricular content, clinical education (Kenyon et al., 2017), community service learning, and laboratory experiences (Schreiber et al., 2015). These studies examined learning through life, educational, and clinical experiences. The first subconstruct of experience to be reviewed through the literature is *life experiences*.

Life Experiences

Life experiences are learning situations within the context of family, community, work, and recreation (Lindeman, 1926/1961). Enhancement of students' motivation to learn about pediatrics includes incorporating accumulated lived experiences into their education to make content more meaningful and authentic. Creating this meaning for students can motivate them to participate in class discussions about pediatrics lecture content, experiences, and case studies

(Lindeman, 1926/1961). Life experiences examined in this literature review include: family, volunteer, observational, and employment experiences with children.

Family life experiences. Family life experiences often mentioned anecdotally by students include experiences growing up with a sibling with a health condition. There are some negative as well as positive influences on students' siblings from these experiences. Eisenburg, Baker, & Blacher (1998) described possible effects of life experiences on siblings, one sibling developing typically, and the other with a health condition. Eisenburg et al. stated, "Positive effects that have been observed include increased compassion, tolerance, sensitivity, maturity and responsibility; increased appreciation for one's own good health; inspiration for personal growth; more acceptance of individual differences; awareness of the consequences of prejudice; knowledge about handicapping conditions and certainty about one's future and career goals; and increased social competence" (p. 356).

In a study by Fish and Stephens (2010), participants surveyed indicated factors that influenced their decision to become special education teachers. Factors included a desire to serve those in need, as influenced by having a family member with a health condition. The impact of a sibling with a health condition on students who were pursuing careers in special education was also discussed in a qualitative study conducted by Marks, Matson, and Barraza (2005). Marks et al. found students had a desire to improve services for individuals with health conditions. Some chose to teach, others to conduct research in the field of special education. The majority of participants felt their life experiences with a sibling with a health condition led them to select special education as a career (Marks et al., 2005). DeSutter and LeMire (2016) found 36.3% of students in an introductory special education class had family members with a known health condition and were interested in the field of education. DeSutter and LeMire concluded that this

characteristic by itself does not determine a student's decision to teach special education; rather, multiple other factors are involved (DeSutter & LeMire, 2016).

Students may focus on specialty areas such as pediatrics after proven success and positive self-esteem have been gained through volunteer activities in their community. Evidence from literature listed benefits of volunteerism as increased student self-awareness, greater personal identity, and having a sense of self (Barta, Flores, & Edwards, 2018; Black, Palombaro, & Dole, 2013; Diacin & Vansickle, 2014; Stickler et al., 2013; Village et al., 2004). The American Physical Therapy Association (APTA) has encouraged students and physical therapists to engage in volunteer activities to promote their professional and personal growth, as well as contribute to their communities. Volunteerism is included as one of the core values of professionalism in physical therapy practice.

Volunteerism. Volunteering is an expectation of student physical therapists promoted in educational programs across the United States. Pro bono clinics in conjunction with physical therapy programs provide one such opportunity for students to volunteer their professional services in a community, especially to underserved clients. Seventy-seven percent of 88 physical therapy educational programs surveyed in 2004 were found to have integrated service learning, volunteerism, or pro bono services into their curricula (Village et al., 2004). In a qualitative study conducted by Stickler et al. (2013), researchers gathered data from focus groups of five to six second- and third-year physical therapy students who were involved in volunteering at a pro bono physical therapy clinic. Themes that emerged from student focus group interview data included core values, clinical physical therapy skills, personal growth, and community and professional connections. Study results indicated students developed professional characteristics,

as well as clinical skills, during their experiences. Stickler et al. recommended further research into the future educational role of the pro bono clinic experience (Stickler et al., 2013).

In another study, students from a PT educational program were recruited to assess their self-perceived confidence in evaluating and treating individuals with neurologic health conditions present across their lifespan (Barta, Flores, & Edwards, 2018). A survey (pre- and post-test) was administered to students who volunteered to participate in a pro bono clinic experience. Students worked in small groups completing four clinical sessions. The first session was an evaluation of a client. The next two were student led treatment sessions with their client. The final session was a discharge re-assessment of the client. Each group was involved with four sessions with an adult and/or a child with neurologic health conditions. Results were categorized into three themes of student self-confidence, preparation, and guidance. Results indicated students perceived their self-confidence improved after their volunteer experience with clients with neurological health conditions, including experiences with children. Barta et al. also discovered that preparation is needed through practice and experience to improve self-confidence in PT students, and self-confidence also improved with guidance from a clinician. Guidance was provided by experienced clinical physical therapists through feedback. Students also noted that self-confidence was gained through observation of experienced physical therapy clinicians treating clients in a pro bono clinic (Barta, Flores, & Edwards, 2018). Black, Palombaro, and Dole (2013) conducted a qualitative research study on experiences of physical therapy students who ran a community based physical therapy clinic. The study reported that students developed leadership skills, accountability, and pride in their service to their community.

Village et al. (2004) found that volunteerism was part of 85.2% of physical therapy assistant (PTA) programs, and 39.5% of physical therapy programs that responded to their

survey. Results of Village et al.'s study indicated that benefits of volunteerism were twofold: physical therapy student learning through their volunteer experiences and benefits to the community through students' initiatives to provide service to those in need.

A research study completed in Taiwan by Hou et al. (2018) involved creation of a pediatric service-learning project by educators and students enrolled in a physical therapy program. The volunteer project provided hands-on experience with children for their students and filled a community need for summer activities for children with health conditions, and an educational experience for the parents. Physical therapy students volunteered for the experience, but no college credit was received by participants. Hou et al. (2018) used reflections of students who participated in a 2-day camp with children with cerebral palsy to report perceptions by students of benefits of their experiences. Benefits included development of altruism, compassion and caring, cultural competence, personal and professional development, professional duty, social responsibility, advocacy, and teamwork (Hou et al., 2018). All were considered core values for a student physical therapist to develop during their professional education.

The perceived benefits to college students who volunteered with Special Olympics were reported by Diacin and Vansickle in 2014. Students in the study reported that they became more comfortable around individuals with health conditions after their Special Olympic experiences. Students also found they were more open to the possibility of a career working with individuals with health conditions after their volunteer experiences. Seven students were majoring in exercise science and indicated an interest in pursuing a career in physical or occupational therapy after their experiences. Students reported that the athletes in the Special Olympics program were more like them, than they were different. Benefits students reported reflected the impact of this

positive experience on their attitudes, self-confidence, and career choices (Diacin & Vansickle, 2014).

There can also be a negative side to students' life experiences. Students may decide after experiences with children that they are not interested in learning more about pediatrics, or they may consider not choosing a career working with children. They may have had an unpleasant experience when observing or volunteering with children, which can serve as an impediment to their motivation to have more experiences with or work with children in their practice (Merriam, Mott, & Lee, 1996). The quality of past experiences may be more important to consider in pediatric practice than actual hours of time spent playing, observing, or engaging in volunteer activities with children (Merriam & Bierema, 2014).Negative or positive life experiences with children may influence an individual's consideration to practice pediatrics after graduation. Next, the literature will be reviewed on the influence of observations and consideration of a health career working with children.

Observations. Observations students have of going to a physical therapy appointment with a family member or observing physical therapists working in a clinic with clients has been cited by students as a factor that influenced them to consider a career in physical therapy (Wojciechowski, 2013). Most physical therapy programs require a minimum number of observational hours documented on a student's application for admission. The number of required hours varies among programs. Programs often recommend students vary settings of their observations, but there is no specific type of setting recommended (e.g. a pediatric clinical observation).

The theory that learning is social as well as cognitive is known as social cognitive theory (Merriam & Bierema, 2014). "By observing others, people acquire knowledge, rules, skills,

strategies, beliefs, and attitudes" (Schunk, 1996, p. 102). Social cognitive theory is the basis for requiring clinical observations in many professions, including physical therapy, before students are admitted into the profession. The literature on physical therapy observations is limited, but several articles were found on observational experiences of other allied health professionals. These studies examined the value of direct observations by students in determining their career choices.

A research study by Miller and Ciocci (2013) examined attitudes of undergraduate students after students observed speech and language sessions conducted by a professional with children and/or adult clients. Results indicated that 64% of students completing an online survey indicated they were interested in working with children in the clinic, 48% expressed their interest in working with adults, while 20% changed their interests from child-based care to adults after their clinical observation experiences. Miller and Ciocci concluded that observations of speech and language sessions significantly influenced career choices of the surveyed undergraduate students.

Anders (2005) studied factors influencing student enrollment in respiratory therapy education programs. Anders surveyed all students who enrolled in a respiratory program over a 3-year period regarding these possible influential factors. Anders found that students learned about respiratory therapy as a career from other health professionals, family members, the internet, college faculty, and recruiters. The major factor that influenced their career choice, however, was direct clinical observations of the profession (Anders, 2005).

Exposure to occupational therapy prior to entering an occupational therapy program was found to be a positive factor for 70% of participants regarding their career choice in an Australian study by Byrne (2015). Research results indicated that being exposed to an allied

health professional may be one factor in a student's choice of occupational therapy as a career. Nevertheless, that was only one factor among many others. Byrne found students listed factors such as individual interest in helping others, knowing an occupational therapist, or being exposed to occupational therapy through family or others. The study did indicate that practicing occupational therapists and current students are an influential source of information in a student's decision to choose occupational therapy as a career. Students' direct observations of practicing occupational therapists treating a family member or receiving therapy themselves was a factor that was influential in their career choice (Byrne, 2015). Literature reviewed indicated that observation of an allied health professional is one influential factor in a student's choice of careers or the clientele they prefer to work with in their future careers (Anders, 2005; Byrne, 2015; Miller & Ciocci, 2013; Wojciechowski, 2013).

Employment. Employment in a health care clinic or school can provide another opportunity for an experience that influences career decisions. Students who have positive experiences with children in their workplace might consider a future pediatric physical therapy career. Social Cognitive Career Theory (Lent, Brown, & Hackett, 1994, 2000) is based on the principles of Social Cognitive Theory. Social Cognitive Career Theory (SCCT) describes the processes that individuals use to "form interests, make choices, and achieve varying levels of success in educational and occupational pursuits" (Lent et al., 2000, p. 36). SCCT hypothesizes that students are likely to consider continuing with a career set of skills or tasks if they have had previous positive experiences with execution of these same skills. Students my continue to focus on career areas (such as in their employment) in which they have had success resulting in positive self-esteem (Lent et al., 1994). Several articles were reviewed on employment experiences, where researchers concluded these experiences influenced student's career choices

(Coren, Andreassi, Blood, & Kent, 1987; Feldbaum & Feldbaum, 1981; Green, Keith, & Pawlson, 1983; Morris & Minichiello, 1992; Yeager, Wisniewski, Amos, & Bialek, 2015).

A qualitative study of state and local public health employees was conducted by Yeager et al. (2015) to exam factors that motivate employees to take their first positions in public health jobs after previous work experience in the health field. Previous employment in health care services was found to have a positive influence on future employment. The influential factors in employees' employment decisions were listed as specific duties, identification with a mission, continuing education opportunities, innovation ability, flexibility of schedule, and autonomy. Participants who graduated with a public health degree provided comments related to "personal commitment to public service" and "wanted to work with specific individuals" (Yeager et al., 2015, p. 33) as influential factors in choosing a position in public health (Yeager et al., 2015).

Morris and Minichiello (1992) completed a study on factors which influence physical therapists' decisions to practice in geriatric settings. The effect of previous work experience in geriatrics on career choices of individuals was surveyed. Physical therapists who had little experience with elderly clients preferred not to work in geriatrics, citing inexperience as well as employment conditions as reasons. Other studies (Coren et al., 1987, Feldbaum & Feldbaum, 1981; Green et al., 1983) concluded that previous work experience with older adults increased the likelihood individuals would choose a career in geriatrics.

Summary – Life experiences. Life experiences consisting of family experiences, volunteer experiences, observations, and employment experiences with children can prove to be motivators for individuals to participate in learning about pediatrics or to consider a career in pediatrics, as found in reviewed literature. Chapman and Sellheim (2017) found that students' previous experiences with children positively influenced their self-rated knowledge and

confidence in pediatric content. Students discussed experiences of being around and handling infants, coaching youth sports, and working at summer camps prior to attending an academic physical therapy program as positive experiences (Chapman & Sellheim, 2017).

The literature review also indicated that students learn self-awareness, self-direction, confidence, and being comfortable with children when students are engaged in activities with typically developing children and children with health conditions. Often these experiences can be transformational and affect students' career choices. Some of these life experiences occur in student's families, in communities through observations, through volunteer experiences, and through employment experiences.

Life experiences can be a starting point for including pediatric curricula in physical therapy education programs. Educators can then assist students to develop connections to content of new pediatric diagnoses, treatments, development, and motor control theories (Merriam & Bierma, 2014). Lectures, case studies, peer discussions, simulations, role playing, problem based/experiential learning activities, experiences outside classrooms, and various other class projects can assist learners to use the resources of acculumated life experiences to continue to learn about pediatrics (Merriam & Bierma, 2014).

Dewey's classic work, *Experience and Education* (Dewey, 1938/1963), described a theoretical model explaining adult learning as using experiences as a resource. In addition, Kolb's (1984) experiential learning theories and Schön's (1987) reflective practice theory also describe learning practices that rely on an individual's life experiences. Kolb (1984) developed an experiential learning model cycle that theorized learning consists of four stages: concrete experience, reflective observation, abstract conceptualization, and active experimentation. In physical therapy pediatric education, Kolb's model would incorporate adult learning theories,

and use student experiences with children (together with reflection, conceptualization, and finally applied learning in the classroom and laboratories with active experimentation) to teach a pediatrics oriented physical therapy curriculum (Kolb & Yeganeh, 2012; Yeganeh & Kolb, 2009).

Educational experiences can occur through service learning integrated into courses in physical therapy academic programs (Deeley, 2010; Hoppes et al., 2005). Service learning connected with educational courses combines an individual's experiences in their community with coursework on a campus. Service learning under this definition is incorporated into courses that students complete for college credit, and is not considered solely volunteer experience, as described in other research studies (Diacin & Vansickle, 2014). The literature on service learning will be discussed under educational experiences. It is a combination of experiences off campus and classroom learning on campus, combining context and reflective practice. The first subconstruct of experience to be reviewed through the literature was *life experiences*. The second subconstruct of experience explored in the literature and reviewed next is *educational experiences* during students' professional physical therapy education.

Educational Experiences

Curriculum. Curriculum recommendations in pediatric physical therapy education have evolved over the last 25 years to meet the changing field of pediatrics. The American Physical Therapy Association updated their guide book, *A Normative Model of Physical Therapist Professional Education*, in 2004 (APTA, 2004). This book describes a model of professional educational outcomes, content, practice-expectation themes, and terminal behavioral objectives, as well as instructional objectives that should be met in classrooms and clinics (APTA, 2004). The model provides recommendations for pediatric content and instructional objectives for PT

program curricula (APTA, 2004). Another document was developed by the Academy of Pediatric Physical Therapy entitled *Pediatric Curriculum Content in Professional Physical Therapist Education: A Cross-Reference for Content, Behavioral Objectives, and Professional Sources,* first published in 2001, then updated in 2008 (APTA, Section on Pediatrics, 2008). It has provided information for pediatric educators based on contemporary practice at the time the book was published. The document specifies content and topics to be addressed to prepare a "well-rounded generalist in physical therapy to assess and treat any patient/client from birth onward" (APTA, Section on Pediatrics, 2008, p. 4). The updated document incorporated language from the *International Classification of Functioning, Disability, and Health (ICF)* (World Health Organization, 2001), the *Guide to Physical Therapist Practice* (APTA, 2014) and *A Normative Model of Physical Therapist Professional Education* (APTA, 2004).

The APTA's Section on Pediatrics sponsored a survey in 2010 of its membership with results published by Schreiber et al. (2011). The survey provided information on content and types of student experiences programs have used to accomplish student learning of pediatric knowledge, skills, and abilities. The APTA's Section on Pediatrics developed five recommended essential core competencies for entry level pediatric physical therapy practice (Cech, Krzak, & Anderson, 2017; Rapport et al., 2014; Schreiber et al., 2015) to provide guidance to administrators of educational programs. The APTA's Section on Pediatrics expected all physical therapy education programs would include these competencies in their curricula to eliminate inconsistencies in pediatric content and experiences. The developed essential core competencies included content in:

1. Human development,
2. Age-appropriate patient/client management,

3. Family-centered care,
4. Health promotion and safety, and
5. Legislation, policy, and systems. (Rapport et al., 2014; Schreiber et al., 2015)

Physical therapy programs are mandated to provide knowledge, skills, and clinical opportunities to students as required by the Commission on Accreditation in Physical Therapy Education (CAPTE, 2015) and as recommended in the literature regarding the essential core competencies (APTA, Section on Pediatrics, 2008; Cech, Krzak & Anderson, 2017; Rapport, Furze, & Martin et al., 2014; Schreiber et al., 2015). A beneficial question to ask when examining physical therapy education has been: "How can educational experiences be provided to attain the five essential core pediatric competencies spelled out by the Academy of Pediatric Physical Therapy?" (Jensen, Paschal, & Sheperd, 2013, p. 7).

One physical therapy program completed a case study on how to link essential core competencies to their pediatric content through curriculum review (Cech, Krzak, & Anderson, 2017). The program utilized a systematic approach of linking rules to indicate integration of essential core competencies across their curriculum. They concluded the use of this educational practice ensured students had essential knowledge, skills, and abilities to be entry level pediatric therapists (Cech et al., 2017). The study also concluded that integration of essential core competencies throughout a curriculum ensured students graduated with the ability to successfully work with children (Cech et al., 2017).

Several other studies in the literature examined how programs have attempted to incorporate into their curricula the five essential core competencies through a stand-alone pediatric course (Birkmeier et al., 2017; Chapman & Sellheim, 2017; Kerfeld, Pitonyak, & Jirikowic, 2017; Wynarczuk & Pelletier, 2017), experiential learning (Birkmeier et al., 2017;

Chapman & Sellheim, 2017; Furze et al., 2011; Moerchen et al., 2017; Schreiber et al., 2015; Wynarczuk & Pelletier, 2017), service learning (Deeley, 2010; Furze et al., 2011; Hoppes et al., 2005; Shields, Bruder, Taylor, & Angelo, 2013; Smith & Crocker, 2017), and integrated clinical experiences (Lardinois, Gosselin, McCarty, Ollendick, & Covington, 2017).

In a research article, Schreiber et al. (2011) provided an examination and description of the status of professional pediatric physical therapy education in the United States. PT educators were surveyed, and 75% of their surveys were returned totaling 151 in number. Survey data indicated that 75% of PT programs contained one stand-alone pediatric course, 70% reported that the pediatric content in their curriculum was deemed adequate and provided significantly more practical laboratory and hands on contact hours with children than other programs. Only seven percent of respondents indicated they had a mandatory pediatric clinical experience built into their programs. Eighty percent used the recommendations of the APTA's Section on Pediatrics (the APPT after 2016) to develop their pediatric curricula (Schreiber et al., 2011).

Kenyon et al. (2013) researched the perspectives of academic faculty and clinical instructors on knowledge, skills, and abilities entry-level physical therapy students need before entering pediatric practice. They indicated in a Delphi study that PT students should know common pediatric health conditions, examinations, interventions, plans of care, and documentation along with basic science and general skills and abilities (Kenyon et al., 2013). How do students perceive methods of teaching and learning that present essential knowledge, skills, and abilities recommended by research (Kenyon et al., 2013)? Lake (2001) studied data from student course grades and teacher-course evaluations. A comparison was made between a course taught through lecture and one that utilized active learning strategies. Results indicated there were differences noted between lecture and active learning sections of the course. Student

grades were higher in the active learning course, but students perceived they learned less in the active learning course than students learned in the lecture course. No differences in perceived difficulty of the two courses was indicated by students. Perceptions of the course instructors' effectiveness were lower in the course taught through active learning methods versus the lecture course (Lake, 2001). This study was done with students taking a basic science course in physiology, which is a pre-admission course for physical therapy students. Lake concluded more research was needed regarding how students perceive their learning in courses that utilize lectures versus courses that use active learning methods.

Schreiber et al. (2015) explored pediatric curricula across six Doctor of Physical Therapy (DPT) programs. Four programs had a required course in pediatrics, and two programs integrated pediatrics throughout their curricula. The pediatric didactic contact hours varied from 24 to 95. Contact hours with children who were developing typically ranged from 1-12. Each program indicated they provided learning experiences with children with health conditions (Schreiber et al., 2015). Most physical therapy programs in this study developed a stand-alone course to meet curricular needs and recommended core competencies of pediatric education. Several other research studies were reviewed regarding stand-alone pediatric courses for teaching and learning of pediatric content.

Stand-alone pediatric course. A stand-alone pediatric course was developed by Birkmeier et al. (2017) to meet the five essential core pediatric competencies as well as the mission of a physical therapy program. This course was developed using adult learning theory, communities of practice, and student reflection. The course model was evaluated by quantitative and qualitative data from students enrolled in the pediatric course. The quantitative data was collected through evaluations of the course regarding meeting course objectives, learning

activities, and exam questions that support learning through essential core competencies. The qualitative data was obtained from analysis of students' reflections during the course. Themes were found related to student learning including: "experiential learning activities reinforced key concepts . . ., critical thinking about learning and prior knowledge was enhanced, challenges and required skills were identified, and theory and practice were linked across populations and cases including those beyond pediatric practice" (Birkmeier et al., 2017, Abstract section, p. 97).

An entry level pediatric course was developed by Wynarczuk and Pelletier (2017) to incorporate use of academic-community partnerships to teach the course. The course was based on experiential learning principles and supported evidence-based practice protocols. Students combined knowledge from classroom content, interactions with practicing pediatric physical therapists, and research evidence to develop a course project. Students indicated in post course questionnaires an increased feeling of self-confidence in their ability to work with children than before taking the course. Community clinicians indicated they were satisfied with the students' interactions and the projects students developed. Wynarczuk and Pelletier recommended future research should involve additional ways to measure student perceptions and knowledge of pediatrics following a pediatric course utilizing experiential learning principles.

An interprofessional course was developed by Kerfeld, Pitonyak, and Jirikowic (2017) to enhance collaboration and service delivery between occupational and physical therapy students through pediatric therapy learning experiences. Kerfeld et al. felt their course advanced the essential core competencies in pediatric educational curricula through promotion of interprofessional collaboration and learning activities between the two cohorts of students. Standards and required elements recommended by CAPTE (2015) included criteria that directs programs to implement interprofessional competencies. Results of student surveys taken upon

course completion indicated positive attitudes about interprofessional communication and teamwork. Qualitative themes drawn from this study indicated "positive perceptions [by the students] of the value and usefulness of the experiences" (Kerfeld et al., 2017, p. 119) in preparing them for pediatric practice.

Service learning. Service learning in pediatric physical therapy education can provide contact hours and experience with children. It is a blend of community experiences with children combined with pediatric educational content and is a form of experiential learning (Deeley, 2010). Service learning is associated with a credited college course that includes an educational experience in which students participate in an organized activity in society (Bringle et al., 2006; Deeley, 2010; Jacoby, 1996; Madsen, 2004). It is different from other forms of experiential learning in that its focus is not to solely benefit a student, but also to impact a community and benefit clients that receive student services (Deeley, 2010). It is also unlike volunteerism where the goal is for an individual to provide benefits to clients in a community through service and does not include any structured learning requirements for individuals (Deeley, 2010). Hoppes et al. (2005) described service learning as invaluable in its benefits to educational experiences of occupational and physical therapy students. Hoppes et al. defined service learning as a community experience that moves students out of classrooms to engage with underserved populations of clients. Hoppes et al. stated outcomes of service learning as "enhanced critical reasoning, personal and interpersonal development, understanding and application of core knowledge, reflective practice, and citizenship" (Hoppes et al., 2005, p. 47).

Furze et al. (2011), together with physical therapy students from Creighton University in Omaha, Nebraska, created and implemented an exercise program to address childhood obesity. It has been a requirement of this university's physical therapy program that physical therapy

students are involved in and complete at least one community engagement activity during an academic semester. After students completed some community engagement experience, students completed a questionnaire and some students were interviewed in focus groups. Data obtained from the questionnaire and focus groups showed physical therapy student perspectives on the value of community service had changed. The amount of change depended on the number of actual times students participated in the service learning activity. Furze et al. provided data on how particpants gained self awareness about themselves and their role in their community as physical therapy professionals and transformed their perceptions of community service through experiential learning (Furze et al., 2011). They concluded that a pediatric community engagement activity embedded in an educational program may be a means to facilitate social accountability in students, as well as benefit children and adolescents in a community.

Experiential learning. Experiential learning was researched as a method of combining a service-learning experience with pediatric content in a curriculum to enhance physical therapy students' knowledge, skills, and abilities (Shields et al., 2013). Shields et al. supervised a student self-directed educational experience with an adolescent client. Students led a strengthening program for a client with Down syndrome two times a week for 10 weeks. The results of this educational experience were analyzed through qualitative research methods. Two themes emerged from the interview dialogue: students felt the experience provided them with an opportunity to be a student mentor, and they gained increased awareness of health conditions in pediatrics. Shields et al. concluded the community experience resulted in improved skills in communication and physical therapy interventions for PT students.

Lardinois, Gosselin, McCarty, Ollendick, & Covington (2017) examined integrated clinical education experiences into the didatic curriculum at one university entitled "an early,

collaborative, integrated clinical education model (ICE)" (p. 131). This study evaluated student outcomes on the essential core competency of family-centered care. Outcomes were measured by student self-evaluations and guided reflections using a retrospective analysis of documents (Lardinois et al., 2017). Collaboration occurred in the teaching and in interactions among students, clinical instructors, and the faculty of the program. Data was collected from only one clinical site, and one clinical instructor, which was one of the limitations of the study. Lardinois et al. felt that this model developed an essential core competency of family-centered care for student participants; however, Lardinois et al. recommended that the academic program provide like experiences for all students, especially those with an identified interest in pediatrics. Lardinois et al. recommended that further studies be conducted on collobarative ICE models in pediatrics to address all essential core competencies and students' performances regarding these competencies.

Schreiber et al. (2015) completed a study of six physical therapy programs regarding student experiential learning with children. Schreiber et al. (2015) argued that including experiential learning with children in an educational program is necessary to meet core competencies determined necessary by the APPT, but there is a lack of rigorous research and evidence to support the effects of experiential learning in professional pediatric education. Schreiber et al. (2015) also felt providing specific details from each of the six programs regarding their experiential learning activities in pediatrics would be beneficial to other programs proposing to incorporate experiential learning into their curriculum and recommended work needs to be completed to further understand the effects of experiential learning on development of future pediatric physical therapists. According to Schreiber et al. (2015), the APPT should support future research on this topic.

Moerchen et al. (2017) provided a methods report detailing the outcomes of an embedded pediatric practicum model using the process of experiential learning. Moerchen et al. found challenges existed for educators to provide programs with hands on experiential learning opportunities between students and children who have health conditions due to large class sizes, limited access to children, and inability to provide supervision of all students in a clinical setting while other students are in academic courses located on campus. These challenges led Moerchen et al. to develop a team-based model that embeds pediatric experiences for students in an educational program while supporting reflective processes of adult learning theory and experiential learning for all PT students in the program. Researchers felt this model of reflection and action would be transformative for students studying pediatrics (Moerchen et al., 2017).

Moerchen et al. (2017) determined that their model meets an outcome of their PT program, which is to incorporate experiential learning into a pediatric course. They felt a need existed to educate future PT professionals regarding clients they will encounter with pediatric onset diagnoses in practice settings that are not pediatric-specific. Model results reported 13.4% of students gained an openness to pediatric care and to working with individuals with pediatric-onset diagnoses. This did not include students who began the course with a desire to pursue pediatric clinical experiences. This study provided student data across six cohorts of students engaged in an experiential learning model of teaching pediatrics to all PT students, instead of only providing experiential experiences to students that expressed a desire to specifically practice pediatrics after graduation, resulting in improving openness to practicing pediatrics for other students (Moerchen et al., 2017).

Smith and Crocker (2017) defined the purpose of their research as a need to explore the integration of experiential learning into entry level physical therapy education. Smith and

Crocker recommended that experiential learning could augment didactic and laboratory sessions in entry level PT programs (Smith & Crocker, 2017). Examples of the experiential learning they explored included simulation, integrated clinical experiences, service learning, community patient resource groups, and professional practice opportunities (Smith & Crocker, 2017). Smith and Crocker discussed what all examples of experiential learning have in common. These included: early practice and growth in affective and psychomotor domains, feedback, active learning, safe nonjudgmental learning environments, and reflection and self-evaluation (Smith & Crocker, 2017). Outcomes of experiential learning, according to Smith and Crocker, included increased student confidence in their abilities and building a foundation for learning from future patient experiences and interactions. Another outcome from their study was student satisfaction. Smith and Crocker indicated student satisfaction led to increased student engagement and retention of knowledge. The last outcome of Smith and Crocker's research was the ability of educators to provide students with experiences with clients across the human lifespan. A simulation experience provided a low risk environment to practice on client cases that incorporated complex diagnoses.

Smith and Crocker (2017) concluded that experiential learning can be helpful in specialty areas such as pediatrics, where there may be fewer opportunities for students to practice skills. Programs that incorporate experiential learning need to be flexible and committed to the process. Some methods of experiential learning can be costly and time consuming – for example, simulation where training of simulated patients requires time and a group of paid participants. Simulation labs are costly to equip and staff. For all programs, benefits of achieving outcomes as outlined in a curriculum need to outweigh the costs. Smith and Crocker discussed that perhaps

the greatest benefit of simulation is the exposure students receive to high risk client scenarios in a low risk learning environment.

Smith and Crocker (2017) determined creation of community patient resource groups presented the least number of challenges when developing experiential learning experiences for students during their academic program. Smith and Crocker discovered their greatest challenge was creating a clinic that allowed for integration of clinical experience into a curriculum throughout the course of an educational PT program. These researchers concluded that the benefits of experiential learning have been documented in literature, but the best method and time of exposure are yet to be determined.

Several authors have concluded that experiential learning should be an integral part of every entry-level PT educational program, especially with pediatric education (Moerchen et al., 2017; Schreiber et al., 2015; Smith & Crocker, 2017). Other authors such as Pritchard et al. (2016) concluded that there is not a significant difference between employing simulated patients and other educational strategies to test clinical practice competencies. They reached the conclusion that further studies are needed to address the effects of experiential learning (Pritchard et al., 2016).

Chapman and Sellheim (2017) stated, "Teaching strategies found to be helpful in increasing student self-efficiency include experiential learning opportunities and active strategies, such as question and answer sessions, electronic applications, and conceptual problem assignments" (p. 109). Chapman and Sellheim also discovered a lack of literature that assessed development of physical therapy student confidence in pediatric content. They conducted a mixed methods research study to find the teaching and learning activities students felt increased or decreased their confidence during a pediatric physical therapy course. Students reported that

self-directed learning activities, real life experiences with children, organized class sessions, and a positive supportive learning climate all enhanced their ability to develop knowledge and confidence in knowledge in pediatric physical therapy content. On the flip side, Chapman and Sellheim reported that poorly organized activities and lack of explicit clinical reasoning of faculty created the opposite effect, a non-supportive learning environment. Chapman and Sellheim concluded more research is needed on pre-course assessment, technology, self-directed learning activities, and feedback used to enhance student learning, to promote student knowledge bases and confidence students possess in knowledge of pediatric content they have gained through their education (Chapman & Sellheim, 2017).

Research studies have shown integration of pediatric clinical experiences into academic classroom and laboratory programs, as well as simulations, and service-learning activities have increased student exposure to children. Educators are finding students who use self-reflection and self-directed learning gain self-awareness of their skills and abilities and develop confidence in their abilities to treat certain specialty clientele, such as children. However, there is a need for more research on educational models that integrate clinical experience into classroom and laboratory programs, and how such models might increase students' confidence, knowledge, and openness to learning more about pediatrics. More research is needed on experiential learning experiences to provide evidence that experiences with children during educational courses can increase students' desires to participate in exploring advanced pediatric courses and clinical education experiences in pediatrics, and thus gain further knowledge, skills, and abilities that cannot be gained in a classroom. Confidence gained from experiential learning experiences might cause more students to consider pediatrics.

Clinical Experiences

A physical therapy clinical experience, "situated within the practice environment, exists first and foremost to provide cost-effective and high-quality care and education for patients, clients, their families, and their caregivers" (Jensen & Mostrom, 2013, p. 126). Clinical education is a required part of physical therapy professional programs in the United States, although a limited number of programs require a pediatric experience (CAPTE, 2015). For the purpose of this study, clinical experiences will be defined as the experiences students obtain through clinical education sites at a location other than their university educational setting. Clinical experiences provide a physical therapy student with an opportunity to learn experientially.

The clinical education component of physical therapy education provides students with opportunities to apply essential knowledge, skills, and abilities obtained in their academic setting (CAPTE, 2015; Kenyon et al., 2017). In their accreditation criteria, CAPTE requires all PT programs provide students with depth and breadth in clinical education (CAPTE, 2015). How programs define and manage this criteria is left up to each program (Martin et al., 2017). Physical therapy students must complete 30 weeks of full-time clinical education that is both integrated and terminal (CAPTE, 2015). Instructors in a clinic are often not academic professors, but are full time clinical physical therapists and volunteer to teach students in their practice setting. An elective pediatric clinical experience is often completed in the last semester of a student's education in preparation for the student to become an entry-level pediatric therapist.

The APTA's Section on Pediatrics (after 2016, the APPT) provided recommended pediatric essential core competencies that should be presented in all physical therapy programs. Key concepts were identified to prevent inconsistencies in pediatric curricula of physical therapy

programs. These inconsistencies were reported in a survey conducted by Schreiber et al. in 2011. They concluded in their research article that variances remained in pediatric clinical education. Their survey found 26.9% of participants felt their program's pediatric curriculum was "inadequate" (Schreiber et al., 2015). Indequate curricula often included a clinical education portion of a student's educational program. In an attempt to provide more guidance regarding integrating the five essential core competencies into clinical education curricula, Kenyon et al. (2013) published recommended behavioral objectives and activities for clinical instructors. However, in a study by Martin et al. (2017), clinical instructors reported that students often come unprepared to their pediatric clinical education experiences. Instrutors felt students needed a higher skill level to practice in pediatric clinic settings (Martin et al., 2017). If programs only allow a terminal pediatric clinical experience, the number of students who can access these experiences will be limited. Further research is needed to explore how to provide pediatric clinical experiences to all students.

In 1996, a study by Clopton and Baker researched the effects of a required pediatric clinical experience on physical therapy students. The study compared attitudes and experiences of graduate physical therapy students who had completed an optional pediatric clinical education, a required pediatric clinical education, or no clinical pediatric education. Attitudes of physical therapy students did not change significantly after an optional clinical experience or a required clinical pediatric experience (Clopton & Baker, 1996). Data existed to support that a clinical pediatric experience resulted in a significant and lasting effect on students. Students reported increased confidence in their ability to treat pediatric clients (whether they completed an optional or required clinical pediatric experience) more so than those students who did not complete pediatric clinical experience (Clopton & Baker, 1996).

A pediatric clinical education survey was conducted by Kenyon et al. in 2017. In 2017, Kenyon et al. also completed a research report that explored pediatric clinical education in professional physical therapy programs across the United States. Responses to the survey were received from 74% of the 215 programs that were invited to participate. The number of Doctor of Physical Therapy (DPT) programs that required completion of a pediatric clinical education experience was 2.5%. Individuals who responded to the survey indicated that students' requests for a clinical education experience were met. Most representatives (72.7%) of programs surveyed offered their students optional clinical experience only in the final year (3rd year) of their educational program (Kenyon et al., 2017). Consequently, all students were exposed to pediatric knowledge and skills during their education, yet students may not have been exposed to experiences with both typically developing children and children with health conditions.

Kenyon et al. (2017) reported that nearly 73% of situations of pediatric clinical education experiences occurred in the final year of a student's educational program. This may have posed problems for encouraging students to explore pediatrics, as there was limited clinical exposure for students in the first two years of their programs. Kenyon et al. (2017) noted that additional research is needed to explore pediatrics as an area of practice early in a physical therapy program. They also recommended more research is needed to explore clinical education experiences for students and support the needs of professional PT graduates who wish to practice pediatric physical therapy (Kenyon et al., 2017).

Martin et al. (2017) presented a method and model description for students to engage in full-time early clinical experience in pediatric physical therapy to address inadequate pediatric clinical experiences of students. Martin et al. cited a study by Schreiber et al. (2011) that reported variations exist in pediatric physical therapy education. Schreiber et al. (2011) reported

that 29.6% of their survey participants considered their pediatric curriculum "inadequate." Martin et al. suggested early pediatric clinical experiences are a possible answer to the problem of inadequate PT education. However, they reported a resistance from clinical pediatric physical therapists to teaching students early in their education, as therapists felt students lack experiental learning experiences with children in many educational programs. Through good communication and setting of appropriate expectations by academic and clinical faculty, learning activities were developed in this Martin et al. model that meet requirements of the essential core competencies in pediatrics and the "Clinical Performance Instrument" (Martin et al., 2017). Martin et al. concluded that making pediatric clinical education available earlier in a curriculum improved the "quality" of clinical education and related to an ability to accommodate more students who can experience experiential learning for extended periods of time (Martin et al., 2017).

Summary

Research on clinical education has indicated that even though there are specific standards recommended by the APPT and the CAPTE, variances occur in the number, type, and hours of clinical experience in which students participate. Several researchers also discussed their findings regarding inconsistencies and inadequate pediatric clinical education. Clinical pediatric experiences are optional in most physical therapy programs, as are elective advanced pediatric courses. Some students may not have a chance to have clinical experiences beyond a lab session or an observation with a typically developing child. Students may not have an option to have clinical experiences with children with health conditions. Without this type of experiential learning, students may not gain the confidence and comfort to feel they need to be effective as pediatric physical therapists. Therefore, it is important to survey three cohorts of physical therapy students at three midwestern universities related to whether they are considering

practicing pediatrics, and the experiences that influence their decisions. It is also important to determine if there are differences between students considering pediatrics and those who are not and their level of agreement regarding the positive (or negative) influences life, educational, and clinical experiences with children have had on them (PT students). Quantitative data provided through research may provide evidence for physical therapy program administrators and educators to assist in determining when and what experiences with children positively influence physical therapy students' considerations to practice pediatrics. Providing these experiences in an physical therapy educational program that incorporates adult learning theories may improve student interest, confidence, and comfort with children. These experiences may increase the percentage of students who practice pediatrics in their clinic or choose pediatrics as a career specialty, filling a workforce need and further serving the needs of children in society. The results of this study will provide evidence related to students' perspectives on experiences with children in their educational curriculum, as recommended in the literature.

CHAPTER III

METHODOLOGY

While there are several studies which have researched physical therapy students' perceptions of the practice of geriatrics, disabilities, and professional roles, there is a significant gap in the literature specifically relating to how experiences with children influence a student's consideration of practicing pediatrics. Surveys exist on physical therapy academic and clinical educators' perspectives on experiential learning in pediatric education. However, there is limited research on students' perspectives regarding the influence of life experiences, educational experiences, and clinical experiences on their interests and considerations to practice pediatrics. To address this gap, the quantitative research study described in this paper was developed and approved by the University of North Dakota School of Graduate Studies (Appendix A). The University of North Dakota Institutional Review Board (UND IRB) also approved the study (Appendix B). It was then conducted, surveying physical therapy students at three midwestern universities. A paper survey entitled, *Physical Therapy Student Survey on Pediatrics* (Appendix C) and an online survey entitled, *Physical Therapy Student Survey on Pediatrics* (Appendix D) were developed to ask PT students whether they were considering pediatric practice after graduation.

Chapter III includes a description of the research purpose, participants, research design, research questions, research hypotheses, human subjects and ethical considerations, survey instrument, data collection strategies, reliability and validity of data, recruitment of participants,

and data analysis procedures for each of the research questions including dependent and independent variables and rationale.

Purpose

There is a critical need to discover what factors and experiences influence students' considerations to practice pediatric physical therapy after graduation due to the number of job positions projected to be open in 2020 and an apparent increase in number of children who will need to be served in the future. At the time of this study, experiential learning was beginning to be explored in physical therapy programs as a method to enhance student learning and interest in pediatric education. It is important for students, educators, and clinicians to examine life experiences, educational experiences, and clinical experiences, of PT students and determine if these experiences make a difference in PT students' considerations to practice pediatrics. Data from the *Physical Therapy Student Survey on Pediatrics*, the survey instrument for this study, can provide evidence on factors and experiences integrated into a pediatric educational curriculum that have improved knowledge, skills, abilities, and interests of PT students in the practice of pediatrics. What experiences made a difference in students' lives and at what time in their education did these experiences make a difference?

The purpose of this research study was to assess if there was a difference between students who were considering a focus on pediatrics and those who do not, as well as their level of agreement on the positive influence of life experiences with children, educational experiences with children, and clinical experiences with children on their decisions. Demographic information was gathered regarding age, race, gender, marital status, whether or not participants had children, and what year in a physical therapy program students were in. Other questions addressing educational and clinical factors emerged during a pilot study conducted by this author

(Elbert, 2018) and were also found throughout the literature. Descriptive statistics were used to analyze the first two research questions. The first research question was, “What percentage of physical therapy students who are interested in pediatrics have completed an observation in pediatrics?” The second research question was, “In what year of their physical therapy education (1, 2, or 3) do most of the physical therapy students become interested in pediatric physical therapy? The third research question was answered using inferential statistics. Results will be reported in Chapter IV in text and table format.

Participants

The primary investigator obtained prior approval from the University of North Dakota Institutional Review Board and the program chair at the first university’s physical therapy program before beginning the study. The other two university program chairs reviewed UND’s IRB approval and then approved the study. Letters of support were obtained from the directors of all three physical therapy programs (Appendix E, Appendix F, Appendix G). This approval was sought prior to recruiting participants and administering the surveys to ensure the rights and welfare of human subjects in social behavioral research were protected. Gaining approval of all administrators involved ensured that all research participants received the highest standard of protection.

This study surveyed participants enrolled as students in accredited Doctor of Physical Therapy (DPT) programs at three Upper Midwestern universities. The number of students enrolled in each program varied from year to year and institution to institution. All three universities offered lifespan courses that emphasized pediatric knowledge, skills, and abilities. Such courses were mandatory in the curriculum and offered in the second year of a three-year program.

University 1 had three cohorts, averaging 52 students per cohort, and a total of 154 students in their program. The university had no specific requirement for student observations in pediatrics, before they applied to the physical therapy program, though observations were encouraged in a variety of settings. Once in their PT program, students have a mandatory pediatric course (Lifespan I). An elective advanced pediatric course is required for an elective pediatric 9-week clinical experience occurring in their last semester of their third year. Students were encouraged to do a 1-week pediatric clinical experience, before taking the advanced pediatric course. The program did not require any specific pediatric clinical experience for students. Students did have labs where they worked with infants, young children, and parents during a mandatory Lifespan I course, in their second semester of the second year of their program.

University 2 had three cohorts of 36 students each and a total of 108 students in their PT program. The university had no specific requirement for students having to observe in pediatrics before students applied to the physical therapy program. Students had to take a mandatory Lifespan I course that was considered a pediatric course, and University 2 did not offer an elective advanced pediatric course. The university did not require a pediatric clinical educational experience, but clinical educational experiences with children were available. There were no specific requirements students had to have before participating in a pediatric clinical educational experience other than the pediatric clinical experience had to be completed during the students' last semester.

University 3 had three cohorts of approximately 48 students and a total of 144 students. University 3 did not require students experience a pediatric observation before students applied to the program. Every student had to take a mandatory course in Lifespan I in the first semester

of their second year; and in the same semester, they participated in educational experiences with children in a baby lab (2 hours), preschool lab (2 hours), and a torticollis clinic (4 hours). They had two advanced pediatric courses offered in Year 3 of their program. Each student was required to take 1 credit hour of a program elective during their education. A pediatric clinical experience was optional, not required. Requirements students needed before taking an optional pediatric clinical experience were dependent on the clinical site, some required a pediatric elective. University 3 offered an elective service-learning experience that involved pediatric experiences.

Physical therapy students enrolled in physical therapy programs at three Midwestern Universities were voluntarily asked to complete a Likert-type survey with some demographic and open-ended questions. A total of 406 students in Year 1 to Year 3 of a PT program were asked to complete the survey instrument voluntarily. A pre-approved recruitment script was used to ask students to participate in the study (Appendix H) A consent form (Appendix I) was presented to students with a description of the study, before the survey was handed out to volunteering participants at each university. The survey instrument was hand delivered to most students at the three participating universities by the primary researcher. The primary researcher had assistance from professors involved in teaching neurology and pediatrics in handing out surveys. The primary researcher was allowed access to all of the PT students present on each campus. Online surveys were sent through a Qualtrics (January 2019 version) link, with assistance of educators from two programs to third-year students not present on their campuses related to clinical education experiences. An email that contained the Qualtrics link gave the same explanation of the survey to online participants as was given to students on campuses. The first pages of the survey contained the consent form. Consent was indicated by online

participants by their completion of the survey. Students were given the UND IRB link, and the primary researcher's name and her advisor's name, email address, mail address, and phone number, in case participants wanted to ask questions of the UND IRB, the primary researcher, and/or her advisor.

Consent forms and surveys completed on campuses were collected by the primary researcher. Online survey data was collected through Qualtrics Reports and retrieved by the primary researcher. All consent forms were separated from surveys, and no identifying information was allowed on any survey that connected consent forms to participants. Demographic information on participants is listed in Chapter IV in text format.

Research Design

This quantitative research study used a Likert-type survey design to assess differences in how the influence of life experiences, educational experiences, and clinical experiences affected students who were considering practicing pediatrics and students who were not considering practicing pediatrics. The survey also asked yes/no and short answer questions regarding demographic, personal, educational, and clinical factors in student physical therapists' careers and their considerations concerning pediatrics. This non-experimental quantitative research was approved by the University of North Dakota IRB and department chairs/program directors of each university physical therapy program. Consent was obtained from all students who completed the survey. This researcher acknowledged that the researcher possessed no conflict of interest or bias related to this research. Student confidentiality was maintained, and there were no monetary benefits to the researcher, the universities involved, or the students who participated in the study. Students received no academic credit for completing the survey. Possible benefits of this study included providing evidence on the influence of positive pediatric experiences for

students integrated into a curriculum, educational programs, and pediatric practice. Evidence regarding experiential learning benefits promoting physical therapy professional pediatric education and practice was also a possible outcome of this research.

This multi-site survey study used participants enrolled as students in DPT programs at three Upper Midwestern universities. All three universities offered lifespan courses that emphasized pediatric knowledge, skills, and abilities. Such courses were mandatory in their curricula and offered in the second year of a three-year program.

Research Questions

This study used the following research questions with respect to physical therapy students.

Research Question 1: What percentage of physical therapy students who are interested in pediatrics have completed an observation in pediatrics?

Research Question 2: In what year of their physical therapy education (1, 2, or 3) do most of the physical therapy students become interested in pediatric physical therapy?

Research Question 3: What experiential differences exist between physical therapist students who consider practicing pediatrics and those who do not?

Research Hypotheses

The following research hypotheses were utilized to support the research questions for this study.

H1: A higher percentage of physical therapy students who are interested in practicing pediatrics will have completed an observational experience with children than the percentage of students interested in pediatrics who have not completed an observational experience with children.

H2: A higher percentage of physical therapy students develop an interest in pediatrics in the second year of their educational program compared to any other year.

H3: Physical therapy students are more strongly influenced to consider practicing pediatrics when educational experiences with children are integrated into their educational curricula than when educational experiences with children are not integrated into curricula.

Human Subjects and Ethical Considerations

Data were collected from multiple (three) universities. In order to ensure data were collected ethically, the primary researcher spoke with each insitution's department chair to confirm specific policies, procedures, and regulations were followed. Each department director/program chair sent a letter of support to the researcher giving the researcher permission to include each department chair's students in the study. These letters of support were needed to gain IRB approval from UND. Before the researcher could proceed with the survey, each participating institution requested a copy of UND's IRB approval after it was received by the researcher. Each department director/program chair received a copy of the IRB approval and a link to the UND IRB survey site before the study began.

The researcher developed an informed consent statement form that was distibuted by the primary researcher and/or a representative from each physical therapy program to students taking the survey in hardcopy form. Each participant was provided a personal copy of the consent form and was given time to read the form prior to completing the survey. The consent form included the purpose of the research study, procedures to be followed, risks of the study, benefits of the study, duration of the study, statement of confidentiality, right to ask questions, no compensation information, and notice of voluntary participation. No deception occurred during this study.

Students were aware, from the informed consent form, the purpose of the study was to survey their ideas regarding consideration to practice pediatric physical therapy. The survey was collected by the primary researcher and a representative of each PT program, who were the only individuals in contact with completed surveys for each institution. There was no link between individuals in contact with completed surveys or connecting individuals from different insitutions. There was also no link connecting voluntary participants to their responses or identities. During the data collection period, participants' survey data were stored in a locked file cabinet in the office of the primary researcher. Surveys were not signed; therefore, no link could be made between consent forms, individual students, and/or their responses. Data was to be retained in the primary researcher's office for 3 years after the study was completed as designated in the approved UND IRB approval form.

Instrument

The researcher developed the survey instrument based on a pilot study (Elbert, 2018), the theoretic framework of adult education theory, and past research in the literature on life experiences with children, educational experiences with children, and clinical experience with children. Experiential learning in pediatric physical therapy education was also reviewed for possible types of questions to present on the survey. Surveys were reviewed from previous studies on factors that professionals used to determine in what specialty area they planned to practice in after graduation (Barash & Golding, 2005, DeSutter & LeMire, 2016). The final survey instrument developed consisted of 21 questions. The first 10 questions of the survey contained yes/no and short answer questions pertaining to demographics factors of gender, race, age, marital status, family status (Did participants have children?), and personal factors such as whether the student had a family member or a friend with a functional, activity, or participation

limitation since childhood. Other factors included whether the student engaged in observation, volunteer, or employment experiences with children. The last question was whether students felt that pediatric physical therapists needed certain personality characteristics. This question evolved from the pilot study (Elbert, 2018).

The second section of the survey was designed with yes/no, short answer questions, and rating questions (Questions 11-19) that pertained to a student's academic and clinical education. Students were asked to answer a question on whether they were interested in pediatrics, and when (what year in school) they made the decision to become interested or not interested in pediatrics. They were also asked about transformational learning experiences or college courses that caused them to have an interest in pediatrics or not. Short answer questions completed this section asking students to rank top reasons why they did or did not want to consider practicing pediatric physical therapy after graduation. Students also had the opportunity to add any comments to the survey (Survey Question 20) regarding physical therapy pediatric education.

The last section of the survey used a Likert-type format (Survey Question 21) consisting of 12 statements and assessing participants' level of agreement with each statement. Each subconstruct of the construct *experiences* was addressed by four statements. Subconstructs addressed were life experiences, educational experiences, and clinical experiences. The Likert-type section of this survey was used to determine if there was a difference between students' considering practicing in pediatrics after graduation and those who were not and the positive influences of the three subconstructs of experience on those decisions. The Likert-type scale used was as follows: 6 = *strongly agree*, 5 = *agree*, 4 = *slightly agree* (Numbers 4-6 indicated some form of agreement), 3 = *slightly disagree*, 2 = *disagree*, and 1 = *strongly disagree* (Numbers 1-3 indicated some form of disagreement). The researcher conceptualized this Likert-type scale as

assessing the subconstructs of life experiences, educational experiences, and clinical experiences in relationship to student participants' considerations to practice pediatrics after graduation. Statements were designed to answer whether there was an experiential difference between two populations of students, those considering practicing pediatrics and those not considering practicing pediatrics.

Short answer questions provided data used to augment quantitative data regarding what students felt were the most important reasons they considered practicing pediatrics, or what were the most important reasons why students were not considering practicing pediatrics (Write in short answers can be found in Appendix J). Students provided information on pediatric education, ranking topics by importance and listing reasons why or why they were not considering pediatrics after graduation.

Data Collection

The principal researcher presented the purpose of the survey to three cohorts of students (Year 1, Year 2, and Year 3) present on each of three campuses. The consent form was explained, and students were voluntarily asked to consent to participate through by signing their consent forms. Students then completed or did not complete the written survey.

Students who were not present on a campus, related to clinical education experiences were emailed a consent form and survey via a Qualtrics (January 2019 version) link. Data was accessed through online surveys and Qualtrics Reports. Collected data was entered into SPSS software (Version 25) through the assistance of a trained researcher. Tests were performed and analyzed by the primary researcher.

The three university physical therapy programs surveyed were located in the Upper Midwestern United States. Students were informed that there was not any financial

compensation for participating in the study nor any penalties for not participating in the study. Students were informed that all responses were anonymous, and they could end their participation at any time without penalty. The study consent form described the purpose of the study and asked students for their participation.

Assuring Accuracy and Consistency in Measurements

For results of a survey to be trusted, and to reduce error, a measurement tool needs to be valid and reliable. The survey in this quantitative study needed to be valid and reliable. The survey was developed by the primary researcher to measure, through students reporting on the survey, the influence of factors and experiences on students' considerations to practice pediatrics. Reliability and validity were methods explored by the researcher before distributing the survey to ensure accuracy and consistency of measurement in this study.

Reliability

Reliability refers to consistency of results (Warner, 2013). The meaning of reliability is that we expect there will not different results or findings each time a test is given, with the assumption that nothing has changed in what is being measured (Nardi, 2003). Several methods for testing reliability were explored regarding the research survey developed for this study.

Test-Retest reliability. Results of a qualitative pilot study (Elbert, 2018) were used to develop questions for this study. Data obtained from the pilot study through qualitative means, such as interviews, matched the perceptions, attitudes, and opinions of students who completed this study. Second-year students who participated in the pilot study, conducted 6 months before this study, were compared to second-year students' responses in this quantitative study. Student responses to key questions regarding experiences with children in educational settings was compared between pilot study participants and participants of this quantitative study. Results of

these two studies were compared to ensure reliability. Survey results were also compared between third-year cohorts. Surveys for this quantitative study were conducted a week apart at each university to second- and first-year students. These students were at the same level in their education as students in the pilot study and were taking Lifespan I or had completed Lifespan I in Year 2 of their program. Results of the two studies were similar, indicating test-retest reliability, and ability to combine all cohorts to examine results collectively. Cronbach's alpha was used as a measure of internal consistency. The Cronbach's alpha test indicates the closer a correlation coefficient is to one, the greater the reliability (Nardi, 2003).

Parallel form and inter-item reliability. Consistency can also be determined regarding a concept or construct that was measured by comparing that concept or construct to some equivalent measure or set of items, externally or internally (Nardi, 2003). The questions regarding experience were compared to a similar study on factors and experiences occupational therapists used to determine their interest in practicing pediatrics (Barash & Golding, 2005) and a research study by Akram et al. (2013) on the preferred academic and clinical specialty of final year students of physical therapy. Results of the pilot study (Elbert, 2018) for this project were also compared to results from this quantitative study to develop consistency. For example, if we examine the question of whether or not students who are considering pediatrics had completed some observation hours, in the pilot study, a student who was considering pediatrics had completed hours of observations of children with health conditions. "The student" considered that an important part of their decision to consider practicing pediatrics. Results from this quantitative survey also indicated a large percentage of students in the three cohorts considering practicing pediatrics had completed observations in pediatric clinics and schools.

Inter-item reliability is a method of statistically determining consistency by examining internal stability of an instrument. This is achieved through selection of a group of items developed to measure the same construct or variable and then comparing the answers within the group of items. An example of this on the survey would be the variable of students' consideration to practice pediatrics, a yes or no question. Results were matched with an earlier question regarding if a student had an interest in pediatrics. Eighty-eight percent of students answered yes to both questions. The fourteen of respondents who answered they had an interest but were not considering pediatrics stated they had an interest, but were unsure at the time of the study if they wanted to specialize in pediatrics. This demonstrated the concept that the more ways you ask a question and get similar answers, the greater the reliability of your results. Reliability is found when you have demonstrated consistency among answers of multiple measures of the same concept or construct (Nardi, 2003).

Validity

A measure is valid, if it measures what it is supposed to measure (Warner, 2013). In a valid measurement instrument, scores provide information needed about constructs intended to be measure by the instrument. There are several means to determine if a measure used is valid: face, content, construct, and criterion validity.

Face validity. Face validity is an unscientific method of determining if a measure appears to be measuring what it is supposed to. With face validity, researchers develop a consensus over time on whether a measure is measuring something accurately, but no scientific test is conducted to measure accuracy of results. Measurements are taken at "face value." For example, if a survey question asks how tall a person is, face validity would assume respondents gave correct answers and the question was an accurate way to measure results (Nardi, 2003). For

this study, a Likert-type scale was developed to measure level of agreement of items regarding the subconstructs of experience and their influence on students' considerations to practice pediatrics. Validity of the survey depended on students answering questions using a Likert scale truthfully. One of the assumptions of this study was that students answered questions truthfully, and their answers can be taken at "face value" (Nardi, 2003).

Content validity. Another subjective method of measuring validity is through content validity. It is a method of understanding how well a set of items measures a variable being studied (Nardi, 2003). Content validity asks the question, "Does the content of the items cover all the dimensions of the idea?" (Nardi, 2018, p. 64). Again, over time, researchers tend to develop a consensus about whether or not the answer to this question is yes or no.

In this study, items on the Likert-type scale were developed to measure the dimensions of experiences that can influence students' considerations to practice pediatrics. In the pilot study (Elbert, 2018), interviews and a literature review were used to develop items or statements to address the three subconstructs of life experiences, educational experiences, and clinical experiences of physical therapy students. Several other physical therapy educators were consulted regarding the items, and a consensus was reached among those consulted about items on the questionnaire being capable of measuring factors determining whether student physical therapists would or would not consider practicing pediatrics. The consensus was that observations, and students' educational and clinical experiences were often reasons students considered a career in pediatrics. The literature in the review also supported the importance of experiences in forming students' interests in working with children (Clopton & Baker, 1996; Diacin & Vansickle, 2014; Schreiber et al., 2015).

Content validity of this survey was established through triangulation of a pilot study (Elbert, 2018), research, and colleagues' assessments of the survey. A pilot study was conducted as a qualitative research study with six interviews of second year PT students regarding why they were or why they were not open to pursuing a career in pediatrics. Two colleagues were asked to review the questionnaire for this study for readability. Changes were made several times to the survey to increase readability and to ensure survey data would answer research questions. Other studies in the literature were reviewed to examine "recommendations for further study" in those studies, as well as other questionnaires and surveys developed in other studies on factors that determine a student's choice of a specialty or career. Comparing other studies to this study helped increase content validity of this survey. Therefore, content validity, which is " the degree to which the content of questions in a self-report measure convey the entire-domain of material that should be included " (Warner, 2013, p. 1079) was assessed by triangulation of the pilot study, expert opinions, and the literature.

Sensitivity

Sensitivity implies having scores on a survey that allow the researcher to distinguish among groups of people who have different characteristics (Warner, 2013). One factor limiting sensitivity is when low numbers of participants complete a survey. For this study, first-year students had a high number of completions in two of the three universities, second-year students had a high number of completions of the surveys in two of the three universities. Third-year students who completed a hardcopy of the survey at one university had a high number of completions. The online survey sent to third year students during their clinical experiences off campus had a completion rate of 36 out of a possible 88 participants from two universities.

Combined completed surveys showed a high rate of completion which increased measurement sensitivity.

Sensitivity can also be affected by number of alternatives or responses available for each question. For example, a Likert-type question with 10 degrees of responses (1 = *extremely happy* to 10 = *extremely sad*) shows a greater degree of sensitivity to a question like "Are you happy?" than a simple yes or no answer might show. For this study, a Likert-type scale used to measure level of participant agreement with data needed to answer Research Question 3 provided a larger number of response alternatives, from 1 = *strongly disagree* to 6 = *strongly agree*, to statements on the survey than a simple yes/no question would have provided. "A question that provides a larger number of response alternatives potentially provides a measure of [a statement or question] that is more sensitive to individual differences" (Warner, 2013, p. 902) than a smaller number of responses would provide. Increasing sensitivity in a question or statement on a survey may also reduce ceiling or floor effects of scores accumulating at the top or bottom end of a set of data.

Internal Validity

An analysis of results of the survey was completed to ensure internal validity using the following procedures. Most surveys were distributed in hardcopy format with similar instructions on the purpose of this survey given to participants at various locations by the primary researcher. This procedure prevented researcher bias and provided consistency in instruction and distribution of the survey at all three institutions. An identical one-time online survey was available through a Qualtrics (January 2019 version) link to third year students involved in their clinical experiences for two of the participating institutions. At one institution, third-year students were on campus,

and they completed the hardcopy survey. This collection reduced the likelihood of testing effects and maturation.

Data was analyzed using appropriate statistical procedures completed by a qualified individual competent in SPSS statistical software. Lastly, all surveys and data were collected anonymously with no identifiable markers. Participants were able to withdraw from the study at any time and could refuse to answer any questions, or even refuse to take the survey, if they so desired. This anonymity encouraged participants to be honest and give trustworthy responses since answers could not be related back to individual participants. Hopefully, this maximized internal validity.

Data Analysis

Data analysis involved multiple steps and items to determine whether there was a difference in physical therapy students who were considering practicing pediatrics and those who were not based on experiences of students. The steps included:

1. Establishing validity of scale items;
2. Analyzing Cronbach's alpha for scale reliability;
3. Analyzing descriptive statistics of participants and individual scale items; and
4. Testing group differences utilizing independent sample *t*-tests, using data from first, second, and third year physical therapy students from three physical therapy programs. The independent sample *t*-test was used to analyze if there was a difference in life experiences, educational experiences, and clinical experiences of students who were considering pediatrics or were not considering pediatrics as a career option.

The researcher used the Statistical Package for the Social Sciences (SPSS) software (Version 25) for descriptive statistical analyses, as well as inferential statistics. Descriptive statistics were used to calculate means, standard deviations, and frequencies for Research Question 1 and Research Question 2. Inferential statistics using an Independent *t*-test with a Type 1 error rate of 0.05 was conducted to answer Research Question 3.

Research Question 1

What percentage of physical therapy students who are interested in pediatrics have completed an observation in pediatrics? Descriptive statistics in the form of frequencies (and percentages) of data from the survey were used to answer this question. Some data was presented in table form and some in text. The hypothesis associated with Research Question 1 was, "A higher percentage of physical therapy students who are interested in practicing pediatrics will have completed an observational experience with children than the percentage of students interested in pediatrics who have not completed an observational experience with children."

The rationale for this hypothesis was built on a framework of experiential learning (Fenwick, 2003; Knowles, 1980; Knowles & Associates, 1984; Kolb, 1984) and adult learning theory (Merriam & Bierema, 2014). Learning through observations allows students to gain knowledge, skills, beliefs, and attitudes about pediatrics (Schunk, 1996). Students that have completed a positive observational experience by observing a pediatric physical therapist at work can develop a positive attitude about pediatrics and interest in practicing pediatrics. Literature reviewed indicated that observation of an allied health professional is one influential factor in a student's choice of careers or the clientele they may prefer to work with in their future careers (Anders, 2005; Byrne, 2015; Miller & Ciocci, 2013). Wojciechowski (2013) found students observations of physical therapists working in a clinic with clients or with a member of a

student's family was a factor that influenced them to consider a career in physical therapy. This study used descriptive statistics to answer Research Question 1 and examine whether or not most students who have completed observations of children were interested in practicing pediatrics and to test Hypothesis 1 based on a framework of adult learning theory and experiential learning theory, and based on research utilizing the subconstruct of life experiences, including observations, reviewed in the literature.

Research Question 2

In what year of their physical therapy education (1, 2, or 3) do most of the physical therapy students become interested in pediatric physical therapy? Descriptive statistics from the survey regarding what year students became interested in pediatrics was analyzed and displayed on a table using the variables interested in practicing pediatrics (yes/no) and year student developed their interest in practicing pediatrics. The hypothesis associated with Research Question 2 was "a higher percentage of physical therapy students develop an interest in pediatrics in the second year of their educational program compared to any other year."

The rationale for this hypothesis was based on a framework of experiential learning (Fenwick, 2003; Knowles, 1980; Knowles & Associates, 1984; Kolb, 1984). Students in physical therapy programs take a course in Lifespan I in the second year of their programs, which includes content regarding pediatrics and pediatric lab experiences with children. Increasing positive experiences with children can increase student learning about pediatrics. Positive experiences with children combined with the experiential learning model of Kolb and Yeganeh (2012) suggests experiences with children include concrete experiences, reflection, conceptualizations, and experimentation and students receive that in pediatric courses and labs.

In the literature, Lähteenmäki (2005) emphasized the model of four stages of experiential learning proposed by Kolb and Yeganeh (2012) increased student learning during a pediatric experience. A study by Chapman and Sellheim (2017) reported that adult learning theory of self-directed learning activities, real life experiences with children, organized class sessions, and a positive supportive learning climate all enhanced a student's ability to develop knowledge and knowledge confidence in pediatric physical therapy content.

The rationale to explore when students determined their interest in pediatrics through a survey question was based on adult learning theories and the literature. Data collected through descriptive statistics was used to analyze the hypothesis that students develop an interest in pediatrics in their second year when they have the most exposure to content and experiences with children.

Research Question 3

What experiential differences exist between physical therapy students who consider practicing pediatrics and those who do not? The subconstructs of life experiences, educational experiences, and clinical experiences were the dependent variables. To obtain data on the subconstruct of life experiences, responses from the first four Likert-type statements under Survey Question 21 were averaged. To obtain data on the subconstruct of educational experiences, responses from the second four statements under Survey Question 21 were averaged. To obtain data on the subconstruct of clinical experiences, responses from the last four statements under Survey Question 21 were averaged. Percentages showing some form of agreement with each statement, means, and standard deviations for each subconstruct were reported. Correlations and reliability statistics for each subconstruct was conducted when $p < .05$. The independent variable was whether or not physical therapy students were considering

practicing pediatrics after graduation. The hypothesis was, “Physical therapy students are more strongly influenced to consider practicing pediatrics when educational experiences with children are integrated into their educational curricula than when educational experiences with children are not integrated into curricula.” To test this hypothesis, an Independent Samples *t*-Test was used for analysis.

The rationale for the hypothesis associated with Research Question 3 was that positive educational experiences with children are a significant factor in influencing students’ decisions to consider practicing pediatrics after graduation. This rationale was conceptualized from experiential learning and adult learning theory (Fenwick, 2003; Knowles & Associates, 1984; Kolb & Yeganeh, 2012; Merriam & Bierema, 2014). Integration of experiences into a curriculum, combining reflection, conceptualization, and experimentation increases a student’s learning of pediatric content, skills, and their ability to work with children.

In the literature review, Smith and Crocker (2017) concluded that the benefits of experiential learning have been documented in literature, but the best method and time of exposure are yet to be determined. Several authors have concluded that experiential learning should be an integral part of every entry-level PT educational program, especially with pediatric education (Moerchen et al., 2017; Schreiber et al., 2015; Smith & Crocker, 2017). Data and analyses from this question tested the hypothesis and explored whether positive experiences with children that are integrated in students’ curricula will strongly influence a students’ consideration to practice pediatrics, as conceptualized in adult learning theory and compared to the results of the literature review.

Short Answer and Open-Ended Questions

Open ended responses to short answer questions on the survey were reported to add further descriptive information about factors influencing students' considerations on practicing pediatrics. Demographic information was reported using descriptive statistics in text and table formats.

Summary of Procedures

Demographic information as well as short answer questions were obtained from all students who voluntarily completed the survey in three different Upper Midwest physical therapy programs. A 12-question Likert-type section was also part of the survey to answer research questions. Student respondents ranged from first to third year students. The principal researcher presented the purpose of the survey to student participants during one of their classes, or online, and the purpose of a consent form was explained. Consent was obtained, and students voluntarily completed the survey. Students were informed they could answer any or all of the questions. A student could also choose to stop answering questions at any time. The study was approved by the UND IRB and was supported by department chairs of the three physical therapy programs involved in the study. The researcher did not receive any funding or other rewards from the universities for completing this research. Students were volunteers and did not receive any gains or penalties for completing or not completing the survey.

Several measures were implemented to ensure internal validity of the study. First, operational definitions which identified terms and variables associated with this study were provided. Secondly, the methods in which the study was conducted was described. This study used physical therapy students from three Upper Midwestern universities in which a consent form was signed and a survey was completed in one setting and simultaneously for each year of

students. Most surveys were completed on site so that loss of participants would be minimal. An online survey for third-year students off campus was conducted over a 3-week period to allow students several chances in that time frame to complete the survey. Email reminders were sent out after the first week to encourage students to volunteer to complete the survey. The study obtained an adequate number of total participants.

The developed survey was measured for content validity through triangulation to ensure data from the survey answered research questions. Lastly, data analysis was completed through SPSS software (Version 25) to assess and interpret data collected from participants.

CHAPTER IV

RESULTS

Statement of the Problem

It is important for physical therapy students to have experiences with clients of all ages in order to reach the goal of becoming an entry level physical therapist upon graduation from an accredited physical therapy program (APTA, Section on Pediatrics, 2008). Having experiential learning during their lifespan courses allows students to demonstrate knowledge, skills, and abilities needed to work with children. Adult learning theory tells us that the concept of experience together with reflection and guidance increases students' awareness and confidence in their pediatric knowledge, skills, and abilities (Merriam & Bierema, 2014). However, research literature has indicated that there are variances in timing, content, and experiences students receive with children that are integrated into various physical therapy programs' curricula (Schreiber et al., 2011). Students may not have exposure to experiences with children during their physical therapy educational programs. This lack of experience can negatively influence a student's interest in pursuing further elective courses or clinical experiences in pediatrics during their education. The problem is exacerbated by a lack of research regarding how positive experiences with children integrated into a curriculum in pediatric physical therapy education influences students' interests in practicing pediatrics.

There is also limited research evidence about students' perspectives on how experiences with children affect their considerations to practice pediatrics. Questions unanswered in research literature include:

1. Are experiences of PT students observing children beneficial to increasing students' interests in practicing pediatrics?
2. When should pediatric content and experiences with children occur in a curriculum of physical therapy programs to increase student interest in practicing pediatrics?
3. Do educational experiences with children positively influence practice decisions of PT students?

Therefore, it is important to survey physical therapy students to determine factors and experiences that may influence students to practice pediatric physical therapy. If more students are prepared to enter pediatrics practice through their life experiences, educational experiences, and clinical experiences with children, there will be more graduate physical therapists who consider practicing pediatrics. Through their physical therapy practice, these graduates can meet current and future needs of children and families so they can function adequately in their homes, schools, and communities.

Statement of Purpose

This study's purpose was to explore whether the subconstructs of *life experiences*, *educational experiences*, and *clinical experiences* made a difference in physical therapy students' considerations to practice PT pediatrics after graduation. Life experiences are individual and are not provided nor evaluated by an educational program. Students bring life experiences with them into a classroom, which can influence their decisions about focusing on pediatrics for a career.

Educational experiences and clinical experiences with children may or may not be part of a pediatric curriculum in a physical therapy program. This study strived to assess educational experiences and clinical experiences in a physical therapy curriculum that positively influence students' considerations to practice pediatrics. This study also explored factors related to student demographics, including: personality traits, mentors, life experiences, and year in an educational program, all of which can affect students' considerations to practice pediatrics.

Research Questions

Guiding research questions for this study were:

1. What percentage of physical therapy students who are interested in pediatrics have completed an observation in pediatrics?
2. In what year of their physical therapy education (1, 2, or 3) do most of the physical therapy students become interested in pediatric physical therapy?
3. What experiential differences exist between physical therapist students who consider practicing pediatrics and those who do not?

Hypotheses

Hypotheses for this study were:

H1: A higher percentage of physical therapy students who are interested in practicing pediatrics will have completed an observational experience with children than the percentage of students interested in pediatrics who have not completed an observational experience with children.

H2: A higher percentage of physical therapy students develop an interest in pediatrics in the second year of their educational program compared to any other year.

H3: Physical therapy students are more strongly influenced to consider practicing pediatrics when educational experiences with children are integrated into their educational curricula than when educational experiences with children are not integrated into curricula.

The purpose of this chapter is to present data collected through a survey of physical therapy students from three Upper Midwestern Doctor of Physical Therapy (DPT) programs that included cohorts from Year 1, Year 2, and Year 3. Data analysis involved multiple steps. The first two research questions were answered with descriptive statistics, and the third research question was answered with inferential statistics. Steps included:

1. Establishing validity of scale items;
2. Analyzing Cronbach's alpha for scale reliability;
3. Analyzing descriptive statistics of participants and individual scale items;
4. Testing group differences utilizing independent sample *t*-tests, using data from first, second, and third year physical therapy students from three accredited physical therapy programs. An independent sample *t*-test was used to analyze if there was a difference in life experiences, educational experiences, and clinical experiences of students who were considering pediatrics or were not considering pediatrics as a career option.

The researcher used IBM's Statistical Package for the Social Sciences (SPSS®) software (Version 25) for running descriptive statistical analyses, as well as inferential statistics. Statistics tests and results were verified by a trained SPSS researcher. Descriptive statistics were used to calculate means, standard deviations, and frequencies for research questions. Inferential statistics

using the independent sample *t*-test with a Type 1 error rate of 0.05 was conducted to answer the third research question.

Comments from short answer questions were used to augment statistics in this chapter and to improve validity of survey answers to Likert-type questions, as well as to supplement quantitative data analysis. Three questions from the survey were omitted from data analysis, as they did not directly answer research questions. Results indicated that students did not understand Questions 14, 15, and 16. In Questions 14 and 15, students appeared to misunderstand transformative learning experience, answered the questions with double negatives, or did not answer at all. Question 16 was a ranking of importance of pediatric subject matter. Some students did not answer, answered a few, or ranked multiple answers as one, two, or three, and did not rank 1-10 as requested in the question.

Validity

For self-reported questionnaires, validity relates to the content of the questionnaire (content validity). Warner (2013) defined content validity as "the degree to which the content of questions in a self-report measure covers the entire domain of material that should be included" (p. 1078). Another type of validity involves correlations of scores on a questionnaire with other variables known as criterion-oriented validity (Warner, 2013). The survey developed for this study was measured for content validity through triangulation to ensure data from the survey answered research questions.

Content validity is a non-statistical type of validity that involves "the systematic examination of the survey content to determine whether it covers a representative sample of the behavior domain to be measured" (Anastasi & Urbina, 1997, p. 114). A survey has content validity inherently when a researcher carefully selects items to include on the survey (Anastasi &

Urbina, 1997). Items are chosen to comply with survey specifications, which is created through a thorough examination of the subject domain. In this survey, content validity was accomplished through triangulation of the pilot study, expert opinions, and similar surveys found in the literature to measure factors and experiences.

Triangulation of Data

1. The researcher used a qualitative pilot study analysis on this relatively unexamined topic of student perceptions of pediatric therapy to develop items to include in this quantitative study (Tashakkori & Teddlie, 1998). The interviews of six physical therapy students were used as one source to establish issues and constructs to be addressed in the survey.
2. Foxcroft, Paterson, le Roux, and Herbst (2004) noted that by using a panel of experts to review survey specifications and selection of items to include on a survey, the content validity of the survey could be improved. Experts can review items on a survey and comment on whether items cover a representative sample of the behavior domain. The survey used in this research study was reviewed by two physical therapy educators to ensure items on the survey represented the subject domain, and questions were refined based on those experts' opinions.
3. Questions and data from the survey in this study were compared to results from another research survey of occupational therapy students (Barash & Golding, 2005) to validate using similar factors and constructs to answer research questions.

Internal Consistency Reliability and Cronbach's Alpha

Results of correlating subscale constructs (subconstructs) and measures of internal consistency reliability are listed in Table 1. Each subconstruct has internal reliability as measured

by Cronbach's alpha. Acceptable Cronbach's alpha values are approximately .70 and good values are .80 or higher, but less than .95 (Warner, 2013). The subconstruct of *life experiences* had a Cronbach's alpha of 0.84; the subconstruct of *educational experiences* had a Cronbach's alpha of .88; and the subconstruct of *clinical experiences* had a Cronbach's alpha of .88. All subconstructs had good internal consistency reliability.

Table 1

Correlation of Subscale Constructs (Subconstructs) and Measures of Internal Consistency for Survey Data

Subconstruct Number	**Subscales (Subconstructs)**	**Survey Question 21**	**C2**	**C3**	***Cronbach's Alpha* (α)**
C1	Life Experiences	First four statements			.84
C2	Educational Experiences	Second four statements	.63		.88
C3	Clinical Experiences	Third four statements	.68	.78	.88

Note. $p < .05$

It was found the correlations of the subconstructs were significant at $p < .05$.

Number of Study Participants

Preparation for accessing three Upper Midwest physical therapy programs was done through department chairs or known faculty who were contacted initially by email to solicit their interest in having PT students participate in this study. All three of the program administrators decided to allow their students to participate in this study. The total number of first-, second-, and third-year physical therapy students enrolled at the three universities, and available to participate, was 406. The number of total students from the three universities who attempted to complete the survey was 283.

- University 1: First Year = 48, Second Year = 51, Third Year (online) = 16

- University 2: First Year = 10, Second Year = 10, Third Year (online) = 22.
- University 3: First Year = 42, Second Year = 42, Third Year = 42.

Two of the three universities approached needed to gain IRB approval through their own institutions; one university reviewed the researcher's IRB approval from the researcher's university, and approval was granted through that department chair. All departmental chairs presented a letter of support to the researcher's IRB institution.

Invitations to Potential Participants

The primary researcher traveled to three university campuses and presented in person to physical therapy students the purpose of the study, an invitation to participate, a consent form to be signed, and a survey to be filled out by the physical therapy students. Surveys were available both in hardcopy and online survey form, if needed. The primary investigator strongly encouraged completion of hardcopy surveys to improve the survey completion rate. Table 2 shows methods of survey distribution for each class and institution.

Table 2

Survey Distribution Methods for Participant Universities

University	First Year Students	Second Year Students	Third Year Students
1	Hardcopy	Hardcopy	Online
2	Hardcopy	Hardcopy	Online
3	Hardcopy	Hardcopy	Hardcopy

Hardcopy surveys were distributed and collected by the primary researcher at two universities and the primary researcher and a faculty contact at one of the universities. All online

surveys, via a Qualtrics (January 2019 version) link, were distributed to students by their respective program chairpersons or program representatives. For online participants, an initial email was distributed to participant groups with follow-up email reminders sent after one week. Implied consent was obtained from online participants by students completing surveys. If they had not consented to be involved, they would not have completed their surveys. In Table 3 the frequency and percentage of student participation in this study by university can be seen.

Table 3

Frequency and Percentages of Student Participation by University

University	Available Number	Actual Number	Percentage Participation
1	154	115	75.7%
2	108	42	38.9%
3	144	126	87.5%
Totals	406	283	69.7%

Note. Calculations are rounded to the nearest 10th of a percent.

The highest percentage of participation was obtained at University 3 (87.5%), where all three student groups (Year 1, Year 2, and Year 3) were present on campus and completed hardcopies of the survey. The department chair allowed the primary researcher to come into classrooms at the end of class and invite students to participate in the survey.

At University 1, the department head also allowed the primary researcher to come into classrooms of Year 1 and Year 2 students and invite students to participate. University 1 students from Year 3, who completed an online survey, had a lower level of participation than other cohorts; only16 students out of a possible 52 students completed the survey.

University 2 invited students to participate over their noon hour, which may have decreased the number of student participants from Year 1 and Year 2; only 20 students out of the possible 72 students participated. Also, the number of third-year students completing the online survey was 22 out of a possible 36 students.

Demographics (Descriptive Statistics)

The primary design of this non-experimental quantitative study was to yield descriptive and inferential data to investigate experiential differences between students who were considering practicing pediatrics and those who were not. Students from three Upper Midwestern universities participated. Number of responses and amount of data collected were enough to conduct analyses; results provided valid and reliable outcomes of student physical therapists' perceptions (or considerations) about practicing pediatrics after graduation.

The participant population for this study involved student physical therapists from three Upper Midwestern doctoral physical therapy programs. Of the available 406 students or potential participants, 283 partially or wholly completed the survey. Demographic data collected included: age, ethnicity, gender, marital status, family status, and educational status (year in school).

Age

Of the 283 students surveyed, 280 replied to age, and three left it blank. The mean age of all respondents was 24.16, $SD = 2.677$, and age range was 20-42. Most students were age 24 (19.8%), with 25 the next most frequent age (19.4%).

Ethnicity

Students' responses to racial identity indicated most students were white (92.1%). Other students were American Indian or Alaska Native (1.8%), Asian (1.8%), Hispanic or Latino

(1.8%), Black or African American (1.4%), Native Hawaiian or Pacific Islander (0.7%), and Indian (0.4%).

Gender

Of the 283 respondents who partially or completely filled out a survey, 280 answered the question on gender. Most respondents were female (n = 183, 65.4%). Ninety-seven males (34.6%) responded to the survey. Three students did not respond to the question on gender.

Marital Status and Family Status

Of 283 respondents, 280 answered the question on marital status. Most respondents were single (n = 242, 86.4%); those married numbered 31 (11.1%), and some respondents answered other (n = 7, 2.5%). Three students did not respond. When asked if they had children, 280 respondents answered the question. Most respondents (n = 272, 97.1%) did not have children. Eight students indicated they had children (2.9%).

Respondents were asked if they had "a family member who had or has a functional, activity, or participation limitation since childhood." Two hundred eighty (N = 280) answered the question. Most respondents (n = 245, 87.5%) did not have a family member with a limitation since childhood. The number of respondents who indicated they had a family member with limitations was 35 (12.5%).

Observations, Volunteer Experience, and Employment Status

Respondents answered a question related to whether they had completed observation hours with children having functional, activity, and/or participation limitations. The total number of respondents answering this question was 279. Most respondents had completed some observation hours (n = 218, 78.1%); and 61 respondents (21.9%) had not completed observation

hours. Four respondents did not answer the question. Observational data was broken down by year in school in Table 4.

Table 4

Observations by Year in School

Year in PT	Done Observation		Not Done Observation	
	N	%	*N*	%
1	68	31.2	31	50.8
2	84	38.5	19	31.2
3	66	30.3	11	18.0
Totals	218	100.0	61	100.0

Note. $N = 279$.

Students who had completed some observation hours were asked to fill in number of hours they had completed in observation and this was recorded. The mean number of hours for 218 respondents ($n = 218$) who had completed some observation hours was 45.9 hours, with the range in hours being a minimum of 2 hours to a maximum of 1000 hours (see Table 5).

Table 5

Number of Hours Respondents Have Completed Observing Children

People Having Done Observations (*n*)	Mean (hours)	Maximum (hours)	Minimum (hours)	*SD*
218	45.9	1000	2	112.1

Respondents were also asked if they had completed volunteer hours with children. Two hundred seventy-nine ($N = 279$) students answered the question. Results showed 223 students (79.9%) had completed volunteer hours with children. Those who had not completed volunteer

hours with children numbered 56 (20.1%). Four respondents did not answer the question. For student volunteers, mean number of hours volunteering was 72.8. Maximum hours volunteered was at 1200.0; and minimum hours volunteered was at 2.0. Standard deviation (*SD*) was 128.84.

Respondents were also asked if they had previously been employed in a setting that works with children (Survey Question 9). Two hundred seventy-eight ($N = 278$) students answered the question. Results showed 180 students (64.8%) had been employed in a setting where they worked with children. Those who had not worked with children numbered 98 (35.3%). Five respondents did not answer the question.

Respondents Considering Practicing Pediatrics

Respondents' answers regarding whether or not they were considering practicing pediatrics were compared to whether or not they had children. Table 6 shows how family status compared to respondents "considering practicing pediatrics" after graduation and those not.

Table 6

Respondents Who Are Considering Pediatrics – Family Status

	Considering Practicing Pediatrics		**Not Considering Practicing Pediatrics**	
Survey Question 5. Do you have children?				
Yes	5	4.2%	3	1.9%
No	113	95.8%	158	98.1%
Total	118	100.0%	161	100.0%
Survey Question 6. Do you have a family member who had or has a functional, activity, or participation limitation since childhood (Example: Cerebral Palsy, Down Syndrome)?				
Yes	17	14.4%	18	11.2%
No	101	85.6%	143	88.8%
Total	118	100.0%	161	100.0%

The question: “Do you have a family member who had or has a functional, activity, or participation limitation since childhood,” was developed from literature that investigated a similar survey question in their research studies (DeSutter & LeMire, 2016; Fish & Stephens, 2010; Marks et al., 2005).

One survey question asked students if they had an interest in practicing pediatrics. Of the 283 respondents, 279 answered the question. Respondents who indicated they did have an interest in pediatrics equaled 137 (49.1%). Respondents not interested in a career in pediatrics numbered 142 (50.9%). Displayed in Table 7 is the year in school students decided that they were interested in pediatrics or not interested in pediatrics.

Table 7

Year in School Students Decided They Were Interested or Were Not Interested in Pediatrics

	Frequency (*n*)	**Percentage (%)**
Year Students Decided They Were Interested in Pediatrics		
Year 1	97	34.8%
Year 2	28	10.0%
Year 3	10	3.6%
Indicated all three years	1	0.4%
Prior to PT Education	1	0.4%
Subtotals	137	49.1%
Year Students Decided They Were Not Interested in Pediatrics		
Year 1	90	32.3%
Year 2	44	15.8%
Year 3	7	2.5%
Prior to PT Education	1	0.4%
Subtotals	142	50.9%
Totals	*N* = 279	100.0%

In Table 8 descriptive statistics on students considering or not considering pediatrics and their survey responses are displayed. In Table 8, whether or not students had experience observing, volunteering, or being employed was compared to whether or not students were considering practicing pediatrics after graduation. Students were also asked if they felt pediatric physical therapists needed certain personality traits to be effective working with children.

Table 8

Observations, Volunteerism, and Employment Compared to Students Considering Practicing Pediatrics

	Considering Practicing Pediatrics		**Not Considering Practicing Pediatrics**	
Survey Question 7. Have you done observation hours with children with functional, activity, and/or participation limitations?				
Yes	101	86.3%	116	72.1%
No	16	13.7%	45	28.0%
Total	117	100.0%	161	100.0%
Survey Question 8. Have you done volunteer hours with children (coaching, scouts, YMCA, Special Olympics)?				
Yes	105	89.7%	117	72.7%
No	12	10.3%	44	27.3%
Total	117	100.0%	161	100.0%
Survey Question 9. Have you previously been employed in a setting that works with children?				
Yes	92	78.0%	87	54.7%
No	26	22.0%	72	45.3%
Total	118	100.0%	159	100.0%
Survey Question 10. Do you feel pediatric physical therapists need specific personality traits to be effective?				
Yes	115	97.5%	156	97.0%
No	3	2.5%	5	3.1%
Total	118	100.0%	161	100.0%

Note. One respondent *considering practicing pediatrics* did not answer Survey Questions 7 and 8. Two respondents *not considering practicing pediatrics* did not answer Survey Question 9.

Variances in numbers of students who answered questions in Table 8 were related to not all students answering both questions. For example, Survey Question 19 (I am considering practicing pediatrics after graduation) was compared to Survey Question 7 (Have you done observation hours with children with functional, activity, and/or participation limitations?). Students who answered "yes" to Question 19 equaled 118; students answering "yes" to Question 7 equaled 117 with 1 student who answered "yes" to Question 19 not answering Question 7.

Short Answer Comments

Respondents who were considering a career in pediatric practice (n = 50) listed patience as the most important personality trait pediatric therapists needed to be effective. Respondents who were not considering a career in pediatric practice (n = 51) listed patience also as the most important trait pediatric therapists needed to be effective. Two respondents who did not answer the question on whether they were considering pediatrics as a career also listed patience as the most important trait for pediatric therapists to be effective. Other traits listed were creativity, compassion, enthusiasm, energetic, communicative, flexible, caring, kind, warm personality, childish or child-like attitude, adaptable, playful, and fun.

Educational Questions

Respondents at University 1 were required to take an elective advanced pediatric course in order to be exposed to a pediatric clinical education experience. Respondents at University 2 did not have that requirement and the university did not offer an advanced pediatric course, but did offer a pediatric clinical education experience to students. Respondents at University 3 had the option to take one or two elective pediatric courses and could take advantage of a pediatric clinical education experience. Students at University 3 had the option of gaining service-learning experience as one of their electives. Descriptive statistics are listed in Tables 9, 10, 11, and 12.

Table 9

Considering Enrolling in an Elective Pediatric Course

Considered Enrolling	***N***	***%***
Yes	104	38.5%
No	142	52.6%
Not available	24	8.9%
Total	270*	100.0%

* *N* = 270

Table 10

Considering Enrolling in an Elective Pediatric Course by Year in a PT Program

Year in Program	**Considering Enrolling**		**Not Considering Enrolling**		**Not Available**		**Totals**	
	n	***%***	***n***	***%***	***n***	***%***	***N***	***%***
1	56	58.9	34	35.8	5	5.3	95	100
2	34	34.0	60	60.0	6	6.0	100	100
3	14	18.7	48	64.0	13	17.3	75	100
Totals	**104**	**38.5**	**142**	**52.6**	**24**	**8.9**	**270***	**100**

* *N* = 270

Table 11

Considering a Clinical Education Experience in Pediatrics

Considering a Clinical Education Experience	***n***	***%***
Yes	115	42.6
No	155	57.4
Total	**270***	**100.0**

* *N* = 270

Table 12

Considering a Clinical Education Experience in Pediatrics by Year in a PT Program

	Considering a Clinical Education		Not Considering a Clinical Education	
Year in Program	***n***	**%**	***N***	**%**
1	59	51.3	36	23.2
2	35	30.4	65	41.9
3	21	18.3	54	34.8
Total	**115**	**100.0**	**155**	**100.0**

Note. $N = 270$

Research Question 1

Research Question 1 asked, "What percentage of physical therapy students who are interested in pediatrics have completed an observation in pediatrics?" To answer this question, we make the total number of cases equal to the total number of respondents interested in practicing pediatrics ($N = 137$). We want to know what percentage or what fraction of those 137 students also had experience in observing pediatrics. Of those 137 students, we find 117 reported they had experience observing pediatrics. This means 85.4% of respondents interested in practicing pediatrics also had completed observation hours with children.

Research Question 2

Research Question 2 asked: "In what year of their physical therapy education (1, 2, or 3) do most of the physical therapy students become interested in pediatric physical therapy?" Total number of responses to Survey Question 13, "Do you have an interest in practicing pediatrics" was 279. Results of what year students indicated they had decided they had an interest in pediatrics are listed in Tables 7 and 13.

Students indicating they had an interest in pediatrics numbered 137, or 49.1% of the total respondents ($N = 279$). Focusing on those students who were interested in pediatrics, and breaking the numbers down by years in school: 97 (34.8%) Year 1 students, 28 (10.0%) Year 2 students, and 10 (3.6%) Year 3 students indicated they had an interest in pediatrics in Year 1. One student (0.4%) answered incorrectly indicating he/she discovered an interest in pediatric all 3 years, and one student (0.4%) indicated their interest in pediatrics developed prior to PT school through a write in answer (see Table 13).

Table 13

Year in School Students Decided They Were Interested in Pediatrics

	Frequency (*n*)	**Percentage (%)**
Year Students Decided They Were Interested in Pediatrics		
Year 1	97	34.8%
Year 2	28	10.0%
Year 3	10	3.6%
Indicated all three years	1	0.4%
Prior to PT Education	1	0.4%
Total	137	49.1%

Note. $N = 279$

Research Question 3

Research Question 3 asked: "What experiential differences exist between physical therapist students who consider practicing pediatrics and those who do not?" Results of one survey question used a Likert-type scale to determine strength of agreement of respondents with various types of experiences they had with children (Table 14). The Likert-type scale used 1 (*strongly disgree*) to 6 (*strongly agree*) to indicate some form of agreement.

Table 14

Percentages, Means, and Standard Deviations of Students Indicating Agreement With Consideration of Practicing Pediatrics Because of Various Experiences

Survey Question: I am considering practicing pediatrics because of the influence of positive _____.	**Indicated Some Form of Agreement %**	***M***	***SD***
Life Experiences			
observational experiences with children	67.8	4.2	1.4
volunteer experiences with children	68.6	4.3	1.4
experiences I had with children in my family, school, and social life (siblings, cousins, friends)	64.0	4.2	1.4
experiences with children during my employment	56.5	4.0	1.5
Educational Experiences			
experiences in the classroom through pediatric lectures	51.6	3.5	1.3
discussions of pediatric cases with my peers	46.3	3.4	1.2
hands-on experiences with children in classroom labs	54.8	3.7	1.5
mentoring of an academic PT educator/professor	46.3	3.5	1.4
Clinical Experiences			
experiences with children during my clinical education	51.2	3.7	1.4
experiences collaborating with other pediatric professionals (Ex: OT, SLP, SW, MD) during my clinical education	46.3	3.5	1.4
mentoring experiences with my clinical instructor	43.1	3.3	1.4
experiences working with parents and families of a child with functional, activity, and/or participation limitations	61.1	4.1	1.4

The highest score indicating some form of agreement was in response to the second statement: “I am considering practicing pediatrics because of the influence of positive volunteer experiences with children” (68.6% agreement, *M* = 4.3, *SD* = 1.4). The lowest score indicating some form of agreement was in response to the statement: “I am considering practicing pediatrics because of the influence of positive mentoring experiences with my clinical instructor” (43.1% agreement, *M* = 3.3, *SD* = 1.4).

Data for each subconstruct was collected using specific statements on the survey. Four survey statements addressed each subconstruct. Data from each set of statements for each subconstruct were averaged. Descriptive statistics for each subconstruct – life experiences, educational experiences, and clinical experiences – included number of responses, means, and standard deviations (*SD*) and are listed in Table 15.

Table 15

Group Statistics for Life Experiences, Educational Experiences, and Clinical Experiences

	N	**Mean**	***SD***
Life Experiences			
1	114	5.0	0.7
2	145	3.5	1.0
Educational Experiences			
1	114	4.1	1.1
2	141	3.1	1.0
Clinical Experiences			
1	114	4.3	1.1
2	140	3.1	1.1

Note. 1 = respondents considering pediatrics, 2 = respondents not considering pediatrics.

A *t*-test was used to test whether the means of life experiences, educational experiences, and clinical experiences differed between Group 1, physical therapy students considering pediatrics, and Group 2, physical therapy students not considering pediatrics. Results are listed in Table 16.

Table 16

Experiential Differences Between Groups of Students Considering Pediatrics

	Group 1 Mean	Group 2 Mean	*t*-Test	*p*	Cohen's *d*
Life Experiences	5.0	3.5	14.08	$p < .05$	1.72
Educational Experiences	4.1	3.1	7.50	$p < .05$	0.95
Clinical Experiences	4.3	3.1	8.80	$p < .05$	1.10

Note. Group 1 = students considering practicing pediatrics; Group 2 = students not considering practicing pediatrics. $p < .05$

When a Levene test value is statistically significant, evidence exists for an equality of variance assumption (Warner, 2013). The Levene test and the *t*-test for Equality of Means were completed for an Independent Samples *t* Test.

An Independent Samples *t* Test was performed to assess whether the mean of each of the subconstructs of life experiences, educational experiences, and clinical experiences differed significantly for Group 1, physical therapy students considering practicing pediatrics, and Group 2, physical therapy students not considering practicing pediatrics. The *t*-test results indicated significant differences between the positive influence of life experiences, education experiences, and clinical experiences on students' considerations for practicing pediatrics.

Cohen's *d* test was utilized in this research study as an effect-size measure associated with the *t* test. Warner (2013) listed an extemely large effect as $d = 2.0$, a very large effect as $d =$

0.9 to 1.5, and a large effect as d = 0.6 to 0.8. The effect size "verbal labels" for Cohen's *d,* is based on recommendations by Cohen (1988) to evaluate effect sizes. Life experiences (d = 1.72) showed an extremely large effect, clinical experiences (d = 1.10) showed a very large effect, and educational experiences (d = 0.95) showed a very large effect.

Test results suggested that positive life experiences significantly influenced physical therapy students' considerations to practice pediatrics with an extremely large effect. Positive clinical experiences significantly influenced physical therapy students' considerations to practice pediatrics with a very large effect. Positive educational experiences influenced physical therapy students' considerations to practice pediatrics with a very large effect. Short answer comments by students in Year 1, Year 2, and Year 3 of their PT education responding to why they were or why they were not considering pediatrics provided supplemental data to research questions. Summary comments will be included in the discussion in Chapter V.

Summary

The purpose of this research study was to assess if there was an experiential difference between students who consider practicing pediatrics and those that do not. Demographic information was reported regarding age, race, gender, marital status, family status, and educational status. Students identified the university they attended and their year in school.

Other questions such as educational and clinical factors emerged during a pilot study (Elbert, 2018) and through a review of literature. Students indicated whether or not they felt pediatric physical therapists needed a specific personality trait to be effective and what that most important personality trait might be. Students also indicated if they had an interest in pediatrics and in what year of school they developed that interest. Students were asked if they were considering taking an elective pediatric course, and if they were considering a clinical education

experience in pediatrics. Finally, students were asked if they were considering practicing pediatrics after graduation. Descriptive (demographic) data was used for analysis to augment other survey questions and to answer Research Question 1 and Research Question 2. Research Question 3 was analyzed through an Independent Samples *t*-Test.

Data and analyses in Chapter IV (Results) provided enough evidence to answer research questions and met the purpose of this study. Discussion of research results, together with results of the literature review framed by theory, is found in Chapter V.

CHAPTER V

DISCUSSION

It is important for physical therapy students to have experiences with clients of all ages in order to reach the goal of becoming an entry level physical therapist upon graduation (APTA, Section on Pediatrics, 2008, p. 4). Adult learning theory tells us that experience, together with reflection and guidance, increases students' awareness and confidence in their pediatric knowledge, skills, and abilities (Merriam & Bierema, 2014; Smith & Crocker, 2017). Therefore, it was important for this research study to survey students to determine what factors and experiences they felt were influential, increased their interest in pediatrics, and may have made a difference in their considerations to practice pediatric physical therapy. Analysis of student data provided evidence related to students' experiences with children, which should be integrated into curricula, together with time for reflection and the guidance of an academic educator, clinical educator, or mentor to increase students' pediatric knowledge, skills, and abilities as theorized through adult learning theory (Merriam & Bierema, 2014).

A literature review explored experiential learning theory (Kolb, 1984) and research studies that enhanced curricula educators have used to develop student knowledge and skills in pediatrics. Adult learning theory also has found an individual's experience is necessary to develop interest in pediatrics, and to help individuals consider practicing pediatrics after graduation. Experiential learning theory and adult learning theory formed the foundation of the theoretical framework of this research study. Investigating "level of agreement" among

participants on various statements considered potentially influential in students' considerations of making pediatrics a career might assist educators when they make curriculum decisions. Investigating when students are influenced by experiences in their program has the potential to make a difference in when pediatric experiences and content are introduced in physical therapy programs.

This study's purpose was to explore students' perspectives related to the positive influence of life experiences, educational experiences, and clinical experiences with children with functional, activity, and participation limitations. Did these experiences make a difference in students' considerations to practice pediatrics after graduation and when did experiences appear to make the most difference?

Data were derived from physical therapy students attending three Upper Midwest physical therapy programs. The study utilized quantitative research methods, and data were collected and analyzed to answer the following research questions:

1. What percentage of physical therapy students who are interested in pediatrics have completed an observation in pediatrics?
2. In what year of their physical therapy education (1, 2, or 3) do most of the physical therapy students become interested in pediatric physical therapy?
3. What experiential differences exist between physical therapist students who consider practicing pediatrics and those who do not?

Other data were collected on demographic (year in school) and educational factors that may have an influence on a student's interest in pediatrics. Short answers and comments supplemented the quantitative data and added insight into students' perspectives on their quantitative answers. Analysis of data and review of literature occurred through a lens of the

theoretical framework of adult learning theory. Data and analyses provided evidence for educators of physical therapy students on experiential learning's influence on students' interest in practicing pediatrics and in considering practicing pediatrics. Presented in this discussion chapter is a review of the issues and significance of this study, summary of findings, discussion and implications, study limitations, future research, and conclusions.

Issues and Significance

The literature reviewed in this study indicated there are variances in timing, content, and experiences with children that are integrated into a physical therapy program's curriculum (Schreiber et al., 2011). Students may or may not have exposure to positive experiences with children during their physical therapy programs. This lack of experience might negatively influence a students' interest in pursuing further elective courses or clinical experiences in pediatrics during their education. One research survey found 26.9% of participants felt their program's pediatric curriculum was "inadequate" (Schreiber et al., 2015). At issue is whether different experiences with children (experiential learning) might improve the adequacy of students' pediatric curricula. Also at issue, at the time of this study, was a lack of research on this subject regarding how experiences integrated into a curriculum, in conjunction with adult learning theory practices, might have influenced students' learning and interest in practicing pediatrics, especially from students' perspectives.

At the time of this study, a limited number of research studies on perceptions of physical therapy students regarding pediatric education indicated that students' career choices have often been influenced by their experiences observing, volunteering, and working with children. In one research study (Reeve et al., 2012) and a qualitative pilot study (Elbert, 2018) students reported that variety and timing of pediatric and clinical education experiences, as well as educational and

clinical supervision they received, were key factors that influenced their perceptions about practicing a specialty. Variety and timing of pediatric and clinical education experiences also influenced whether students pursued elective education courses on pediatrics or a pediatric clinical experience. More quantitative research is needed to continue to find evidence to answer questions which include:

1. Are observational experiences of children beneficial to increasing a physical therapy student's consideration to practice pediatrics?
2. When do students become interested in pediatrics?
3. Is there a difference in positive experiences between students who consider pediatrics and those that do not?

The significance of this study was to provide data and analyses from physical therapy students' perspectives about pediatric experiences from three Upper Midwest physical therapy programs to add to the research that was available at the time of this study. Observations are mandatory for admission to all three Upper Midwestern university programs. Pediatric observations are not mandatory, and not all students complete an observation in pediatrics. Evidence provided data related to whether students who are interested in pediatrics and are considering pediatrics have completed observations in pediatrics. Descriptive data might assist educators, advisors, and physical therapy programs related to how student observations might affect students' interests and their considerations on practicing pediatrics.

Evidence provided information on when students become interested in pediatrics. The significance was that students in three Upper Midwest physical therapy programs encountered most of their pediatric content and educational experiences with children in their second year. Students also had most their pediatric clinical experiences in their third year. This descriptive

data might provide information to programs on whether concentrating pediatrics in a stand-alone course providing educational experiences with children based on experiential learning theory in the second year of a program created interest in pediatrics.

Data and analyses provided evidence regarding the significance of different experiences that triggered an interest in students in pediatrics. Evidence also provided data on differences among students who are considering a practice in pediatrics and those who are not in regards to student life experiences, educational experiences, and clinical experiences. Therefore, the significance of this quantitative research study was to investigate findings in the literature, present new data and analyses, and discuss through the theoretical framework of adult learning theory how to answer the research question: What experiential differences exist between physical therapist students who consider practicing pediatrics and those who do not?

Review of Findings and Discussion

Validity

In order to seriously consider using data obtained from this study to answer research questions, validity and reliability of the data needed to be established (Warner, 2013). In this survey, content validity was accomplished through triangulation of data from a pilot study, expert opinions of survey content, and comparisons of this study's survey to similar surveys found in the literature measuring similar factors and experiences. A qualitative pilot study was conducted by the researcher in 2018 to provide insight into students' perceptions on pediatric physical therapy. Interview questions and data from the pilot study were used to validate a need to quantitatively further investigate the topic. For example, the pilot study and this research study found that observations of children were completed by students considering pediatrics. However, in the pilot study all six interviewees had done observations in pediatrics and only one student

was considering practicing pediatrics. With such a small and limited sample, there was a need to further investigate this finding. Was there a relationship between observations and students considering practicing pediatrics?

Secondly, two expert physical therapy educators, knowledgeable about physical therapy students' perspectives regarding observations, interests, and pediatrics, reviewed this study's survey items. They made recommendations, edits, and additions which the researcher used to make the content of the survey more valid. A third method for determining content validity was to use comparative questions of other studies that provided research evidence related to students' perspectives on factors and experiences that influenced their career choices. Research studies included survey research by DeSutter and LeMire (2016) on special education students, Barash and Golding (2005) on occupational therapy students specialty choices, and Akram et al.'s (2013) study on Pakistan physical therapy student career choices. These methods established validity through triangulation.

Reliability

Reliability refers to consistency of results (Warner, 2013). Several methods to test reliability were utilized regarding the research survey developed for this study. Inter-item reliability was one of the methods used to statistically determine consistency. It examined internal stability through the selection of a group of items developed to measure the same construct or variable and then compared the answers within the group. An example of this procedure on the survey was the question of students considering practicing pediatrics, yes or no. Results were matched with an earlier question regarding whether students had an interest in pediatrics. Results demonstrated the concept: the more ways you ask a question, the greater the reliability of the answer (when answers agree).

Reliability is found when one has demonstrated consistency among multiple measures that measure the same concept or construct (Nardi, 2003). For Likert-type survey items and constructs, a Cronbach's alpha test was conducted to test for internal consistency reliability. The subconstruct of *life experiences* had a Cronbach's alpha of 0.84; the subconstruct of *educational experiences* had a Cronbach's alpha of 0.88; and the subconstruct of *clinical experiences* had a Cronbach's alpha of 0.88. All subconstructs had good internal consistency reliability (Warner, 2013). Findings from this study indicated data collected had good validity and reliability. Therefore, data could be analyzed to answer research questions.

Participants

The population of this study involved student physical therapists from three Upper Midwest doctoral physical therapy programs. The number of available students or potential participants was 406. Those who completed the survey or completed part of the survey numbered 283. It was found that most respondents were female (n = 183), single (n = 242), and did not have children (n = 272).

The highest percentage of available PT students who participated at a single university was obtained at University 3 (87.5% or 126 of 144 possible participants participated) where all three student groups (Year 1, Year 2, and Year 3) were present on campus and completed a hardcopy of the survey. This result indicated that increased participation was gained through the researcher personally being present in a classroom with students to state the purpose of the study and ask for voluntary participation.

Many different groupings of students were compared in this study. Student participants were divided into groupings on many occasions. Two separations were of particular interest. Differences between students *interested* in practicing pediatrics and students who were *not*

interested in practicing pediatrics, and differences between students *considering* practicing pediatrics and students who were *not considering* practicing pediatrics. Descriptive statistics as well as inferential statistics from Chapter IV will be discussed under the subconstructs of life experiences, educational experiences, and clinical experiences.

Group Differences

Life experiences. The term *life experiences* was operationally defined in this study as learning situations with respect to work, recreation, family life, and community life (Lindeman, 1926/1961). Factors addressed under life experiences in this study included observations, volunteerism, family, and employment (Survey Questions 6, 7, 8, and 9). In the Likert-type section of the survey, responses to the first four statements were averaged for the life experiences subconstruct and addressed experiences with children in the the form of observations (first statement), volunteering (second statement), family life (third statement), and employment (fourth statement). Descriptive statistics, inferential statistics, and comments as well as data from the literature review were also organized under these headings.

Most participants were single and had no children. Many respondents (n = 245, 87.5%) did not have a family member with a functional, activity, or participation limitation. Most respondents (n = 218, 78.1%) had completed observation hours with children with functional, activity, and participation limitations, 223 respondents (79.9%) had completed some volunteer hours with children, and 180 respondents (64.8%) had been employed in a position that works with children. Statistics will be used to describe how these different life experiences may have influenced surveyed physical therapy students' interests in pediatric physical therapy.

Interest can be defined as "the feeling of wanting to know or learn about something or someone" ("Interest," 2019, para. 1). Survey Question 13 asked students about their interest in

pediatrics. Students' interests were investigated because interests can lead students to consider or think about pediatrics over the course of their education, and even consider practicing pediatrics after graduation. Research Question 1 was developed to investigate students' interests in pediatrics and their life experiences relating to observations of children.

Research Question 1 asked: "What percentage of physical therapy students who are interested in pediatrics have completed an observation in pediatrics?" Of the 137 students interested in pediatrics, 117 reported they had experience observing pediatrics. This means 85.4% of respondents interested in practicing pediatrics had completed some hours observing children. Twenty students (13.6%) interested in pediatrics had not completed any observations. The hypothesis was a higher percentage of physical therapy students who are interested in practicing pediatrics will have completed an observational experience with children than the percentage of students interested in pediatrics who have not completed an observational experience with children. Since a greater number of students interested in pediatrics had observation experience than the number of students interested in pediatrics who had no observation experience, the hypothesis was supported.

The theoretical framework for this study was built on adult learning theory. Knowles (1980) and Knowles and Associates (1984) developed six assumptions related to andragogy. The second assumption stated, "An adult accumulates a growing reservoir of experience, which is a rich source for learning." Respondents who completed an observation, had volunteer experience with children, had experiences with children in their family, or were employed in a setting with children present accumulated a reservoir of experience that served as a foundation for learning about pediatrics. Physical therapy students who are exposed to multiple experiences with children through family, friends, observations, volunteer work, and employment are more

comfortable and capable of self-directed learning in their pediatric academic courses and clinical learning environments than less experienced students.

A second adult learning theory pertains to self-directed learning. Musolino (2006) related that self-directed learning is a feature of continuing professional education in many areas, including physical therapy. After a positive life experience with children, students may gain interest in children and begin to self-direct their learning about pediatrics to seek further life, educational, and clinical experiences with children. A third adult learning theory based on transformative learning indicated that students can use observational, volunteer, employment, or family experiences to transform their attitudes and become more interested in courses related to pediatrics. Transformative learning is a process where we make meaning of our experiences (Merriam & Bierema, 2014).

Literature reviewed indicated that observation of an allied health professional may be one influential factor in a student's interest in a career or the clientele with whom they prefer to work with in their future careers (Anders, 2005; Byrne, 2015; Miller & Ciocci, 2013). Wojciechowski (2013) found students' observations of physical therapists working in a clinic with clients or a physical therapist working with a member of a student's family was a factor that influenced them to be interested in a career in physical therapy. Another study indicated students may decide, after negative experiences with children, that they are not interested in learning more about pediatrics, or they are not interested in considering a career working with children. They may have had an unpleasant experience when observing or volunteering with children, which can serve as an impediment to their motivation to have more experiences with children or work with children in their practice (Merriam et al., 1996). Negative life experiences with children may influence students' interests in pediatrics. One hundred and forty-two students indicated they

were not interested in pediatrics. Several of those respondents commented on their negative observations and negative perceptions of their ability to be effective pediatric physical therapists. Examples included, “I didn’t have a passion for it, when I completed observation hours.” “I had a bad experience in observing, prior to grad school.”

Data from the study indicated that it was not number of hours, but quality of an experience (positive or negative) that influenced students’ interests in pediatrics. Quality of past experiences may be more important to a student’s interest in pediatric practice than actual hours of time spent playing, observing, or engaging in volunteer activities with children (Merriam & Bierema, 2014). The mean number of hours a student spent observing children was 45.9 hours, the maximum number of hours was 1000 hours, and the minimum number of hours was 2 hours. The standard deviation (*SD*) for this data was 112.1. Most physical therapy students spent some hours observing children. Quantity of hours, however, did not seem to be an issue in students’ levels of interest.

The next step was to look at students who were interested in pediatrics, but also indicated they were considering practicing pediatrics after graduation. Comments made regarding why students were considering practicing pediatrics reflected on life, observation, volunteer, and employment experiences. One comment regarding observations was, “I believe that it is the most rewarding field of PT based on observational experience.” Another student who was not considering pediatrics replied, “I have not done observations in pediatric PT; this is just my belief without experience. I am not completely opposed (to considering pediatrics).” One comment from a student regarding their experience volunteering and how that had influenced their consideration to practice pediatrics included, “I work and have volunteered at a therapeutic riding center and love working with those kids.” Some examples of comments regarding

employment are as follows: “I am a coach, so I already work with children and have developed communication skills that work with them and enjoy their willingness and positivity towards new things”; “The experience I had before school working with children”; “I like children. I have worked with individuals as a para of special education in the schools and enjoyed my experience.” These students’ comments indicated some students had an interest in pediatrics due to their life experiences with children, causing them to consider practicing pediatrics. Data and analysis connected to the theoretical framework of adult learning theory agreed with evidence in the literature that positive observations influence interests in a career, considerations of pursuing a career, and the clientele with whom individuals choose to work.

Data regarding whether students had completed volunteer hours indicated that out of the total number of respondents ($N = 279$), a higher percentage (79.9%) of respondents had completed volunteer hours than respondents who had not. The mean number of volunteer hours students had completed was 72.8, which is a higher average number of hours than students who had completed observation hours ($M = 45.9$). This difference may be attributed to the fact that students were asked whether they had completed observational hours with children having functional, activity, and participation limitations, while the question on volunteer hours addressed all children, fully functional or with functional limitations. Opportunities to volunteer with helping all types of children, such as coaching, are more plentiful in a community than chances to observe children with limiting health conditions. Observational hours at pediatric clinics are prioritized for students considering pediatrics, rather than giving equal opportunities for observing children to physical therapy students in general. Although observational hours are usually required prior to admission into physical therapy programs, none of the three Upper

Midwest physical therapy programs in this study required students complete specific observations or volunteer hours with children prior to admission.

Respondents who chose to acquire observation hours and volunteer hours acted as self-directed learners who had an interest in a specific practice area, such as pediatrics. Most respondents who completed observations had also completed volunteer hours. Those who completed observation hours ($N = 218$) compared well to those who completed volunteer hours ($N = 223$). These observational and volunteer opportunities with children provided students a chance to consider the practice of pediatrics based on first-hand knowledge of what it is like to work with children.

Of all respondents who were considering practicing pediatrics and who answered the question on volunteering ($N = 117$), 105 (89.7%) indicated they had completed volunteer hours. Of all respondents who were not considering practicing pediatrics and who answered the question on volunteering ($N = 161$), 117 (72.7%) indicated they had completed some volunteer hours. A higher percentage of participants with volunteer hours were considering practicing pediatrics than the percentage of participants who completed volunteer hours who were not considering pediatrics. When looking at level of agreement respondents had with Likert-type survey statements, the statement addressing volunteer experience (I am considering practicing pediatrics because of the influence of positive volunteer experiences with children.) had the highest level of agreement (68.6% of respondents indicated some form of agreement) with a mean answer of 4.3 (4 = *slightly agree*, 5 = *agree*, 6 = *strongly agree*). This compared to observational experiences (67.8% of respondents indicated some form of agreement) with a mean answer of 4.2, and family experiences (64.0% of respondents indicated some form of agreement) with a mean answer of 4.2.

Experiences with children in families, school, and social life was mentioned frequently in a pilot study by Elbert (2018) as a reason students might consider or not consider practicing pediatrics. In this study, respondents indicated their level of agreement (1 = *strongly disagree*, 6 = *strongly agree*) with the statement, "I am considering practicing pediatrics because of the influence of positive experiences I had with 'children in my family, school, and social life.'" It was not directly asked as a yes/no question in this survey. The mean answer was 4.2 (4 = *slightly agree*, 5 = *agree*).

In this study, descriptive statistics indicated that most respondents did not have children of their own. Only five students (4.2%) had children and were considering practicing pediatrics compared to three students (1.9%) who had children and were not considering practicing pediatrics. The minimal difference between respondents with children who are considering practicing pediatrics and those who are not, and the limited number of respondents with children who answered the survey, makes it difficult to determine if this factor is significant, without conducting further research with a larger group of students. Comments referring to one's own children came from respondents who were not considering pediatrics. One comment was, "It would make me not want children." Another comment was, "I have worked with a lot of kids and don't think I have the energy or patience to work with them all day and return home to my own kids as well."

Survey Question 6 regarding whether or not a respondent had "a family member who had or has a functional, activity, or participation limitation since childhood" yielded small numbers. Statistics were too limited in this study to indicate whether respondents having a family member with a health condition made a difference as a whole for the population in regards to considering practicing pediatrics, although it may have made a difference for the 35 individuals who

indicated they had a family member with health conditions. Comments made by respondents considering pediatrics indicated that these students had compassion and a desire to improve the quality of life for children. Some short answers included: “I love kids,” “I enjoy working with kids,” and “It is rewarding work.” These statements are similar to results from studies in the literature that found students who have experiences with children with health conditions report an increase in altruistic values such as compassion, caring, and wanting to make a difference in a child’s life.

Data related to experiences with children during employment indicated that of all respondents considering pediatrics who answered Survey Question 9 on employment, 78.0% had been employed in a position that works with children. Of those respondents answering Survey Question 9 on employment who had been employed in a position that works with children, 54.7% were not considering practicing pediatrics. A higher percentage of participants with employment experience were considering practicing pediatrics than the percentage of participants with employment experience who were not considering pediatrics. In fact, students who had worked with children during employment showed the greatest difference in percentages between the two groups (considering practicing pediatrics, not considering practicing pediatrics). Social Cognitive Career Theory (Lent et al., 1994) has hypothesized that students are likely to consider continuing with a career set of skills or tasks if they have had previous positive experiences with execution of these same skills. Students continue to focus on career areas in which they have had success, such as in their employment, resulting in positive self-esteem (Lent et al., 1994). Several articles were reviewed on employment experiences where researchers concluded these experiences influenced students’ career choices (Coren et al., 1987; Feldbaum & Feldbaum, 1981; Green et al., 1983; Morris & Minichiello, 1992; Yeager et al., 2015). The

descriptive statistics from this study agreed with adult learning theories and the literature reviewed that positive employment experiences with children had a positive influence on a student's career choice to work with children (pediatrics).

Regarding the Likert section of this study's survey, an Independent Samples *t*-Test was analyzed through SPSS software (Version 25) to examine experiential differences between means of two groups of students: the group of students who were considering pediatrics and students who were not considering practicing pediatrics. For the subscale addressing life experiences (the first four statements on the Likert section of the survey), the mean response for positive life experiences with children for the group considering practicing pediatric physical therapyt was 5.0 (SD = 0.67) and was 1.5 points higher than the mean of 3.5 for the group not considering practicing pediatric physical therapy. Results suggest that positive life experiences with children may make a difference and significantly influence physical therapy students' considerations for practicing pediatric physical therapy.

Educational experiences. The operational definition of *educational experiences* in this research study was, "Physical therapy academic education, situated within higher education, exists for the primary purpose of educating students to attain core knowledge, skills, and behaviors" (Jensen & Mostrom, 2013, p. 126). In the Likert-type section of the survey, responses to the second four statements were averaged for the educational experiences subconstruct. Survey statements under this subconstruct addressed: "experiences in the classroom through pediatric lectures," "discussions of pediatric case studies with my peers," "hands-on experiences with children in classroom labs," and "mentoring of an academic PT educator/professor." The literature explored pediatric curriculum, stand-alone classes, and experiential learning, including service learning experiences. These experiences are also framed within the theoretical concepts

of adult learning and experiential learning (Fenwick, 2003, Knowles, 1980; Knowles & Associates, 1984; Kolb, 1984).

The theoretical framework of adult learning theory indicated increasing positive experiences with children can increase an individual's learning about pediatrics. Adult learning concepts combined with the experiential learning model of Kolb and Yeganeh (2012) that included concrete experiences, reflection, conceptualizations, and experimentation produced more interest in learning about pediatrics than forms of learning lacking real life experiences and time for reflection, among other things. Students who have experience with children in an educational setting can follow steps to improve their learning and confidence in their skills. Students may continue to focus on pediatric physical therapy when they experience self-confidence and success during their education through experiential learning experiences with children.

Participants in this study attended three different universities. Each program had a stand-alone pediatrics course, Lifespan I. Each program incorporated some hands-on experiences with children into their course, such as a baby laboratory experience. Two of the universities offered elective courses in advanced pediatrics. Using experiences with children in a stand-alone course focused solely on children to increase interest in pediatrics is supported by several research studies in the literature (Birkmeier et al., 2017; Chapman & Sellheim, 2017; Lähteenmäki, 2005; Moerchen et al., 2017; Wynarczuk & Pelletier, 2017). Comments from third year students who were considering practicing pediatrics also supported data from the literature review. Third year students had all completed the mandatory Lifespan I course in their second year. Their comments included: "Previous experience with children regardless of functional abilities really helped me get comfortable with peds patients. Kids are kids regardless of what they can or can't do (yet)."

"Kids are tough and hands on experience is important when it comes to PT pediatric education." "Kids are smart, so if you are uncomfortable, they will take advantage of the situation." "I think all student physical therapists should experience what it is like to try to manage kids of all ages and abilities." "Professor's course work and dedication is thoroughly inspiring for those interested in working in pediatrics." "I believe the most beneficial portion of peds education is experiential learning." "Having a pediatric elective helped advance my skills and give me confidence for my pediatric clinical."

Research Question 2 (In what year of their physical therapy education do most students become interested in pediatric physical therapy?) was answered through data and analysis completed through descriptive statistics. Data came from a question on the survey that asked students if they had an interest in practicing pediatrics, and in what year they developed their interest. Of the total number of respondents who answered the question ($N = 279$), 137 indicated they had an interest in pediatrics. Most respondents interested in pediatrics indicated they developed their interest in their first year of school ($n = 97$, 34.8%).

Student interest could also be measured through students considering enrolling in pediatric courses. Descriptive statistics indicated whether respondents ($N = 270$) were considering enrolling in an elective pediatric course. One hundred four respondents (38.5%) indicated they were considering enrolling in an elective pediatric course, while 142 respondents (52.6%) were not.

Numbers of students considering or not considering enrolling in a pediatric course were further defined by year in school as follows: Of those students considering enrolling in pediatrics, first year students had the highest percentage of respondents considering enrolling in a pediatric course with 56 or 58.9% considering enrolling. Second year students ($n = 34$) showed

only 34.0% considering enrolling in a pediatrics course, and only 14 (18.7%) of third year students were considering enrolling in an elective pediatric course. Since only a small number of third year students completed the survey, data on third year students might not be representative of the whole group of third year students. Potential reasons for declining numbers of students over time considering enrolling in an elective pediatric course may be found in some of the third year students' comments. "I am more interested in working with geriatric populations." "I plan to work in orthopedics." "I prefer neuro and adult populations." "Other areas are more of an interest for me." Students that were not considering elective pediatric courses may have developed other interest areas through their curriculum and their clinical experiences. This might indicate that students could benefit from earlier educational experiences with children, beginning in their first year and continuing into their second and third year of PT education to sustain their considering more study in pediatrics, and increase enrollment in elective pediatric courses.

Students who had completed elective pediatric courses in their third year were the students most likely to specialize in pediatrics after graduation. Only 14 respondents from these three programs who were third year students preparing to graduate were considering enrolling in an elective pediatric course. Third year students most likely to specialize in pediatrics or even see some children in their practice after graduation ranged from 14 to 21 in number.

Research Question 2, "In what year of their physical therapy education (1, 2, or 3) do most of the physical therapy students become interested in pediatric physical therapy," was answered by descriptive statistics. Data and analyses indicated it was within their first year most respondents developed their interest in pediatrics. The second hypothesis stated, "A higher percentage of physical therapy students develop an interest in pediatrics in the second year of their educational program compared to any other year." Data indicated most student participants

(n = 97, 34.8%) developed their interest in pediatrics in their first year of PT education. compared to 28 (10.0%) second year students, and 10 (3.6%) third year students. The second hypothesis was not supported by the data and analyses, and so Hypothesis 2 was not supported.

Research Question 3 asked, "What experiential differences exist between physical therapist students who consider practicing pediatrics and those who do not?" To explore experiental differences in educational experiences between groups of respondents who were considering pediatrics and those that were not, an Independent Samples t-Test was performed. Group 1 described students considering pediatrics. Group 2 described students not considering pediatrics. The mean of Group 1, physical therapy students considering pediatrics (M = 4.1, SD = 1.06) was nearly 1 point higher than the mean of Group 2, physical therapy students not considering pediatrics *(*M = 3.1, SD = 1.03). This study suggests that positive educational experiences with children significantly differed between the two groups of students. Students considering practicing pediatrics showed higher levels of agreement with the statement, "I am considering practicing pediatrics because of the influence of positive [educational experiences]" than students not considering practicing pediatrics. So, positive educational experiences likely have an influence on physical therapy students' considerations to practice pediatric physical therapy.Hypothesis 3 stated, "Physical therapy students are more strongly influenced to consider practicing pediatrics when educational experiences with children are integrated into their educational curricula than when educational experiences with children are not integrated into curricula." Data indicated Hypothesis 3 may be supported as having an influence on students' consideration to practice pediatrics.

Clinical experiences. The operational definition of *clinical experiences* used in this study was: "Clinical education, situated within the practice environment, exists first and foremost to

provide cost-effective and high-quality care and education for patients, clients, their families, and their caregivers" (Jensen & Mostrom, 2013, p. 126). In the Likert-type section of the survey, responses to the last four statements were averaged for the clinical experiences subconstruct. Survey statements under this subconstruct addressed: "experiences with children during my clinical education"; "experiences collaborating with other pediatric professionals during my clinical education"; "mentoring experiences with my clinical instructor"; and "experiences working with parents and families of a child with functional, activity, and/or participant limitations."

Students in physical therapy complete their first year of academics on campus and progress to their first clinical education experience off campus in their second year. Clinical experiences provide experiential learning for students in several settings. Pediatric clinical settings are not included in the first round of clinical education experiences. Therefore, students have limited exposure to pediatrics on their first clinical education experience. Second year respondents (who have completed clinicals in settings besides pediatrics) who indicated they are not considering pediatrics made comments as to why. A summary of those comments indicated that students have found another interest area such as orthopedics or geriatrics. Some comments were: "I enjoy sports rehab more." " I want to work with athletes, rural outpatient clinic – few peds patients, couldn't do it full time."

Full time clinical pediatric experiences (approximately 9 weeks) are optional in physical therapy education and are generally completed in a students' third year. Some students have experiences with children during their orthopedic or neurological clinicals, while other students may choose to do a 1 week clinical in pediatrics. Some programs also provide pro bono clinics that involve pediatric clients at off campus sites. Students generally have expressed interest in

practicing pediatrics or taken an advanced pediatric elective before choosing to participate in a full pediatric clinical education experience.

Clinical experiences are an excellent example of experiential learning. Students are immersed in a real-life clinic and supervised by an on-site pediatric clinical instructor. In a research study by Clopton and Baker (1996), data supported that there was a significant and lasting effect on an individual from a clinical pediatric experience. Students reported increased confidence in their ability to treat pediatric clients (whether they completed an optional or required clinical pediatric experience) than those that did not complete pediatric clinical experiences (Clopton & Baker, 1996). A pediatric clinical education survey was conducted by Kenyon et al. in 2017. They reported respondents indicated nearly 73% of pediatric clinical education experiences occurred in the final year of a student's program. Students had their Lifespan I classes in their second year and some limited educational experiences with children. Of students who chose not to enroll in an elective pediatric clinical experience, many did not develop any further interest in pediatrics nor did they consider practicing pediatrics after graduation. Having a majority of clinical experiences with children in the third year of PT education for a limited number of students may pose problems for encouraging more students to consider practicing pediatrics after graduation.

Through descriptive statistics, findings from this study indicated that more students developed an interest in pediatrics during their first year of school than at any other time during their education. Interest in pediatrics can also be indicated by number of students who plan to enroll in an elective clinical pediatric experience. Survey Question 18 stated, "I am considering a clinical education experience in pediatrics." A total of 270 students answered this question. The number of students who indicated they were considering enrolling in a clinical education

experience in pediatrics, added up to 115 (or 42.6%). Those who were not considering enrolling in a clinical education experience in pediatrics numbered 155 (or 57.4%). Respondents to Survey Question 18 were further divided by year in school. Of the first year student participants, 59 (51.3%) indicated they wre considering a pediatric clinical experience, 35 (30.4%) second year students were considering a clinical experience in pediatrics, and 21 (18.3%) third year students were considering a clinical education experience in pediatrics. Descriptive statistics indicated the greatest number of respondents interested in a pediatric clinical were interested during their first year of school and the numbers declined steadily through the next two years of school. Students supplemented these statistics with comments. Second year students indicated through 39 comments that they were interested in pediatrics, 64 comments indicated they were not interested in pediatrics. Third year students wrote 29 comments showing they were interested in pediatrics, and gave 45 comments as to why they were not interested. Further research is needed in this area from a larger group of physical therapy students.

Using a framework of experiential learning, clinical experiences might teach pediatric content and improve student learning when combined with adult learning theory principles (Knowles, 1980; Knowles & Associates, 1984; Kolb, 1984). Schreiber et al. (2015) defined experiential learning in pediatrics as "activities in which students design and implement an experience that engages a child in meaningful activities, including examination, evaluation, intervention and/or client/caregiver interaction and instruction" (p. 357). Students on clinical experiences are expected to perform evaluations, interventions, and parent/family education.

The last four statements on the study survey (described at the beginning of this section) created the subconstruct of clinical education. The Likert-type section of the study survey stated, "I am considering practicing pediatrics because of the influence of positive _____."

When examining respondents' levels of agreement with Likert-type statements, "experiences with children during my clinical education" showed a mean level of agreement at 3.7 (3 = *slightly disagree*, 4 = *slightly agree*) or 51.2% agreement; "experiences collaborating with other pediatric professionals" showed a mean level of agreement of 3.5 (46.3% agreement); "mentoring experiences with my clinical instructor" showed a mean level of agreement at 3.3 (43.1% agreement); and "experiences working with parents and families of a child with functional, activity, and/or participation limitations" showed a mean level of agreement of 4.1 (4 = *slightly agree*, 5 = *agree*) or 61.1% agreement, the highest level of agreement for this subconstruct. Students supplemented these findings with comments. "I want to be able to help kids and their families." "I want to make a difference in that child's family life by utilizing knowledge gained, to be that person that the child trusts and the family can go to." "[I] enjoy working with kids and want to help them and their families."

Research Question 3 asked, "What experiential differences exist between physical therapist students who consider practicing pediatrics and those who do not?" To explore experiential differences in clinical experiences between groups of respondents who were considering pediatrics and those that were not, an Independent Samples *t*-Test was performed. Group 1 described students considering pediatrics. Group 2 described students not considering pediatrics. Group 1's mean ($M = 4.3$, $SD = 1.09$) was approximately 1.2 points higher than Group 2's mean ($M = 3.1$, $SD = 1.05$). The Likert scale described 3 as *slightly disagree*, 4 as *slightly agree*, and 5 as *agree*. Group 1, on average, slightly agreed with the statement, "I am considering practicing pediatrics because of the influence of positive [clinical experiences]" and Group 2, students not considering practicing pediatrics, slightly disagreed. The effect size, as indexed by *d*, was 1.10, a very large effect. This study suggests that positive clinical experiences

with children may influence and make a difference in physical therapy students' considerations to practice pediatrics. This indicates Hypothesis 3 might be supported when educational experiences integrate clinical experiences with children.

Summary

This study was determined by the researcher to be reliable and valid. Participants came from three Upper Midwestern physical therapy programs, and included students from Year 1 through Year 3. Population demographics indicated students had an average age of 24, were mostly White, single, and had no children.

The theoretical framework of adult learning together with experiential learning supported the data analysis that there were significant differences in experiences between students who were considering pediatrics and those who were not. The largest difference was found in the statistical analysis of the subconstruct of life experience.

Research Question 1 (What percentage of physical therapy students who are interested in pediatrics have completed an observation in pediatrics?) was answered through descriptive statistics. Most student respondents who were interested in pediatrics had done some observation hours. Of the 137 students interested in practicing pediatrics, 117 had done observations.

Research Question 2 was answered through descriptive statistics also. The question asked, "In what year of their physical therapy education (1, 2, or 3) do most of the physical therapy students become interested in pediatric physical therapy?" Of the 137 students who indicated they had an interest in pediatrics, 97 responded they developed that interest in Year 1 of their PT education.

Research Question 3 (What experiential differences exist between physical therapist students who consider practicing pediatrics and those who do not?) examined experiential

differences between physical therapist students who were considering practicing pediatrics and those who were not. Data and analyses answered this question through Independent Samples *t*-Tests. The *t*-tests analyzed differences between two groups (Group 1, students considering practicing pediatrics; Group 2, students not considering practicing pediatrics) in regards to life experiences, educational experiences, and clinical experiences. Results indicated significant differences for all three constructs ($p < .05$). The difference in means for Group 1 (students considering pediatrics) and Group 2 (those not considering pediatrics) for life experiences was higher (1.5; $M_1 = 5.0$, $M_2 = 3.5$) than clinical experiences (1.2; $M_1 = 4.3$; $M_2 = 3.1$) and educational experiences (1.0; $M_1 = 4.1$; $M_2 = 3.1$). So life experiences appeared to have a stronger influence on students' considerations to practice pediatrics than clinical experiences, and clinical experiences had a stronger influence than educational experiences. The Cohen's *d* value for life experiences ($d = 1.72$) showed an extremely large effect. The Cohen's *d* value for educational experiences ($d = 0.95$) showed a very large effect, and for clinical experiences ($d = 1.10$), a very large effect (Cohen, 1988).

For the respondents in this survey, clinical experiences with children were limited in their first year of school. Students may have experienced a one week clinical with children. Second year students also had limited pediatric clinical experience. They may have seen an occasional pediatric client during the first semester of their clinical experiences. Third year students elected to do or not do pediatric clinical experiences. Not all third year student respondents elected to do pediatric clinical experiences. Third year students who elected to complete a pediatric clinical experience and were respondents may have just started their pediatric clinical experience at the time of this study. Limited clinical experiences and timing of this survey may have affected the

results of students' levels of agreement with Likert statements relating to the positive influence of clinical experiences.

Also, first year students and second year student respondents had less educational experiences with children at the time the survey was administered than third year students. A Lifespan I class is taught in Year 2 at all three upper Midwestern physical therapy programs. This factor may have had an effect on students' levels of agreement with Likert statements on the survey relating to educational experiences with children. Students in University 1 and University 2 had just begun their Lifespan I class when the survey was administered; students from University 3 had already completed their lifespan class.

The third year students had the most educational experience of the three groups of students (Year 1, Year 2, and Year 3). These third year students indicated they developed most of their interest in Year 1.

Implications for Practice

At the time of this study, pediatric observations were not mandatory for participating PT programs, and not all students who responded to the survey had completed an observation in pediatrics. Data were gathered on students who had completed observations in pediatrics and this was cross-referenced with students' interests regarding pediatrics. A higher percentage of students who were interested in pediatrics had completed some observation hours than percentage of students not interested in pediatrics who had completed some observation hours. This descriptive data is evidence for educators, advisors, and physical therapy programs showing the positive influence student observations of children have on a student's interest in pediatrics.

Data on students who had completed observations in pediatrics were also cross-referenced with students' considerations regarding pediatrics. In this study, students considering

practicing pediatrics showed a higher percentage of students completing pediatric observations than percentage of students who were not considering practicing pediatrics completing pediatric observations. This implies a student's observations of children positively influence the student's consideration to practice pediatrics.

Experiences with children that occur through life (e.g. pediatric observations, volunteer work with children, employment opportunities that present experiences with children, and family experiences with children) all have a positive influence on students' considerations to practice pediatrics. Therefore, advisors and educators who work with students should encourage students to at least do some of their observations in a pediatric clinic. Students may develop an interest in pediatrics and consider exploring educational coursework or clinical experiences to develop their knowledge, skills, and abilities in pediatrics. Students might also bring life experiences with them to school to assist them in making meaning of pediatric content. Educators may assist their students to reflect and learn from their life experiences to improve their knowledge of pediatrics. All students need to be able to work with all ages of clients to become entry level physical therapists.

Descriptive statistics also indicated most students (n = 97 of N = 137) indicated they had an interest in pediatrics in Year 1. This interest may have developed through previous life experiences, such as observations of children or volunteer work. Also, a higher number of first year students were considering enrolling in an elective pediatric course (n = 56, 59.0%) and an elective clinical education experience (n = 59, 51.3%) than students in their second or third year of PT education. This evidence implies first year students come with or develop an interest in pediatrics during their first year of PT school. Students who come with an interest in pediatrics need to continue to develop and grow this interest throughout their educational careers. The

theoretical framework in this study supported use of adult learning theory, together with experiential learning concepts, to integrate pediatric education into a general PT curriculum, to continue to develop this first year student interest in, learning of, and consideration to practice pediatrics. Educational experiences with children should be introduced earlier in PT programs that what was evident in this study, at Year 1, when student interest in pediatrics is high. Implications of this study agree with authors who concluded that experiential learning should be an integral part of every entry-level PT educational program, especially pediatric education (Moerchen et al., 2017; Schreiber et al., 2015; Smith & Crocker, 2017).

Using experiential learning concepts to interest students in pediatric learning in a stand-alone pediatric course, such as Lifespan I, is supported by several research studies in the literature (Birkmeier et al., 2017; Chapman & Sellheim, 2017; Lähteenmäki, 2005; Moerchen et al., 2017; Wynarczuk & Pelletier, 2017). A stand-alone lifespan course is part of the curriculum of all three programs in this study. Educational experiences with children were determined to have a significant influence on students' considerations to practice pediatrics. Implications of this finding are more experiences with children during lifespan courses might increase interest among students in pediatrics and result in more students considering practicing pediatrics. Learning through experiences in other studies has been found to increase students' confidence in working with children and result in more students being open to the practice of pediatrics (Chapman & Sellheim, 2017; Moerchen et al., 2017).

Clinical experiences with children were found to have a positive influence on number of students considering practicing pediatrics. One implication from this study is that student interest in pediatrics is highest in the first year of PT school, and a stand-alone pediatrics course may increase student interest in pediatrics. Therefore, combining knowledge of early student interest

in pediatrics with more educational experiences in first year classroom courses, such as stand-alone lifespan courses, can increase number of students who are open to considering practicing pediatrics. Martin et al. (2017) supported incorporating clinical experiences with children early in physical therapy programs. Martin et al. concluded that making pediatric clinical education available earlier as opposed to later in a PT curriculum improved the "quality" of the PT program and depends upon administrators' abilities to accommodate more students than in the past who can have experiential learning with children for extended periods of time.

All three subconstructs of experience indicated experential differences between groups of students considering pediatrics and those not considering pediatrics, which was significant at $p < .05$. This finding implied positive life experiences, education experiences, and clinical experiences with children influenced physical therapy students to consider pediatric practice. When these three types of pediatric expriences are offered early in a curriculum and integrated throughout the curriculum, students who have an interest in pediatrics may decide to explore more observational, volunteer, and educational experiences and courses that involve pediatrics. This suggestion is supported by evidence in the study that reported first year students' interests in an elective pediatric course was 58.9%. First year students who were considering clinical education experiences was also high (51.3%).

The last implication of this study is that administrators who integrate early positive life experiences, educational experiences, and clinical experiences with children into their curricula influence students to consider practicing pediatrics to a greater extent than if programs do not contain early experiences with children. A greater the number of students who consider practicing pediatrics may equate to a greater number of graduate physical therapists who are interested in treating children in their practice or specializing in pediatrics.

Limitations of the Study

This quantitative study was conducted with students from three Upper Midwest university physical therapy programs. Two of the universities were private and one was public.

1. The study was limited to students enrolled in physical therapy programs at three universities in the Upper Midwest.
2. Potential sample size included the entire number of students in the three programs surveyed, 406 participants. Two hundred eighty three participants attempted to complete the survey, with 283 partially or completely filling out the survey on a volunteer basis. It would be difficult to generalize the results to other physical therapy program curricula across the United States based on sample size.
3. Number of third year students completing the survey through a Qualtircs link was limited. Only 38 students attempted to complete the survey out of a total of 88 possible students.
4. The number of respondents at University 2 was lower than the other two universities: The response rate was 38.9%.
5. The survey was based on self-reporting of students, and measured only what they chose to answer and how they chose to answer the questions.
6. The group of respondents were a homogenuous group of students from three Upper Midwestern universities and may not represent the total population of physical therapy students across the United States. Findings of this study may not apply to other physical therapy programs across the United States that are more diverse.
7. Generalizability of findings may also be limited related to potential differences in curricula and courses offered in pediatrics programs across the United States.

8. The timing of this study occurred at the beginning of the second semester. At this time, students had limited exposure to pediatric content and clinical experiences with children.

Recommendations for Future Research

The results of this study might have been strengthened if the researcher had directly asked students (using a yes/no question) if they had educational experiences with children. The researcher might also have asked students (using a yes/no question) if they had clinical experiences with children. Using yes/no questions, the researcher did ask students whether or not they had accumulated some observational hours and/or volunteer hours. Study results might also have been strengthened through soliciting respondents at the end of a semester (when more third-year students are available to complete the study), or by utilizing a paper survey when students have had more clinical experiences and educational experiences with children. If this study were to be repeated, one recommendation would be for changes described in this paragraph to be made and to include a larger number of physical therapy students.

More research is needed on the integration of pediatric experiences with children into physical therapy program curricula. Further research is also needed with a larger, more diverse group of physical therapy students to assess which life experiences, educational experiences, and clinical experiences positively influence students' considerations to practice pediatrics. A longitudinal study is needed of PT educational programs where pediatric experiences are incorporated early in students' educational careers, and evidence is provided from several cohorts across several years. Also, further study should include research with new graduates who are employed in pediatrics to gain their perspectives on experiences during their education that

made a difference in their considerations to practice pediatrics and compare results to the results of this study.

Conclusions

The theoretical frameworks of adult learning theory and experiential learning, a literature review, data resulting from a quantitative survey, and analysis of data provided perspectives from a population of students in the Upper Midwest related to the positive influence of life experiences, educational experiences, and clinical experiences with children and students' considerations to practice pediatrics. Early integration of experiences with children into PT curricula might build on the interest students bring into their PT programs in their first year of PT education and make a difference in students' continued interest in pediatrics throughout their academic and professional careers, and eventually their consideration to practice pediatrics. It is the hope of this researcher that the evidence provided in this study will spark further research studies on experiential learning in pediatrics and early integration of experiences with children into physical therapy curricula.

APPENDICES

Appendix A
Approval From UND's School of Graduate Studies

UND SCHOOL OF GRADUATE STUDIES
UNIVERSITY OF NORTH DAKOTA

Montgomery Hall, Room 325
290 Centennial Drive Stop 8178
Grand Forks, ND 58202-8178
(ph) 701-777-2784; (fax) 701-777-3619
questions@gradschool.und.edu

TOPIC PROPOSAL

Name	Amy J. Elbert	Student ID #	0223594
Address	1116 Shakespeare Road	Phone	701 741 6887
City/State/Zip	Grand Forks, North Dakota 58203	Email	amy.elbert@und.edu
		Expected Graduation Date	May 2019

Independent Study ☐ Thesis ☐ Dissertation ☑ Project Design ☐ Scholarly Project ☐ DNP Captsone ☐

Proposed Title:

FACTORS AND EXPERIENCES THAT INFLUENCE STUDENT PERCEPTIONS ABOUT PRACTICING PEDIATRICS

Answer the following questions (required):

The research involves Human Subjects: ☑Yes ☐No
If yes, IRB (*Institutional Review Board*) approval date: _____ Project #: IRB-201812-148

The research involves Animal Subjects: ☐Yes ☑No
If yes, IACUC (*Institutional Animal Care & Use Committee*) approval date _____ Project #: _____

The research involves the use of recombinant DNA or biohazardous material research: ☐Yes ☑No
If yes, IBC (*Institutional Biosafety Committee*) approval date: _____ Project #: _____

The research involves the use of radiation & hazardous materials: ☐Yes ☑No
If yes, RSHMC - *Radiation Safety & Hazardous Materials / name of authorized faculty* _____

If you have questions on the above requirements, please contact the appropriate committee:
IRB- human subject research - Office of Research & Program Development at (701) 777-4279 or http://und.edu/research/resources/
IACUC – animal research – Center for Biomedical Research (701) 777-4493
IBC – DNA or biohazardous material research - Research Development & Compliance at (701) 777-4279 or http://und.edu/research/resources/
RSHMC – radiation & hazardous material research – Safety & Environmental Health Office at (701) 777-3341

Myrna L. Olson	11-26-18	Kari Chasson	11-26-18
Advisor or Chair	Date	Committee Member	Date
		Kim Yeary	11-27-18
Committee Member	Date	Committee Member	Date
	12/31/18	Cindy Elson-Mahoney	11-26-18
Dean of the School of Graduate Studies	Date	Member-at-Large	Date

Non-thesis students need only the advisor's signature; all other students need the signatures of their entire committee.

FACTORS AND EXPERIENCES THAT INFLUENCE PHYSICAL THERAPY STUDENTS' OPENNESS TO PRACTICE PEDIATRIC PHYSICAL THERAPY

Pediatric physical therapy is a profession that has grown due to the increasing numbers of numbers of children and adolescents that have been identified with developmental disabilities. It is anticipated that there will be a workforce shortage of pediatric physical therapist by 2020. There is a need for students to first become interested in learning about pediatrics and then be open to pursuing a career in pediatric physical therapy to fill these positions and met the needs of children and families.

There is a gap in the literature regarding what factors and experiences influence students interest in to pursue a career in pediatric physical therapy. The literature reveals that there are inconsistencies in how physical therapy programs provide pediatric content and clinical experiences. Clinical experiences generally occur in the students' final year and are optional. Not all students have clinical experiences with children with developmental disabilities. Experiential learning has been a topic of pediatric physical therapy educators in recent studies. Educators are seeking evidence on how students learn and gain confidence in their pediatric knowledge, abilities and skills. Studies have shown that students gain confidence when they are exposed to different types of experiences with children during their education. Evidence from the research has not provided a definitive amount or type of experience or even when the experiences should occur to increase student's confidence in their abilities to practice pediatric physical therapy.

This study will explore whether personal life, educational, and clinical experiences are associated with a physical therapy students' decision to practice pediatrics after graduation. This study will also explore demographics, personal, educational and clinical factors that influence their decision to practice pediatrics or not. The purpose of this research study is to assess if there is an association between the constructs of experience and physical therapy students' openness to a career in pediatrics. The sub constructs of experience include personal life, educational and clinical experiences. The theoretical framework is based on adult learning theory and the conceptual framework is built on experiential learning principles.

The hypothesis is that clinical experiences will have the strongest association with physical therapy students openness to pursuing a career in pediatrics after graduation. The data from the survey will provide answers to the research questions through quantitative methods, descriptive and inferential. The research questions are (1) What percentage of first, second and third year physical therapy students who are open to practicing pediatrics have indicated they have completed an observation in pediatrics? (2) In what year of their physical therapy education do most physical therapy students determine their openness to pursuing a career in pediatrics? (3)What is the association between physical therapy student's experiences with children in their personal life, academic or clinical education and a student's openness to a career in pediatrics?

The anticipated results are that there will be an association between personal, educational, and clinical experiences and a student's openness to pediatrics. The results will be used to develop clinical and educational implications that will be beneficial to students and educators.

Appendix B
Approval From UND's Institutional Review Board

UNIVERSITY OF NORTH DAKOTA

UND.edu

DIVISION OF RESEARCH & ECONOMIC DEVELOPMENT

Institutional Review Board
Twamley Hall, Room 106
264 Centennial Dr Stop 7134
Grand Forks, ND 58202-7134
Phone: 701.777.4279
Fax: 701.777.6708
UND.irb@research.UND.edu

December 28, 2018

Principal Investigator:	Amy Elbert
Project Title:	Factors and Experiences that Influence Physical Therapy Students' Openness to Practicing Pediatric Physical Therapy
IRB Project Number:	IRB-201812-148
Project Review Level:	Expedited 7
Date of IRB Approval:	12/23/2018
Expiration Date of This Approval:	12/22/2019
Consent Form Approval Date:	12/23/2018

The application form and all included documentation for the above-referenced project have been reviewed and approved via the procedures of the University of North Dakota Institutional Review Board.

Attached is your original consent form that has been stamped with the UND IRB approval and expiration dates. Please maintain this original on file. ***You must use this original, stamped consent form to make copies for participant enrollment. No other consent form should be used.*** It must be signed by each participant prior to initiation of any research procedures. In addition, each participant must be given a copy of the consent form.

The waiver of written consent has been approved under 45 CFR 46.117(c)(2) for online survey.

Prior to implementation, submit any changes to or departures from the protocol or consent form to the IRB for approval. No changes to approved research may take place without prior IRB approval.

You have approval for this project through the above-listed expiration date. When this research is completed, please submit a termination form to the IRB. If the research will last longer than one year, an annual review and progress report must be submitted to the IRB prior to the submission deadline to ensure adequate time for IRB review.

The forms to assist you in filing your project termination, annual review and progress report, adverse event/unanticipated problem, protocol change, etc. may be accessed on the IRB website: http://und.edu/research/resources/human-subjects/

Sincerely,

Michelle Bowles

Michelle L. Bowles, M.P.A., CIP
IRB Manager

MLB/sb
Enclosures

Appendix C
Hardcopy – Physical Therapy Student Survey

Physical Therapy Student Survey on Pediatrics

Participation in this survey is voluntary. You can choose to stop answering questions at any time, choose not to answer certain questions, or not complete the survey.

If you choose to participate, please take about 15 minutes to complete the survey below. The goal of this research is to determine what factors and experiences influence future physical therapists to consider practicing pediatric physical therapy after graduation. Thank you for your participation.

Demographic/Personal/Social Factors:

1. **What is your gender?** ____Female ____Male
2. **What is your racial identity?** ____White ____Black or African American ____American Indian or Alaska Native ____Asian ____Native Hawaiian or Pacific Islander ____Hispanic or Latino ____Indian _____Other
3. **What is your age?** _____
4. **What is your marital status?** ____single ____married ____other
5. **Do you have children?** ____yes ____no
6. **Do you have a family member who had or has a functional, activity, or participation limitation since childhood (Example: Cerebral Palsy, Down Syndrome)?**

   ____yes ____no
7. **Have you done observation hours with children with functional, activity, and/or participation limitations?** ____yes ____If yes, how many hours? ____no
8. **Have you done volunteer hours with children (coaching, scouts, YMCA, Special Olympics)?** ____yes ____If yes, how many hours? ____no
9. **Have you previously been employed in a setting that works with children?**

   ____yes ____no
10. **Do you feel pediatric physical therapists need specific personality traits to be effective?** ____yes ____no

    If yes, what is the most important personality trait?

    1._____

Academic and Clinical Education Factors:

11. Which University do you currently attend?

____[redacted] ____[redacted] ____[redacted]

12. Which year are you in PT school? ____1st ____2nd ____3rd

13. Do you have an interest in practicing pediatrics? ____yes ____no

If yes, when did you decide you did have an interest in practicing pediatrics?

____1st year ____2nd year ____3rd year

If no, when did you decide you did not have an interest in practicing pediatrics?

____1st year ____2nd year ____3rd year

14. Was there a transformational learning experience or college course that caused you to have an interest in pediatrics? ____yes (if yes, please describe) ____no

15. Was there a transformational learning experience or college course that caused you NOT to have an interest in pediatrics? ____yes (if yes, please describe) ____no

16. What do you feel is important for you to know before considering practicing pediatrics? Please rate 1-10 (1 being *the most important*; 10, *the least important*).

____knowledge of normal growth and development

____experience with normally developing children

____knowledge of pediatric diagnosis

____experience with children with pediatric diagnoses

____knowledge of pediatric behavior management/motivation techniques

____observations of physical therapists using behavior management/motivation techniques

____knowledge of documentation specific to pediatrics

____experience with documentation specific to pediatrics

____knowledge of pediatric assistive devices/special equipment

____experience with pediatric assistive devices/special equipment

17. I am considering enrolling in an elective pediatric course?

____yes ____no ____not available

18. I am considering a clinical education experience in pediatrics?

____yes ____no

19. I am considering practicing pediatrics after graduation.

____yes ____no

If you answered yes, list the top reason why you WANT to consider practicing pediatric physical therapy after graduation.

1._____

If you answered no, list your top reason why you DO NOT WANT to consider practicing pediatrics after graduation.

1._____

20. List any additional comments you wish to add to this survey regarding physical therapy pediatric education.

Comments:

Please rate your agreement for each statement using a Likert-type scale: 1 (*Strongly Disagree*) to 6 (*Strongly Agree*) in answer to the following question: **I am considering practicing pediatrics because of the influence of positive _____.**	**Strongly Disagree**	**Disagree**	**Slightly Disagree**	**Slightly Agree**	**Agree**	**Strongly Agree**
observational experiences with children	**1**	**2**	**3**	**4**	**5**	**6**
volunteer experiences with children	**1**	**2**	**3**	**4**	**5**	**6**
experiences I had with children in my family, school, and social life (siblings, cousins, friends)	**1**	**2**	**3**	**4**	**5**	**6**
experiences with children during my employment	**1**	**2**	**3**	**4**	**5**	**6**
experiences in the classroom through pediatric lectures	**1**	**2**	**3**	**4**	**5**	**6**
discussions of pediatric case studies with my peers	**1**	**2**	**3**	**4**	**5**	**6**
hands-on experiences with children in classroom labs	**1**	**2**	**3**	**4**	**5**	**6**
mentoring of an academic PT educator/professor	**1**	**2**	**3**	**4**	**5**	**6**
experiences with children during my clinical education	**1**	**2**	**3**	**4**	**5**	**6**
experiences collaborating with other pediatric professionals (Ex: OT, SLP, SW, MD) during my clinical education	**1**	**2**	**3**	**4**	**5**	**6**
mentoring experiences with my clinical instructor	**1**	**2**	**3**	**4**	**5**	**6**
experiences working with parents and families of a child with functional, activity, and/or participant limitations	**1**	**2**	**3**	**4**	**5**	**6**

Appendix D
Online – Physical Therapy Study Survey

Physical Therapy Student Survey on Pediatrics

Start of Block: Demographic/Personal/Social Factors

Q0 Participation in this survey is voluntary. You can choose to stop answering questions at any time, choose to not answer certain questions, or not complete the survey.

If you choose to participate, please take about 15 minutes to complete the following survey. The goal of this research is to determine what factors and experiences influence future physical therapists to consider practicing pediatric physical therapy after graduation.

Your choosing to fill out the survey, indicated your consent to participate in the research study.

Thank you for your participation.

Q1 What is your gender?

- ○ Female (1)
- ○ Male (2)

Q2 What is your racial identity?

- ○ White (1)
- ○ Black or African American (2)
- ○ American Indian or Alaska Native (3)
- ○ Asian (4)
- ○ Native Hawaiian or Pacific Islander (5)
- ○ Hispanic or Latino (6)
- ○ Indian (7)
- ○ Other (8) _____

Q3 What is your age?

_____

Q4 What is your marital status?

- ○ Single (1)
- ○ Married (2)
- ○ Other (3)

Q5 Do you have children?

- ○ Yes (1)
- ○ No (2)

Q6 Do you have a family member who had or has a functional, activity, or participation limitation since childhood? (Example: Cerebral Palsy, Down Syndrome)

- ○ Yes (1)
- ○ No (2)

Q7 Have you done observation hours with children with functional, activity, and/or participation limitations?

- ○ Yes (if yes, how many hours?) (1)
  _____
- ○ No (2)

Q8 Have you done volunteer hours with children (coaching, scouts, YMCA, Special Olympics)?

- ○ Yes (if yes, how many hours?) (1)
  _____
- ○ No (2)

Q9 Have you previously been employed in a setting that works with children?

- ○ Yes (1)
- ○ No (2)

Q10 Do you feel that pediatric physical therapists need specific personality traits to be effective?

- ○ Yes (if yes, what is the most important personality trait?) (1) _____
- ○ No (2)

End of Block: Demographic/Personal/Social Factors

Start of Block: Academic and Clinical Education Factors

Q11 Which University do you currently attend?

- ○ [redacted] (1)
- ○ [redacted] (2)
- ○ [redacted] (3)

Q12 Which year are you in PT school?

- ○ 1st (1)
- ○ 2nd (2)
- ○ 3rd (3)

Q13 Do you have an interest in practicing pediatrics?

- ○ Yes (if yes, which year of PT school did you decide you did have an interest in practicing pediatrics?) (1) _____
- ○ No (if no, which year of PT school did you decide you did NOT have an interest in practicing pediatrics?) (2) _____

Q14 Was there a transformational learning experience or college course that caused you to have an interest in pediatrics?

- ○ Yes (if yes, please describe) (1)
  _____
- ○ No (2)

Q15 Was there a transformational learning experience or college course that caused you NOT to have an interest in pediatrics?

- ○ Yes (if yes, please describe) (1)
  _____
- ○ No (2)

Q16 What do you feel is important for you to know before considering practicing pediatrics? Please rank 1-10; 1 being the most important, 10 being the least important.
(Click and drag the statements to reorder into ranking, with your number 1 choice at the top)

_____ Knowledge of normal growth and development (1)

_____ Experience with normally developing children (2)

_____ Knowledge of pediatric diagnosis (3)

_____ Experience with children with pediatric diagnoses (4)

_____ Knowledge of pediatric behavior management/motivation techniques (5)

_____ Observations of physical therapists using behavior management/motivation techniques (6)

_____ Knowledge of documentation specific to pediatrics (7)

_____ Experience with documentation specific to pediatrics (8)

_____ Knowledge of pediatric assistive devices/special equipment (9)

_____ Experience with pediatric assistive devices/special equipment (10)

Q17 I am considering enrolling in an elective pediatric course.

- ○ Yes (1)
- ○ No (2)
- ○ Not available (3)

Q18 I am considering a clinical education experience in pediatrics.

- ○ Yes (1)
- ○ No (2)

Q19 I am considering practicing pediatrics after graduation.

- ○ Yes (if yes, list the top reason why you want to consider practicing pediatric physical therapy after graduation) (1) _____
- ○ No (if no, list the top reason why you DO NOT want to consider practicing pediatric physical therapy after graduation) (2) _____

Q20 List any additional comments you wish to add to this survey regarding physical therapy pediatric education.

_____

Q21 Please rate your agreement for each statement in answer to the following question:
I am considering practicing pediatrics because of the influence of positive_____.

I am considering practicing pediatrics because of the influence of positive _____.	Strongly Disagree (1)	Disagree (2)	Slightly Disagree (3)	Slightly Agree (4)	Agree (5)	Strongly Agree (6)
observational experiences with children (1)	○	○	○	○	○	○
volunteer experiences with children (2)	○	○	○	○	○	○
experiences I had with children in my family, school, and social life (siblings, cousins, friends) (3)	○	○	○	○	○	○
experiences with children during my employment (4)	○	○	○	○	○	○
experiences in the classroom through pediatric lectures (5)	○	○	○	○	○	○
discussions of pediatric case studies with my peers (6)	○	○	○	○	○	○
hands-on experiences with children in classroom labs (7)	○	○	○	○	○	○
mentoring of an academic PT educator/professor (8)	○	○	○	○	○	○

I am considering practicing pediatrics because of the influence of positive _____.	Strongly Disagree (1)	Disagree (2)	Slightly Disagree (3)	Slightly Agree (4)	Agree (5)	Strongly Agree (6)
experiences with children during my clinical education (9)	○	○	○	○	○	○
experiences collaborating with other pediatric professionals (ex: OT, SLP, SW, MD) during my clinical education (10)	○	○	○	○	○	○
mentoring experiences with my clinical instructor (11)	○	○	○	○	○	○
experiences working with parents and families of a child with functional, activity, and/or participation limitations (12)	○	○	○	○	○	○

End of Block: Academic and Clinical Education Factors

Appendix E
First Letter of Support – Physical Therapy Director

To Whom it May Concern,

I have been in discussion with Amy Elbert regarding her proposed dissertation project. She has requested to send a link to a survey to students in our doctoral program in physical therapy. She has my support to conduct her research with our students.

Sincerely,

[redacted], PT, PhD

Chair, Department of Physical Therapy

[redacted]

[redacted]

for Life.

Appendix F
Second Letter of Support – Physical Therapy Director

November 28, 2018

Amy Elbert, PT, DPT, MS
Graduate student in T & L
Higher Education Emphasis
University of North Dakota
Grand Forks, North Dakota 58201

RE: FACTORS AND EXPERIENCES THAT INFLUENCE PHYSICAL THERAPY STUDENTS' OPENNESS TO PRACTICE PEDIATRIC PHYSICAL THERAPY

Dear Ms. Elbert:

The University of [redacted] Physical Therapy Program supports your research on the above titled survey study.

Sincerely,

[redacted], PT, PhD
Associate Professor
Program Director and Chair

Appendix G
Third Letter of Support – Physical Therapy Director

[redacted]

11/28/2018

To Whom it May Concern:

I have been in discussion with Amy Elbert, PT, DPT regarding her proposed dissertation project titled "Factors and experiences that influence physical therapy students' openness to practice pediatric physical therapy." She has requested access to contact students in the professional physical therapy program with a survey. I fully support the dissertation research project and will provide access to students at [redacted]

Sincerely,

[redacted]

[redacted] PT, PhD
Associate Professor and Chairman

Appendix H
Recruitment Scripts

In person:

You are invited to voluntarily participate in a research study as you are a physical therapy student attending a university in North Dakota. Please sign your informed consent to participate, if you agree to be part of this study. You can have a copy of the consent to keep. This study is about the factors and experiences that influence a student's consideration to practice or not practice pediatrics as a physical therapist after graduation.

Your participation in the study will last about 15 minutes, the time it takes to complete the survey. All consent and survey forms will be kept separate to preserve your confidentiality. There is no monetary or other reward for completing the survey. There are no anticipated risks to completing this study. All consent forms will be stored in a locked cabinet for 3 years and shredded and destroyed at the end of that time period. This study is approved by the University of North Dakota IRB and their website address is available to you if you have questions. The address is available on the consent form.

Your answers will be summarized to answer the research questions of this quantitative study. The results and conclusions will be published in a dissertation completed by this investigation. Any questions can be directed to Amy Elbert or my advisor. Our contact information is available on the consent form.

Online:

The purpose of this research study is to discover what factors and experiences are associated with a student's openness to considering a career in pediatrics after graduation. Please take 15 minutes to complete this survey voluntarily. You may choose to answer all the questions or quit at any time. Your choosing to fill out the survey, indicates your consent to participate in the research study.

There is no anticipated risk to answering the questions on this survey and there is no monetary compensation or other reward for completing the survey. There is no information on the survey that will identify you personally, except that you are a Physical Therapy student attending a university in North Dakota. Any email or contact links will be kept separate from the survey. No electronic record of your survey will be kept on a computer. All information will be stored in a locked cabinet for 3 years and shredded and destroyed at the end of that time period.

If you have questions, an email address will be provided to you of this investigator, also the website of the UND IRB website address is provided.

Appendix I
Consent Form

THE UNIVERSITY OF NORTH DAKOTA
CONSENT TO PARTICIPATE IN RESEARCH

TITLE: FACTORS AND EXPERIENCES THAT INFLUENCE PHYSICAL THERAPY STUDENTS' OPENNESS TO PRACTICE PEDIATRIC PHYSICAL THERAPY

PROJECT DIRECTOR: Amy J. Elbert

PHONE # Cell number: 701-741-6887 Home: 701-775-6887

DEPARTMENT: Teaching and Learning

STATEMENT OF RESEARCH

A person who is to participate in the research must give his or her informed consent to such participation. This consent must be based on an understanding of the nature and risks of the research. This document provides information that is important for this understanding. Research projects include only subjects who choose to take part. Please take your time in making your decision as to whether to participate. If you have questions at any time, please ask.

WHAT IS THE PURPOSE OF THIS STUDY?

You are invited to be in a research study about the factors and experience that influence a physical therapy student's consideration to practice pediatrics after graduation.

The purpose of this research study is to assess if there is a difference between the construct of experiences with children and physical therapy students' consideration to practice pediatrics. The sub-constructs of experience include life, educational, and clinical experiences.

HOW MANY PEOPLE WILL PARTICIPATE?

Approximately 410 people will take part in this study at the [redacted], [redacted], and [redacted] Physical Therapy Programs.

HOW LONG WILL I BE IN THIS STUDY?

Your participation in the study will last the time it takes to complete the survey, about 15 minutes.

WHAT WILL HAPPEN DURING THIS STUDY?

This non-experimental quantitative survey research study will ask demographic as well as short answer questions, and a Likert-type twelve question survey. It will be given to physical therapy students from three different physical therapy programs in North Dakota ([redacted]). Students will range from first to third year students. Students will voluntarily participate in the study. Students that are in the first and second year of the programs on campus will complete a written voluntary consent and survey, distributed by this researcher. The students are free to skip any questions that he/she would prefer not to answer or not complete the survey at all.

The students off site (3rd year students) will receive the survey to complete online. Students will consent through the online completion of the survey. Students can choose to skip any questions that he/she would prefer not to answer or not complete the survey at all.

WHAT ARE THE RISKS OF THE STUDY?

There will be little or no risk to answering the questions on the survey.

If, however, you become upset by questions, you may stop at any time or choose not to answer a question. If you would like to talk to someone about your feelings about this study, you are encouraged to contact, the Counseling Center on your campus.

WHAT ARE THE BENEFITS OF THIS STUDY?

You may not benefit personally from being in this study. However, I hope that, in the future, other people might benefit from this study because of the knowledge gained from this survey about physical therapy pediatric education. There is no compensation or college credit for completing this survey.

WILL IT COST ME ANYTHING TO BE IN THIS STUDY?

You will not have any costs for being in this research study.

WILL I BE PAID FOR PARTICIPATING?

You will not be paid for being in this research study. There is no non-monetary compensation for participating in this research study.

WHO IS FUNDING THE STUDY?

The principle investigator, [redacted], [redacted], and [redacted] Physical Therapy students in this study are receiving no payments from other agencies, organizations, or companies to conduct this research study.

CONFIDENTIALITY

The records of this study will be kept private to the extent permitted by law. In any report about this study that might be published, you will not be identified. Your study record may be reviewed by Government agencies and the University of North Dakota Institutional Review Board.

Any information that is obtained in this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law.

If we write a report or article about this study, we will describe the study results in a summarized manner so that you cannot be identified.

IS THIS STUDY VOLUNTARY?

Your participation is voluntary. You may choose not to participate, or you may discontinue your participation at any time without penalty. Your decision whether to participate will not affect your current or future relations with the [redacted], [redacted], or [redacted].

CONTACTS AND QUESTIONS?

The researcher conducting this study is Amy J. Elbert. You may ask any questions you have now. If you later have questions, concerns, or complaints about the research, please contact Amy Elbert at (701) 741-6887, at any time. You may also contact my advisor, Dr. Myrna Olson, at the University of North Dakota at (701) 777-3188.

If you have questions regarding your rights as a research subject, you may contact The University of North Dakota Institutional Review Board at **(701) 777-4279** or **UND.irb@research.UND.edu.** 01 777-3188.

- You may also call this number about any problems, complaints, or concerns you have about this research study.
- You may also call this number if you cannot reach research staff, or you wish to talk with someone who is independent of the research team.
- General information about being a research subject can be found by clicking "Information for Research Participants" on the web site: http://und.edu/research/resources/human-subjects/research-participants.cfm

I give consent for my quotes to be used in the research; however, I <u>will not</u> be identified.

Please initial: ____ Yes ____ No

Your signature indicates that this research study has been explained to you, that your questions have been answered, and that you agree to take part in this study. You will receive a copy of this form.

Subjects Name: _____

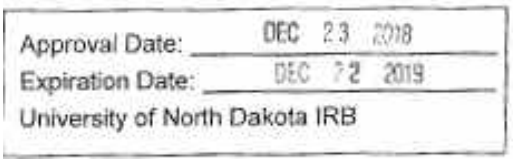
_____ _____

Signature of Subject Date

I have discussed the above points with the subject or, where appropriate, with the subject's legally authorized representative.

_____ _____

Signature of Person Who Obtained Consent Date



Appendix J
Open Ended Responses to Short Answer Questions

Year 1: Physical Therapy Students

I am considering practicing pediatrics after graduation. Yes/No

If you answered yes, list the top reason why you WANT to consider practicing pediatric physical therapy after graduation.

1. I enjoy working with children with disabilities and the challenge it presents.
2. I am a coach, so I already work with children and have developed communication skills that work with them and enjoy their willingness and positivity towards new things.
3. Promoting normal development or function in children is very rewarding because of how pure and positive most children are.
4. Pediatrics seems fun, yet challenging, while every adult patient is different, children are completely different, and I love the variety.
5. I loved shadowing in a peds clinic.
6. I want to be able to help kids and their families feel able of doing anything despite their limitations.
7. I really like children. I feel as though therapy provided at an early age is essential, and I am passionate about it.
8. Kids are always eager to do better.
9. I love working with kids, they provide a certain energy that isn't always seen in adults.
10. To be a positive role model and aid in their lives
11. Enjoy the energy and excitement in pediatrics

12. I love kids, and I think it's important to get them on the right track early in life.
13. I am always willing to keep my options open.
14. I believe that it is the most rewarding field of PT based on observational experience.
15. I was a counselor at a camp with children with special needs and saw the impact PT could have.
16. I enjoy working with children.
17. Working with kids has always been a passion of mine. I find it rewarding and fulfilling to be one of the people that shapes young minds.
18. I enjoyed my time I got to observe in pediatrics.
19. I love kids and love to work with them.
20. I want to make a positive impact on these children whose lives are already so hard.
21. I have always enjoyed working with kids. It is fun and doesn't seem like therapy, more like playing.
22. You form the base that they will work with for the rest of their life, so helping them start life correctly is everything, plus they're fun.
23. I absolutely love kids and want to use my skills to better their life. They are fun to work with, and it would be a wonderful experience.
24. The experience I had before school working with children
25. I have always loved working with children, and I love the concept of turning your patients work into a game.
26. I love kids and shaping their life before becoming an adult.
27. I would love to help children with disabilities.
28. To help restore and improve function in young beautiful lives.

29. I enjoy working with children.
30. I have always liked working with children and experiencing their view of the world.
31. I work and have volunteered at a therapeutic riding center and love working with those kids.
32. Children have so much joy, and I'd love to mold the future of our nation.
33. I like children. I have worked with individuals as a para of special education in the schools and enjoyed my experience.
34. The joy children bring every day is contagious, and seeing them succeed.
35. I want to help children grow and develop in ways that allow them to just be a kid. I've seen how a peds PT can change a life, and I want to be that for others.
36. I think it would be a rewarding job.
37. I love being around kids.
38. The ability to diagnose common musculoskeletal abnormalities
39. Being able to work with children over the course of a long time, building that close relationship with the patient
40. I like kids, and I think it could be interesting.
41. I want to make a positive influence in a child's youth that could impact the rest of their youth/life.
42. I am interested in creativity and challenge.
43. Reward of working with kids in an undergraduate course.
44. I think kids are full of joy.
45. I love kids. They bring energy and happiness.
46. I like working with children, because they are very transformable.

47. I have always had a special place in my heart for children, and I have had many experiences with Down Syndrome, CP, and Rheumatoid Arthritis in pediatric people.
48. Never done it, and I love the babies.
49. I truly enjoy working with children, and I find it to be the most interesting and rewarding field I've researched.
50. I enjoy working with kids and keeping them motivated.
51. I want to make a difference for the family and child that could last a lifetime.

If you answered no, list your top reason why you DO NOT WANT to consider practicing pediatrics after graduation.

1. I want to enjoy time with my own family and other interests.
2. Too much going on
3. I am interested in other area more.
4. I have areas I would rather practice, such as neuro or sports.
5. It takes a special personality with a lot of patience.
6. I am more passionate working with geriatrics or adults.
7. I genuinely do not think my interest lies in pediatrics.
8. I have not had any experience with it.
9. I am already interested in an alternative area of specialization.
10. I appreciate objective responses from patients and don't like working with parents.
11. I tend to be inpatient with kids when I spend multiple hours with them. I am still open-minded to practice in pediatrics, however.
12. I am not patient enough to deal with behavioral problems.

13. I am not patient enough.
14. I like to take many objective measures and converse with the patient about the outcomes of tests or measurements.
15. I haven't put enough through or research into the topic of pediatrics.
16. Kids don't listen/unpredictable.
17. Behavioral issues in children might be the reason I'm not leaning towards it as well as just more of an interest in other areas of practice.
18. I have worked with a lot of kids and don't think I have the energy or patience to work with them all day and return home to my own kids as well.
19. Undecided, not wishing to focus yet
20. I didn't have a passion for it when I completed observation hours.
21. Not as interested, enjoy Ortho more.
22. Experience – I think it would take a while to get into.
23. Other passions to pursue
24. My little experience level with pediatrics
25. My interests are greater. I don't have anything against pediatrics, I just would rather work with other populations.
26. I don't enjoy it. My personality doesn't suit this specialty field.
27. Emotional connection, hardship
28. Though I have observed a children services clinic, I have not had hands on experience, so I am still undecided.
29. I am more interested in other areas of PT.
30. Other interests

31. Not my first-choice environment.
32. I don't know much about it and don't have much experience thus far.
33. Don't know much about it (What it looks like, what type of setting).
34. Not interested in working with children
35. I am more interested in sports med and have a strong background with athletes.
36. I personally feel lacking in the ability to best foresee/meet the needs I would expect of a pediatric PT.
37. I don't believe I would be creative/motivating enough that pediatrics requires.
38. More interest in Orthopedics
39. I have very little experience with little ones. Being the baby of the family, I have never had those previous interactions to feel comfortable.
40. I have never had that as an interest.
41. I am not passionate about working pediatrics.
42. This area does not interest me as much as others.
43. I have no experience in the field.
44. I find it difficult working with an entire family; not just patient.
45. I will be working for an outpatient clinic with a focus on sports performance training.
46. I want to be able to communicate fully with pts, also lack of patience.
47. I find working with children to be more stressful in general then working with adults. Difficulty paying attention, following directions.
48. I would like to pursue sports rehab.

List any additional comments you wish to add to this survey regarding physical therapy pediatric education.

1. I've always wanted to be a peds therapist.
2. I am unsure about what I want to do. Paying off loans will most likely determine where I go and what I do for work.
3. I have had many jobs and volunteer experiences working with children in many settings.
4. Although it's not for me or my skill set/patience level, some will be great at it, and it is an important field.
5. I am still open to it. Currently, I'm leaning more towards other areas more.
6. Wouldn't mind a small number of pediatric patients, just wouldn't like a full case load.
7. Was not able to do any DIRECT observation in pediatrics in undergrad. More direct observation would help me decide if it is a right fit.
8. Peds is my second option.
9. I am not opposed; just haven't considered the area.
10. I would like to learn more and start to consider it.
11. I love and care about the upcoming youth, but do not see myself as being best suited to meet/serve their needs.
12. I have no observations in pediatric PT, this is just my belief without experience. I am not completely opposed.

Year 2: Physical Therapy Students

I am considering practicing pediatrics after graduation. Yes/No

If you answered yes, list the top reason why you WANT to consider practicing pediatric physical therapy after graduation.

1. I am interested in continuing to work with children.
2. From part-time jobs, I have enjoyed working with children and the variability it provides.
3. To offer that service near my hometown
4. I enjoy working with pediatric patients.
5. I enjoy incorporating creativity into education. Kids bring positivity to the day.
6. Fun
7. I enjoyed working with kids during out peds course.
8. From clinical experience, I found it very rewarding.
9. Children are the gifts from God that call us back to living lives of humility, love, and equality.
10. They are vulnerable and usually many individuals do not know how to help them.
11. Working with kids is fun and rewarding.
12. Personal calling to the tiny humans.
13. I would like to work with sports and pediatrics as part of sports.
14. Always challenging and never the same
15. It is fun and makes you think outside the box.
16. To help young individuals improve and can participate with peers
17. I enjoy working with children.

18. Love working with kids, experience, type of conditions impact can have
19. I enjoy working with children and have experienced the benefits of pediatric PT with one of my children.
20. I enjoy the theory and interventions, as well as the population.
21. It is a rewarding and challenging career path for all involved.
22. I want to make a difference in that child's/child's families life by utilizing knowledge gained to be that person of knowledge that the child trusts and the family can go to.
23. I believe I have a good sense of patience, and I believe I could make a positive impact in this setting.
24. I have had a lot of exposure working with kids.
25. Previous experience working with children with special needs and my love for children.
26. I have always loved working with children and their families. It is one of the reasons I have chosen to enter PT as my profession.
27. To help patients live a lifestyle they want to live
28. I love working with children who have disabilities. I think they are so much fun and very interesting. They have many factors including psych aspects as well that need to be considered.
29. I really enjoy working with this patient population and want to make an impact in their life.
30. I have always enjoyed peds. I think the opportunity to impact someone's entire life is so amazing.

31. I have always loved working with children and want to help them.
32. I feel more confident working with children, then adults.
33. I have always had a passion for working with kids.
34. I enjoy working with children.
35. I enjoy working with children.
36. Enjoy working with kids and want to help them and their families.
37. I enjoy kids. I have worked with kids in sports, and parents tell me that I work very well with kids and should continue to do so.
38. Work with a wide variety of patients. See an occasional kid, but not full time.
39. They often require continued care that makes a difference in their ability to perform normal daily activities.

If you answered no, list your top reason why you DO NOT WANT to consider practicing pediatric physical therapy after graduation.

1. It would make me not want children.
2. I don't connect with kids.
3. Not my calling
4. No interest
5. I found an area that interests me more.
6. I am not interested in working with pediatric population.
7. I enjoy sports rehab more.
8. Rural outpatient clinic – few peds patients.
9. I want to work with athletes. It has some peds.
10. Couldn't do it full time.

11. Too limited, want to see more than just children.
12. In observation through undergrad, I had a difficult time working with children in PT and being able to motivate them in a fun way.
13. I would find it difficult working with overbearing parents.
14. I wouldn't mind doing a small amount, but I do not want to because I don't have the personality or patience to work in pediatrics all day.
15. It is exhausting and has a lot more hoops to jump through.
16. I don't want to work with crying babies and am not the best around kids.
17. Personality differences
18. Don't have the patience to assist child and parent/caregiver.
19. It is not the setting for me.
20. It doesn't interest me us much as other therapy.
21. I am not creative enough to come up with engaging therapeutic activities.
22. I work better with adults in the PT setting.
23. More interested in vestibular
24. I entered PT to have good conversations with clients.
25. I am more passionate about post-surgical patients.
26. I prefer adult patients.
27. -
28. Prefer geriatrics.
29. I have observed previously and didn't find it to fit my personality/interests.
30. Hard to keep kids focused on your activity
31. I don't have the personal qualities – patience, and experience.

32. Not my ideal setting to practice in
33. I am more interested in other fields.
34. I prefer outpatient ortho to peds.
35. Too much energy
36. Creativity and enthusiasm not my best traits
37. I have experience with it and did not enjoy it.
38. I do not feel it challenges the knowledge that I will have gained after school.
39. I like to have structure. With PT peds observation, appointment, sometimes got off track or difficult, and it was hard to stay on task.
40. More interest with athletes and did not enjoy time in peds setting.
41. I prefer older patient population.
42. I feel it is not a good fit for me.
43. I do not want to work primarily with peds, but may see some in outpatient settings.
44. I feel my niche is in outpatient orthopedics.
45. Would not mind a few pediatric patients, but do not want to specialize.
46. Not my area of interest following pediatric observation prior to PT school.
47. I'm not interested in working with children.
48. I would prefer to work with more old and developed populations.
49. I want patients to be able to understand what I am telling them.
50. I think I would enjoy working with adults more.
51. I want to work with sports.
52. Not the population I will be treating.
53. I want a variety of ages.

54. No interest

55. I feel I would be too attached to patients, and it would make work difficult.

56. –

57. I don't want to practice with one specific age group.

58. Not interested

59. I wish to work in a rural setting with older adults.

60. My interests lie in different PT settings.

61. –

62. I prefer adult populations.

63. I feel my skill set would be better used in a different area of PT.

64. I do not believe I work with children as well as others do. Someone (most people) will be better at it than me.

List any additional comments you wish to add to this survey regarding physical therapy pediatric education.

1. I have not had pediatric coursework or clinical education.

2. I am considering a rural setting to allow me to work with all age groups. This way, I will still work with pediatrics, but not full time.

3. Simply from taking a peds course, I fell even more in love with pediatrics.

4. Hope to see an occasional peds patient.

5. Labs are crucial to get comfortable and exposure.

6. Sometimes working with kids with disabilities can be depressing knowing they may never walk, run, etc. like other kids.

7. I like peds more now after taking pediatric PT class and would work with an occasional pediatric patient.
8. It has been beneficial to have lab experience with pediatrics before my clinical rotation.
9. I do not believe I work well with children.
10. It's an important area of the field, but I think it takes a special person to do it.

Year 3: Physical Therapy Students

I am considering practicing pediatrics after graduation. Yes/No

If you answered yes, list the top reason why you WANT to consider practicing pediatric physical therapy after graduation.

1. I would like to work in a school district.
2. I want to be a rural PT and work with all ages.
3. Maybe partial peds, enjoy time with kids
4. I love working with children.
5. I want to increase the Quality of Life of children I work with.
6. I have a passion to advocate for kids that are often misunderstood due to their physical limitations.
7. I want to specialize in orthopedics and/or geriatrics.
8. I enjoy working with children.
9. I like the challenge and love kids.
10. I think peds patients are generally more excited about therapy than older people making your job more fun.
11. It is challenging and rewarding.

12. May see them in outpatient setting
13. I liked feeling like I was impacting their whole lives and enjoyed the relationship with families.
14. Enhancing inclusivity
15. To help children and families in any way that I can
16. Job openings
17. I enjoy helping children reach functional goals that allow for participation with their peers family and community.
18. I enjoy working with kids.
19. Improving a child's quality of life
20. I enjoy kids.
21. I want to work in pediatrics because I want to make a difference in a child's life and improve the human/family experience.
22. I have a passion for letting all kids participate in all activities.
23. I'd like to work in a rural area and see patients of all ages.
24. Make a lifelong difference and relationship
25. I love children.
26. The joy of children
27. Rewarding to work with children and see them improve
28. Because I love this setting, the rewards, challenges, and patient relationships and patient growth.
29. I enjoy working with children, especially ages 5-18.

If you answered no, list your top reason why you DO NOT WANT to consider practicing pediatrics after graduation.

1. Small job marked
2. It is not that I don't want to practice peds; there will just be a limited population in the area I will be working.
3. Too tall
4. I am more interested in working with geriatric populations.
5. There are others that are better fit and desire to work with Peds.
6. Though not considering pediatric PT at present will keep an open-mind in the future depending on where my family and life takes me.
7. Don't like the setting
8. Too difficult to work with instruction. It requires knowledge we were not extensively taught in school; requires high energy and patience.
9. I love kids, but I enjoy working with the geriatric population more.
10. I don't want to go into a specialty right away.
11. I have more of an interest in Orthopedics and Geriatrics.
12. No, I don't like seeing long term, minimal progress.
13. I plan to work in orthopedics.
14. I don't want to deal with parents.
15. Limited opportunities in rural Minnesota
16. Bad experience in observing prior to grad school
17. I don't like the idea of having to consult with other dynamics other than the patient.
18. No, because I want to become a traveling PT.

19. I don't have the experience.
20. I do not have the right personality traits. For example: creative, energetic, bubbly.
21. Interested in working with veterans and athletes.
22. I am not comfortable working with children for long periods of time.
23. No experience – Interested in acute care.
24. Not a good fit for me
25. I want to work with adults more.
26. I prefer neuro and adult population.
27. I do not enjoy peds as much as other areas.
28. I have another specialty area I am more passionate about.
29. Dealing with family; energy needed for pediatric population.
30. I don't feel that I am the right personality to work in peds.
31. Because I know I don't have the temperament to work with children under five if they are acting up.
32. I am not super creative to make treatment fun and have active participation in therapy.
33. Other areas are of more interest
34. Not interested
35. Do not feel I would be a good fit in a peds clinic, but am open to treating peds if referred to my Outpatient job.
36. I love the orthopedic population.
37. I do not do well motivating children through play and creativity.
38. Just not the specialty for me

39. I am not passionate about it.
40. Behaviors of kids and dealing with parents
41. I don't have the mindset to work with pediatrics all the time.
42. Greater interest in outpatient/athletics
43. Pay
44. I wouldn't mind a peds patient occasionally, but love working with elderly population too much to be peds specific.
45. Specialized

List any additional comments you wish to add to this survey regarding physical therapy pediatric education.

1. We had a very good professor, I am just not interested in peds
2. Previous experience with children regardless of functional abilities really helped me get comfortable with peds patients. Kids are kids regardless of what they can or can't do (yet).
3. Kids are tough and hands on experience is important when it comes to PT pediatric education. Kids are smart, so if you are uncomfortable, they will take advantage of the situation. I think all student physical therapists should experience what it is like to try to manage kids of all ages and abilities.
4. Professor's course work and dedication is thoroughly inspiring for those interested in working in pediatrics.
5. Pediatrics is a great field.
6. I believe the most beneficial portion of peds education is experiential learning.
7. I plan to see some pediatric patients, but not solely pediatrics.

8. Having a pediatric elective helped advance my skills and give me confidence for my pediatric clinical.

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