The Hybrid Doctor of Physical Therapy Student: A Comprehensive Exploration of Demographics and Decision-Making Factors

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The Hybrid Doctor of Physical Therapy Student: A Comprehensive Exploration of Demographics and Decision-Making Factors

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Abstract

Background: Hybrid DPT education has emerged as a model many educators feel holds promise in addressing some of the calls to action in DPT education. Data indicate an increasing number of hybrid DPT programs, yet very little is known about the hybrid DPT student. ***Purpose:*** This study aimed to explore hybrid DPT student demographic characteristics, tolerance for ambiguity and perfectionism factors, and key considerations in the student's selection of a hybrid DPT program. ***Method:*** The study used a quantitative, non-experimental, cross-sectional design with the administration of a Qualtrics survey to explore demographics, student experience, and key considerations data. Data analysis included descriptive statistics to determine measures of central tendency. ***Results:*** The median age of the sample was 25 years, with 72.0% females and 29.3% racial minorities. 33.5% of participants were married and 13.5% had children. 54.4% were accepted to more than one program. The median score for tolerance for ambiguity was 23, and the median scores for perfectionism striving and evaluative concerns were 15.2 and 11.4, respectively. The most important considerations in selecting their hybrid DPT program were outcome factors of graduation and employment rates and NPTE pass rates. ***Conclusion:*** Hybrid DPT students look very similar to residential DPT students compared to published aggregate data, with main differences in marital status and those with children. New and expanding hybrid DPT programs should consider outcomes as a key driver in student selection of their program.

Keywords: entry-level hybrid DPT education, tolerance for ambiguity, perfectionism

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The Hybrid Doctor of Physical Student: A Comprehensive Exploration of Demographics and Decision-Making Factors

Doctor of Physical Therapy (DPT) educators have been challenged to assess, adapt, and advance educational practices in the ever-changing landscape of health care and graduate education. Over the last decade, commentary with calls to action have been published on issues including student debt to income ratio (Domholdt et al., 2020; Dunn, 2019; Jette, 2016), demand for qualified faculty (Brueilly et al., 2022; Domholdt et al., 2020), physical therapist workforce supply and demand (APTA and APTA Private Practice, 2023; Deusinger & Landers, 2022; Domholdt et al., 2020), declining DPT program applications (ACAPT, 2023; Deusinger & Landers, 2022; Deusinger & Sanders, 2017; Domholdt et al., 2020), the increase in the number of DPT programs (Deusinger & Sanders, 2017; Domholdt et al., 2020) thereby increasing the competition for students, and diversity of PT students and graduates (Domholdt et al., 2020). Considering these issues alone, multiple options to address them could be identified. However, the real challenge is that many of these problems are inextricably connected, and solutions cannot be considered in isolation.

In recent years, a new instructional model of education has emerged that many educators feel holds promise in addressing some of the challenges: hybrid DPT education. The first hybrid DPT programs were launched in 2008 (University of St. Augustine for Health Sciences, 2016) and 2011 (Nova Southeastern University, 2011). Both programs were described as “flex” programs and decelerated the time to a degree. They were characterized by their blended delivery model that combined online and face-to-face instruction with no residential requirements to create flexibility for working students and those otherwise unable to attend full-time graduate school (Nova Southeastern University, 2011; University of St. Augustine for

Health Sciences, 2016). In 2015, the first full-time, fully hybrid DPT program was launched at South College. Like the early "flex" programs, there was no residential requirement. However, to be responsive to workforce demands and rising concerns about the debt-to-income ratio, this new type of hybrid program accelerated the time to degree to two years (South College, 2021). In 2020, the COVID-19 pandemic rapidly shifted most programs to an online format (Gagnon et al., 2020). Since then, data indicate that at least 10 accredited institutions offer entry-level DPT education, with 25-50% of the program offered remotely and at least six institutions offering more than 50% in a remote method (ACAPT, 2022d).

Literature related to hybrid DPT education programs and outcomes is limited. Existing data on hybrid DPT education are derived from case reports that describe hybrid program implementation, outline strategies implemented during the COVID-19 pandemic, and provide some early outcomes (Gagnon et al., 2020, 2022; Ortega et al., 2021). While these studies provide a useful foundation for understanding the characteristics of individual hybrid DPT programs, there is a need to more broadly understand the student experience and outcomes across multiple hybrid programs.

Aggregate student demographics and outcomes for graduation rates, licensure examination pass rates, and employment rates for DPT programs are reported annually by CAPTE in the Aggregate Program Data (CAPTE, 2022). These data provide a superficial start to the collection of benchmarking metrics but are limited in their utility as they cannot be separated by program type, describe a narrow set of graduate outcomes, and do not provide information about the student experience. Shields et al. (2018) recognized the limited utility of the data collected by CAPTE and set out to collect a more robust set of data to capture information about student experience. These data included validated tools related to tolerance for ambiguity (TfA),

burnout, and perfectionism in their Physical Therapy Graduate Questionnaire (PT-GQ) benchmarking study (Dudley-Javoroski and Shields, 2022). TfA has been widely studied in medical students (Hancock & Mattick, 2020) and identified as a needed trait in DPT students (Craik, 2001; Jette, 2016a). Perfectionism has been correlated to increased stress (Richardson et al., 2022) and negative mental health diagnoses (Bogardus et al., 2022). Perfectionism has been positively associated with developing leadership (Jaworski et al., 2022) and academic achievement (Madigan, 2019). These findings support the need to consider student experience factors of TfA and perfectionism in the metrics of DPT students. However, like all other data, this information is unavailable for the hybrid DPT student.

Problem Statement

Hybrid DPT programs produced an estimated 1000 graduates this year, with an estimated 3400 students enrolled in hybrid DPT programs in 2023. These numbers will continue to grow as new and expanded hybrid DPT programs emerge. As the DPT education market becomes increasingly competitive, institutions offering hybrid DPT programs must learn to recruit, retain, and support their students effectively. To do this, they must know who their students are and why they chose their specific hybrid DPT education program.

Purpose Statement

This study aimed to explore hybrid DPT student demographic characteristics and student experience aspects of tolerance for ambiguity and perfectionism. This study also examined key considerations in the student resolution to enroll in a specific hybrid DPT program.

Research Questions

The following research questions are answered to address the study's purpose.

1. What is the characteristic demographic profile of students enrolled in entry-level hybrid DPT educational programs?
2. What is the student experience of tolerance for ambiguity and perfectionism in entry-level hybrid DPT educational programs?
3. What key considerations impacted students' selection of a specific hybrid DPT educational program?

Objectives

The following objectives are addressed to answer the research questions.

1. Explore the demographic characteristics, such as age, gender, ethnicity, and relationship status of students who enroll in hybrid DPT educational programs, utilizing a newly constructed survey.
2. Explore the tolerance for ambiguity and perfectionism of students enrolled in hybrid DPT programs utilizing the Tolerance for Ambiguity (TfA) scale (Geller et al., 1993) and the Frost Multi-Dimensional Perfectionism Scale- Brief (FMPS-B) (Burgess et al., 2016).
3. Describe key considerations to students' selection of a specific hybrid DPT program utilizing a newly constructed survey.

Significance of the Study

The results of this study provide data that can be used to benchmark hybrid DPT students' characteristics and experiences against published aggregate data. This enables institutions that are considering development of a hybrid DPT program to make data-informed decisions regarding the anticipated students and why they would enroll. Ultimately, the results of

this study provide the foundation for future studies related to the outcomes of students enrolled in hybrid DPT programs.

Literature Review

DPT Education

History

The physical therapy profession has been in the United States since the early 1900s. Initially, six schools offered a post-baccalaureate certificate, awarding those who completed the program the title of Physical Reconstruction Aid (Moffat, 2003). Over the last century, the profession of physical therapy has advanced significantly. Thus, education programs for physical therapy have evolved as well. Education programs have gone from the bachelor's degree level in 1978 through the master's degree level in 2008 to the doctorate level by 2015 (Moffat, 2012). Two hundred seventy-three accredited physical therapy programs now confer the DPT degree (CAPTE, 2022).

A Call for Change

Physical therapist educators have faced challenges throughout the entire history of the profession. These challenges have resulted in growth and changes in physical therapist education, including the progression of education from a certificate to a doctorate. The ever-changing landscape of health care and graduate education requires physical therapist educators to assess, adapt continually, and advance administration and educational practices. Recently documented challenges include but are not limited to student debt to income ratio (Dunn, 2019; Jette, 2016b), demand for qualified faculty (Brueilly et al., 2022; Brueilly et al., 2007; Bliss et al., 2018), physical therapist workforce supply and demand (APTA, 2023; Deusinger & Landers, 2022), declining DPT program applications (APTA, 2022; Deusinger & Landers, 2022;

Deusinger & Sanders, 2017), an increase in the number of DPT programs (Deusinger & Sanders, 2017; Jette, 2016b), and student/graduate diversity (Nordstrom et al., 2022; Domholdt et al., 2007). Additionally, there are concerns regarding the rising cost of doing business (Jette, 2016b), curricular variation (Jette, 2016b), negative value proposition (Deusinger & Landers, 2022), and defining and achieving excellence in education (Gordon, 2011; Jensen et al., 2017a). All these issues have been discussed in the last 15 years within the APTA Academy of Education (2022) Cerasoli Lectures, with calls to action. However, as discussed by Domholdt et al. (2020), little progress has been seen in most areas. While there may be multiple solutions to address any of the challenges within DPT education, most problems are inextricably connected and cannot be considered in isolation.

Healthcare and medical educators have been urged to consider novel education methods and leverage technology to replace outdated methods and improve efficiency in educational delivery (Prober & Khan, 2013; Thibault, 2020.) Leaders in physical therapy education have called for a need to establish excellence in education, unique methods of education, and changes to the curriculum to reduce the cost of physical therapist education, improve efficiencies, and provide flexibility to meet student needs (Gordon, 2011; Graham, 2015; Jette, 2016b; Portney, 2014; Wojciechowski, 2015).

Excellence

The response to the call for establishing excellence in physical therapist education began with defining excellence (Jensen et al., 2017a; Jensen et al., 2017b). In 2022, ACAPT launched the Center for Excellence in Academic Physical Therapy and formed an advisory committee to support a culture of excellence and reinforce the mission and strategic goals of the organization (ACAPT, 2022a). The definition of excellence and The Excellence Framework was published,

and an Institutional Profile Survey was created to collect data around shared challenges, such as building diversity, controlling student debt, increasing the value of education, and addressing shortages of qualified faculty (ACAPT, 2022a). The ACAPT (n.d.) Criteria for Excellence defines excellence as:

> Excellence is an aspiration rather than a destination characterized by continual improvement. An excellent academic program demonstrates a culture of excellence by continually and intentionally striving to transform learners, advance knowledge, and improve societal health. Excellence in transforming learners, advancing knowledge, and improving societal health is achieved when the academic culture supports the ongoing development and integration of three domains: Inquiry, inclusion, and innovation. Excellence is a multi-faceted construct that respects and supports differences among academic programs while inspiring ongoing self-assessment and growth. (p. 3)

The Excellence Framework outlines 12 critical categories to track success (ACAPT, 2022c). Words such as transformative, influential, innovation, risk-taking, collaboration, motivated, engaged, diversity, equity, inclusion, contemporary, adaptive, authentic, and social responsibility are seen throughout the 12 critical categories. Many of these exact words are found in the published literature, including the APTA Academy of Education Cerasoli Lectures (2022), outlining the challenges and suggested solutions in physical therapist education. Additionally, ACAPT (2022b) provides DPT program guidelines to assist programs in striving toward excellence, yet none of these documents operationally define these terms. Achieving excellence in programs may be part of the solution to some of the problems faced in DPT education. However, it is unclear if this work can address the many problems within DPT education without operational definitions to support the implementation.

The Rise of Hybrid DPT Education

In recent years, a new instructional model of DPT education has emerged that many educators think holds promise in addressing some of the challenges: hybrid DPT education. Distance education, including online and hybrid formats across higher education, has steadily risen since 2014 (Allen et al., 2016).

The first hybrid DPT programs were launched in 2008 (University of St. Augustine for Health Sciences, 2016) and 2011 (Nova Southeastern University, 2011). Both programs were described as "flex" programs that slowed down the time to a degree. They were characterized by their blended delivery model that combined online and face-to-face instruction with no residential requirements to create flexibility for working students and those otherwise unable to attend full-time graduate school (Nova Southeastern University, 2011; University of St. Augustine for Health Sciences, 2016). In 2015, the first full-time, fully hybrid DPT program was launched at South College. Like the early "flex" programs, there was no residential requirement. However, to be responsive to workforce demands and rising concerns about the debt-to-income ratio, this new type of hybrid program accelerated the time to degree to two years (South College, 2021). In 2020, the COVID-19 pandemic rapidly shifted most programs to an online format (Gagnon et al., 2020). Since then, almost all residential DPT programs have returned to in-person learning. However, research supports the benefits of remote instruction realized during the pandemic (Anderson & Dutton, 2022; Ortega et al., 2022; Plummer et al., 2021), and some programs have chosen to continue with blended instruction in the curriculum. Data indicate that at least 10 accredited institutions offer entry-level DPT education, with 25-50% of the program provided remotely and at least six institutions offering more than 50% in a remote method (ACAPT, 2022d).

Hybrid Model of DPT Education. Despite multiple programs now offering a hybrid DPT education model, there is limited published literature related to the model and its ability to address the challenges in DPT education. Most of the literature about hybrid DPT education has been conducted at the individual course level (Adams, 2013; Boucher et al., 2013; Lazinski, 2017; Veneri & Ganotti, 2014; Wassinger et al., 2021). Utilizing a flipped classroom for musculoskeletal DPT education, Boucher et al. (2013) and Wassinger et al. (2021) found improved course outcomes as evidenced by exam scores, and students in both studies were satisfied with the "flipped" model and most even preferred the method. In another study examining hybrid versus traditional course instruction using computer-assisted learning for a neurologic rehabilitation course, authors found average quiz grades to be improved, and final exam scores were statistically significantly higher in the hybrid group (Veneri & Ganotti, 2014). A study by Lazinski (2017) evaluated student outcomes with performance on practical assessments, online engagement, and student course evaluations for a hybrid one-credit hour lab course for performing surface palpation. Across three cohorts, only one student failed the practical assessment, students exceeded the posting requirement and page views, and qualitative comments related to student satisfaction were skewed in a positive direction.

Other published literature on hybrid DPT education pertains to the perspective of students or faculty during the COVID-19 pandemic (Majsak et al., 2022; Neely et al., 2022; Ortega et al., 2021). Ortega et al. (2021) reviewed digital strategies implemented during the COVID-19 pandemic. They reported effective delivery of content, with more research needed on outcomes for the student, program, and community for programs that heavily use digital learning strategies. Majsak et al. (2022) analyzed challenges and faculty concerns about going virtual during the COVID-19 pandemic. This study found that faculty were most challenged with limited contact,

increased workload, and learning online technologies (Majsak et al., 2022). The biggest concerns from faculty included fewer hands-on labs, delays in clinical experiences, and safety during on-campus activities (Majsak et al., 2022). Neely et al. (2022) compared student clinical performance for those who received face-to-face education and those who received virtual education. The study results indicated that students in the virtual learning group had lower Clinical Performance Instrument scores and lower ratings from clinical instructors; however, none of the results were statistically significant. These study results must be taken with caution as many factors impacted the implementation of virtual learning during the COVID-19 pandemic. The instructional models explored may be described as emergency remote instruction versus thoughtfully constructed online learning experiences. Thus, the results cannot be generalized to the intentional use of the hybrid DPT education model.

Only two studies address a fully hybrid instructional delivery model across a DPT program (Gagnon et al., 2022; Marinas et al., 2022). Marinas et al. (2022) studied students' perception of cognitive load and the impact of gender and academic tutoring services on perceptions in an accelerated, blended DPT program. The study found no relationship between cognitive load and gender and a significant difference between students' perception of cognitive load for those who received academic tutoring services and those who did not (Marinas et al., 2022). The study did not address whether students perceived a high versus low cognitive load. Gagnon et al. (2022) described the hybrid model implementation and early outcomes of a hybrid DPT education program. The case report provides insight into implementing a hybrid DPT education program inclusive of student affairs, academic affairs, faculty affairs, and institutional affairs (Gagnon et al., 2022). The outcomes of the report indicate that the program has a two-year mean of 39% minority students enrolled versus the mean of 28% across all DPT programs

(Gagnon et al., 2022), suggesting that more than the average number of minority students may enroll in a hybrid DPT education program. Additionally, outcomes showed that most students were very or somewhat satisfied with the program, demonstrated a 96% graduation rate with 36.5% minority graduates, and a 97% ultimate two-year NPTE pass rate (Gagnon et al., 2022). The graduation rate, minority graduation rate, and the ultimate two-year pass rate either equal or exceed the average rates reported by the CAPTE data published in 2021 (Gagnon et al., 2022).

There is no literature related to the specific characteristics of students enrolled in hybrid DPT programs or information about the reasons that students enroll in hybrid DPT programs. A study by Ancrum-Smalls et al. (2000) assessed factors of importance for physical therapist applicants' choice of program. At the time of the study, there were only residential programs. Respondents rated the degree offered and the accreditation status as very influential (74%) (Ancrum-Smalls et al., 2000). Other factors garnering over 50% response as very influential included perceptions of the program's atmosphere, NPTE pass rate percentages, perceptions of faculty concern for student welfare, tuition costs, first impressions of the program, and distance from home (Ancrum-Smalls et al., 2000). On-campus housing, public transportation availability, student diversity, interaction with/perceptions of program undergraduate advisors, and familiarity with the campus were rated as least influential by 50% of respondents (Ancrum-Smalls et al., 2000). While this study is dated, it provides some foundation for factors to consider in student enrollment in hybrid DPT education programs.

Data and Outcomes

There is a lack of universal metrics collected in DPT programs, making it challenging to benchmark and compare program outcomes (Shields et al., 2021). Aggregate Program Data are reported by CAPTE annually (CAPTE, 2022), and ACAPT began reporting the Institutional

Profile Survey data in 2022 (ACAPT, 2022d). Neither CAPTE nor ACAPT data separate hybrid data from the aggregate for the program or student.

Shields et al. (2018) began a series of studies (Dudley-Javoroski & Shields, 2022; Shields et al., 2021) to create universal metrics for DPT programs. The first study was completed at one university over eight years and utilized a survey based on the metrics and validity of the Association of American Medical Colleges Graduation Questionnaire (Shields et al., 2018). In the second study, the survey was named the Physical Therapist Graduation Questionnaire (PT-GQ) (Shields et al., 2021). Data were collected and analyzed across 13% and 26.5% of programs to capture overall satisfaction, curriculum, learning environment, student experience, and student characteristics (Dudley-Javoroski & Shields, 2022; Shields et al., 2021). These three studies provide valuable information for benchmarking, but like CAPTE and ACAPT, there is no separation of data for hybrid programs or students

Terminology

A unique challenge to studying alternative education methods, especially those that include any online learning component, remains the incongruent terminology (Singh & Thurman, 2019). Various terms, including flipped, blended, online, distance education, and many others, are used interchangeably with the term hybrid. Numerous writings, some peer-reviewed and some not have attempted to provide standardized definitions (Allen et al., 2016; CAPTE, 2021; Malamed, 2010; Saichaie, 2020; Sener, 2015; Singh & Thurman, 2019). In addition, meta-analysis and review studies provide definitions to outline their processes for data collection (Al-Samarraie et al., 2020; Cheng et al., 2019; He et al., 2021).

Gagnon et al. (2020) utilized the Online Report Card (Allen et al., 2016) to distinguish blended/hybrid courses and programs as 30%-79% online with a minimum of 20% face-to-face.

Additionally, Gagnon et al. (2020) referenced the terms outlined by CAPTE (2021) to support working definitions of online, blended, flipped, and traditional instruction. Interestingly, the CAPTE (2021) does not define hybrid instruction but does define blended instruction as a blend of distance education, asynchronous learning, and face-to-face synchronous experiences. CAPTE (2021) does not provide any guidance related to the amount of instruction delivered in distance, asynchronous, and face-to-face synchronously. The reality is that to obtain a proper understanding of the information in the literature related to students in hybrid education, all terms need to be utilized in searching. For this study, the definition of hybrid remained consistent with the seminal hybrid DPT program publication by Gagnon et al. (2020) as a blend of online and face-to-face delivery, with 30-79% of the program delivered online and at least 20% delivered face-to-face. For additional clarity, hybrid programs are referred to as programs that do not require full-time residence or relocation to attend the program. The term residential will be used to reference programs that are not hybrid. This term is not defined in the literature but is defined in this paper as a program that requires full-time residence in a specific geographic location to attend the program. The term residential is chosen over the CAPTE (2021) term traditional because the definition of traditional includes all face-to-face learning experiences in the classroom, lab, or community setting. Given the rise of technology and the shift in educational methods associated with the COVID-19 pandemic, it is unclear if any DPT program meets the working definition of traditional.

Student Experience

When considering the profile of the entry-level hybrid DPT student, it is essential to look beyond demographics. Demographics and cognitive factors such as grade point average are consistently reported in the literature, but there is a growing body of evidence related to non-

cognitive factors (Huhn et al., 2021; Richardson et al., 2022; Roll et al., 2018; Dudley-Javoroski & Shields, 2022; Van Veld et al., 2018). These include emotional intelligence, grit, self-efficacy, TfA, and perfectionism. These factors are studied about outcomes, identifying support mechanisms for students, and as a means of predicting success. To date, these non-cognitive traits have not been included in any of the aggregate data that CAPTE or ACAPT report, but Shields et al. (2018, 2019) began reporting on TfA in their benchmarking studies and subsequently began reporting on perfectionism in the second wave of benchmarking studies (Dudley-Javorski & Shields, 2022). These data have been collected under a section titled Student Experience and included data on burnout, interpersonal reactivity, and empathy. The student experience factors of TfA and perfectionism were selected for this study based on the hypothesis that either trait could impact a student's resolution to enroll in a hybrid DPT program and remain consistent with aggregate published data.

Tolerance for Ambiguity

TfA is a concept that has been studied in healthcare education, with most of the literature derived from medical education (Caulfield et al., 2014; Gaufberg et al., 2018; Geller et al., 1990; Geller et al., 1993; Hancock & Mattick, 2019; Patel et al., 2022; Weissenstein et al., 2014) and a few studies relevant to nursing (Knight et al., 2016; McMahon & Dluhy, 2017; Pressler & Kenner, 2010). The construct of tolerance for ambiguity is difficult to define in the literature. Early research defines it as "the tendency to perceive situations that are novel, complex, or insoluble, as sources of threat" (Budner, 1962, as cited in Gellar, 1993, p. 990). McClain et al. (2015) also cite Budner's work but define ambiguity tolerance as "an individual's systematic, stable tendency to react to perceived ambiguity with greater or less intensity" (Definition, paragraph 2).

Craik (2001) suggests that students' need for tolerance for ambiguity in physical therapy education is related to clinical decision-making, growth in knowledge, and professional maturation. Craik's (2001) sentiments are further validated by D. U. Jette (2016b) in the Cerasoli Lecture, Unflattening, where she stated, "graduates must make decisions in the face of limited information, ambiguity, and uncertainty" (p. 7). Further, graduates must be prepared to work in situations where uncertainty is the norm, and critical thinking and clinical reasoning are the skills needed to overcome uncertainty (D. U. Jette, 2016b). A. M. Jette (2016a) says that a clinician can and often needs to act even in ambiguity. He further states that "ambiguity about the effectiveness of physical therapy intervention is never a cause for celebration" (p. 134) but promotes asking, studying, and finding answers to questions. Finally, A. M. Jette (2016a) concludes that physical therapy educators know that transmitting ambiguity based on tradition and experience is not helpful and that scientific evidence should be the standard. However, without evidence, embracing ambiguity allows educators and students to know when we know something and when we do not. He advocates for the preparation of students regarding ambiguity and relays that embracing ambiguity is just as important as employing evidence-based practice (A. M. Jette, 2016a).

Three studies have examined TfA in DPT students (Dudley-Javoroski & Shields, 2022; Shields et al., 2018; Shields et al., 2021). These studies used the validated Tolerance for Ambiguity (TFA) Scale (Gellar et al., 1993). Results from the first study showed no significant difference in TfA between physical therapists and medical students (Shields et al., 2018). However, both subsequent studies showed a significantly lower TfA among DPT students than medical students. These findings suggested the need to investigate further the optimal levels of

TfA for successful outcomes in DPT education and to consider capturing TfA data before matriculating into DPT programs.

Perfectionism

Perfectionism has been defined in the literature since the mid-twentieth century as "demanding of oneself or others a higher quality of performance than is required by the situation" (Hollender, 1965, p. 94). The construct was included in the Diagnostic and Statistical Manual of Mental Disorders (DSM) III as a major diagnostic criterion (Frost et al., 1990) and is classified in the present-day DSM-5 as a lower-order facet of compulsivity (Ayearst et al., 2012). Perfectionism is multidimensional, with adaptive and maladaptive outcomes (Hewitt et al., 2003). Additionally, definitions of perfectionistic strivings and concerns were developed from a factor analysis by Frost et al. (1993). Perfectionistic striving consisted of the self-directed pursuit of self-determined high standards without high self-criticism and was associated with positive affect (Frost et al., 1993). Perfectionistic concerns consisted of the drive to obtain unrealistically high standards with excessive self-criticism and doubting self-ability and were associated with negative affect (Frost et al., 1993). Perfectionistic strivings are often grouped with adaptive perfectionism, and perfectionistic concerns are often grouped with maladaptive perfectionism.

Meta-analyses have focused on maladaptive outcomes and found that perfectionistic concerns had a positive relationship with multiple psychopathological outcomes (Limburg et al., 2017) and a positive relationship with burnout symptoms (Hill & Curran, 2016). A meta-analysis by Madigan (2019) aimed to determine if perfectionism predicted academic achievement. The study found perfectionistic strivings to have a small to medium positive relationship with academic achievement, and perfectionistic concerns a small negative relationship with academic achievement (Madigan, 2019).

The impacts of maladaptive perfectionism have been studied in medical and health profession students and have been correlated with depression, anxiety, and stress (Bogardus et al., 2022; Enns et al., 2001; Henning et al., 2002). Other studies have found positive outcomes of adaptive perfectionism in shaping authentic leadership (Jaworski et al., 2022) and with baseline academic performance expectations and conscientiousness (Enns et al., 2008).

Students working toward acceptance into physical therapist education programs may have to compete with others for limited slots in their programs of choice. This inherent competition may lead to perfectionistic tendencies. Richardson et al. (2022) studied perfectionism in entry-level DPT students and found that 41% were adaptive perfectionists and 25% were maladaptive perfectionists. Other literature related explicitly to DPT students and perfectionism groups DPT students with other health professions students (Bogardus et al., 2022; Filipkowski et al., 2021), making it difficult to ascertain if DPT students experience perfectionism with adaptive and maladaptive outcomes more than other healthcare professions students. Dudley-Javoroski and Shields (2022) utilized the FMPS-B in entry-level DPT students. They found that scores were generally higher for perfectionistic strivings than concerns, suggesting that DPT may experience more favorable outcomes related to adaptive perfectionism. Examining the Student Experience factors of TfA and perfectionism tendencies of students who enroll in hybrid DPT education programs may provide helpful information for administrators and faculty about student support services and evaluating outcomes based on these constructs. It is unknown if there is any correlation between TfA and perfectionism with hybrid DPT education program selection.

Method

Study Type and Design

This study used a quantitative, non-experimental study using a cross-sectional design. The survey was conducted online using Qualtrics, an online survey program. The study took place from February 2023 to July 2023. Before participant recruitment, the study was approved by the University of Indianapolis Institutional Review Board.

Participants

Entry-level Doctor of Physical Therapy (DPT) students were recruited for this study using convenience sampling. Inclusion criteria included students 18 or older currently enrolled in any candidate or accredited hybrid DPT program. Exclusion criteria excluded students in a DPT program outside the United States and students in residential and post-professional programs. It is estimated that 3400 students were enrolled in one of the 19 accredited or candidate for accreditation programs in the United States in the Spring of 2023. Based on a 10% participation rate, the sample size target was 340. To increase the likelihood that the sample would represent the population, all eligible students who completed the survey were included in the study for an estimated maximum of 1,700 participants.

Data

Variables included student demographics, TfA scores, and FMPS-B scores. In addition, key considerations from the students' perspective about enrolling in their specific hybrid DPT program were collected using a 5-point Likert scale. The variables collected are listed and defined below.

Variables

Variables for student characteristics included

- age (years),
- gender (male, female, non-binary, other),
- sexual orientation (lesbian, gay, bisexual, transgender, queer, heterosexual, other)
- race (African American/Black, American Indian/Alaskan Native, Asian, Caucasian/White, Hispanic/Latino, Native Hawaiian/Other Pacific Islander, two or more races, unknown, prefer not to answer),
- highest advanced degree achieved (Bachelors, Masters, Clinical Doctorate, Terminal Doctorate),
- committed relationship (yes, no)
- relationship status (married or civil union living together or apart, not married or civil union living together or apart),
- divorced, widowed, separated, none of these apply (select all that apply)
- parental status- biological, adopted, foster, or stepchildren (no, no expecting, yes (1, 2, 3, 4 or more))
- age of children and in the home or not, in matrix format (one, two, three, four); age of children, preschool (birth to 5 years), elementary (6-13 years), adolescent (14-18 years), adult (19+ years of age); living with you full time (365 days a year), part-time (less than 365 days a year), not living with you),
- caregiver for someone other than your children (yes, no),
- person living with you (yes, no),
- residential location before enrollment in the program- dropdown of states with categorization post data collection as follows (South Atlantic (DE, DC, FL, GA, MD, NC, PR, SC, VA, WV), Middle Atlantic (NJ, NY, PA), East North Central

(IL, IN, MI, OH, WI), West North Central (IA, KS, MN, MO, NE, ND, SD), West South Central (AR, LA, OK, TX), New England (CT, ME, MA, NH, RI, VT), Pacific (AK, CA, HI, OR, WA), East South Central (AK, KY, MS, TN), Mountain (AZ, CO, ID, MT, NV, UT, WY), other (write-in),

- relocation status for the program (yes/no),
- relocation location- dropdown of states with categorization post data collection as follows (South Atlantic (DE, DC, FL, GA, MD, NC, PR, SC, VA, WV), Middle Atlantic (NJ, NY, PA), East North Central (IL, IN, MI, OH, WI), West North Central (IA, KS, MN, MO, NE, ND, SD), West South Central (AR, LA, OK, TX), New England (CT, ME, MA, NH, RI, VT), Pacific (AK, CA, HI, OR, WA), East South Central (AK, KY, MS, TN), Mountain (AZ, CO ID, MT, NV, UT, WY), other (write-in),
- name of DPT program currently enrolled in- categorized post-data collection based on unique survey link by the primary researcher (T. B.)
- acceptance to other hybrid DPT programs (yes, no),
- acceptance to residential (non-hybrid) DPT programs (yes, no),
- method of learning about the program (friend/family member, internet search, PT-CAS, social media (Instagram, Facebook, Twitter), undergraduate professor/advisor, online advertisement, other (write-in),

- tolerance for ambiguity (TfA Scale Score),
- perfectionism (FMPS-B subscale scores)

Operational Definitions of Variables

Hybrid was defined as a program that blends online and face-to-face delivery; 30-79% of the content is delivered online with a minimum of 20% face-to-face in a physical location together (Gagnon et al., 2020). The concept of tolerance for ambiguity was operationalized using scores obtained on the TfA scale (Geller et al., 1993). Perfectionism was operationalized as the two subscale scores on the FMPS-B (Burgess et al., 2016).

Student-reported key considerations of enrollment in a specific hybrid DPT program were defined using a 1-5 Likert, 1 (not important) to 5 (very important), and included university factors: reputation, tuition cost, travel cost, housing cost; program factors: mission, vision, values, program duration, faculty, location; admissions factors: online webinars, pre-admission visits, interactions with the admissions team; outcomes factors: National Physical Therapy Examination (NPTE) first and ultimate (two-year average) pass rates, diversity of study body, graduation rates, employment rates; others: free text write-in space provided.

Instruments

Tolerance for Ambiguity Scale

The TfA scale (Appendix A) measures the tendency to see ambiguous situations as threatening (Budner, 1962, as cited in Geller, 1993). It is comprised of seven questions and utilizes a Likert scale from 1 (strongly agree) to 6 (strongly disagree) (Geller et al., 1993). Summed scores range from 7 to 42, with lower scores demonstrating decreased tolerance and higher scores demonstrating increased tolerance (Geller et al., 1993). The survey has moderate internal consistency ($\alpha = .75$) and demonstrates construct validity based on the assumption that "a self-inventory test is only useful if some overt manifestation of the variable can be strongly related to that test" (MacDonald, 1970, as cited in Geller et al., 1993, p. 997). Geller et al. (1993)

state that the TfA scale study conducted with physicians on attitudes toward genetic testing reflected behavior correlates of ambiguity tolerance, establishing construct validity. The scale is openly available for use.

Frost Multidimensional Perfectionism Scale-Brief

The FMPS-B comprises two subscales: evaluative concerns and strivings (Appendix B). Each subscale consists of 4 questions (Burgess et al., 2016). Items are scored on a Likert scale from 1 (strongly disagree) to 5 (strongly agree), and each subscale score is summed separately (Woodfin et al., 2020). Scores on each subscale range from 4 to 20, with higher scores indicating more perfectionistic tendencies. The evaluative concerns scale has a Cronbach's α coefficient of α = .91, and the strivings scale has a Cronbach's α coefficient of α = .84, indicating good internal consistency (Tonta et al., 2021). The scale has construct validity with demonstrated concurrent and convergent validity with other similar scales (r = .68-.72) (Burgess et al., 2016). This scale is openly available for use.

Procedures

Recruitment

Participants were recruited via a phone call and email through their DPT program director or program faculty. The primary researcher (T. B.) contacted all accredited or candidate hybrid DPT program directors or faculty to ask for cooperation to disseminate the survey via email to their students.

Informed Consent

Informed consent was included on the first page of the Qualtrics survey. Participants were required to select "yes" or "no," indicating their understanding of the research project and consent to participate. Participants who selected "yes" were routed to the survey's first question.

Participants who indicated “no” were routed to a closing page, which thanked them for their consideration.

Data Collection

Data were collected using a secure Qualtrics survey created by the primary researcher (Appendix C). Before data were collected with the survey, a pilot of the survey was completed utilizing DPTs who had just completed a hybrid DPT program. The survey link was customized for each program participating and was only provided to DPT program directors or faculty who agreed to survey dissemination. The survey link remained open for three months. Two reminder emails were sent to potential participants at four and eight weeks. Students were offered an opportunity to provide their name and email address in a Google Survey, linked at the end of the survey, for inclusion in a drawing for one of ten $25 Amazon gift cards after completion. Participants were also allowed to indicate their interest in being interviewed for phase two of the study. Fraud detection measures, including the prevention of multiple submissions and bot detection, were enabled in the Qualtrics survey software.

Data Management

All surveys were disseminated to each hybrid program using a unique survey link, and responses were given a unique study identification number for data analysis. The data were downloaded from Qualtrics into a Microsoft Excel file for data cleaning, summing, and calculation of instrument scores. The Microsoft Excel file was password-protected and stored on a password-protected hard drive.

Statistical Analysis

Statistical tests were run using IBM SPSS Statistics for Windows, Version 28.0 (IBM Corp., Armonk, NY). All statistical tests were two-tailed, and the significance level was set at

.05. Normality of interval and ratio data were determined using Shapiro-Wilk tests and visual inspection of Q-Q plots and histograms. Descriptive statistics were used to explore the demographic characteristics of the sample and tolerance for ambiguity and perfectionism scores. Nominal data are reported as frequencies and percentages, and normally distributed interval and ratio data are reported as means and standard deviations. Medians and interquartile ranges are reported for ordinal and non-normally distributed interval and ratio data.

Results

Thirteen of 19 US hybrid DPT programs, 68%, participated in this study. Four hundred twenty-four participants started surveys, and 379 surveys were more than 50% complete and included in the analysis. The sample included participants from a hybrid DPT program in every regional location in the United States (see Figure 1). The median age of the sample was 25 years (25^{th} percentile = 23, 75^{th} percentile = 29). The general demographic characteristics (gender, race, and education) of the sample are presented in Table 1. Expanded demographic characteristics (sexual orientation, children, relocation, and acceptance into other programs) are presented in Table 2. Of the participants with children (*n* = 45, 11.8%), 29 (64.4%) had more than one child. The children were primarily preschool age, (*n* = 38, 84.4%), or elementary age, 22 (48.8%). Twelve (3.2%) participants reported they were caregivers to someone other than their children, and 6 (50%) reported that the person they cared for lived in the same house. Most respondents heard about the program for which they enrolled through an internet search 125 (33%), the Physical Therapist Centralized Application Service 82 (21.6%), or a family/friend/co-worker 87 (23%). The least reported methods of hearing about the program included social media 39 (10.3%), undergraduate professor/advising 21 (5.5%), and online advertisement 13 (3.4%).

Three hundred and seventy participants completed the TfA and FMPS-B tests. The median score on the TfA was 22 (25^{th} percentile = 17, 75^{th} percentile = 26). The median strivings score on the FMPS-B was 16 (25^{th} percentile = 14, 75^{th} percentile = 18). The median evaluative score was 11 (25^{th} percentile = 8, 75^{th} percentile = 14).

Descriptive statistics on key considerations of a student's decision to enroll in their specific hybrid DPT program showed program duration, first-time NPTE pass rates, ultimate NPTE pass rates, graduation rate, and employment rate all had a median score of 5, very important. Diversity of the student body had a median score of 3, moderately important. A lab visit before admission had a median score of 2, slightly important. All other factors had a median score of 4, important. Key considerations were collapsed, combining Likert scale ratings of very important and important, as well as ratings of slightly important and not important. See Table 3 for results.

Discussion

This study is the first to capture data specific to the characteristics and experiences of the hybrid DPT student. Anecdotally, there are many assumptions regarding the student who would choose and be successful in a hybrid DPT program. Some assumptions include hybrid programs increasing the diversity of students, only students who cannot get into a residential program would choose a hybrid program, and assumptions about the quality of students who would be attracted to a hybrid program. Until now, no studies have collected and reported data on the hybrid DPT student to validate those assumptions.

Characteristic Demographic Profile of Hybrid DPT Students

The characteristic demographics of age, sexual orientation, and racial diversity of the hybrid DPT student appear to be very similar to aggregate data. The median age of the hybrid

student was 25 years, and 91.8% reported being heterosexual. This is very close and likely not significantly different than the average age at graduation of 26.2 years and 93.2% heterosexual, as reported in the PT-GQ data by Dudley-Javoroski and Shields (2022). This study found a racial minority population of 28% and a white population of 71%, slightly different from the CAPTE (2022) aggregate data reporting a racial minority population of 30% and a white population of 65%. Early data suggested hybrid DPT programs may increase racial diversity (Gagnon et al., 2022). The differences found in this study compared to the aggregate are small.

There appears to be a difference in the marital status and those with children in hybrid DPT students as observationally compared to the aggregate. This study found that 33.5% of students were married and 13.5% had children, compared to 17.5% of students reporting married and 3.8% of students with children reported in the PT-GQ data (Dudley-Javoroski et al., 2022). This equates to approximately twice the number of students in hybrid programs being married and just over 3.5 times the number reporting having children. While it is unknown if this is a statistically significant difference, this seems to be quite a difference. It is hypothesized that people who are married or have children may be more attracted to a hybrid program due to the ability to remain living in a location where they are established, their spouse may be working, their children may be in school, or where they might have support systems in place to help with families while still being able to complete a DPT program. Additionally, this study found a nearly 10% higher population of females at 72% versus 62% in the aggregated data (CAPTE, 2022). This may be due to women, more classically the family caretakers, choosing hybrid programs to further education while still being able to remain home most of the time with their families. Interestingly, less than 20% of participants reported relocating to attend their hybrid DPT program. This may be due to the cost of travel associated with attending face-to-face

activities such as orientation and lab immersions or may be due to the location of clinical education placements.

Future research on demographic characteristics of hybrid DPT students should focus on obtaining raw data from both hybrid and residential DPT students with a large sample size to complete interferential statistical analysis to determine if actual statistically significant differences exist between the two groups. Additionally, there is a need for qualitative studies to further examine why students with certain characteristics choose hybrid programs.

Tolerance for Ambiguity and Perfectionism

TfA scores of the hybrid DPT sample were nearly identical to those of the aggregate data available. Participants' median score on the TfA scale was 22 out of 42 available points. This is very similar to aggregate data reported in the PT-GQ of a mean score of 23 (Dudley-Javoroski & Shields, 2022). Only the published studies reporting the PT-GQ data have reported these TfA in DPT students (Dudley-Javoroski & Shields, 2022; Shields et al., 2021). Despite the lack of published data, in recent years, multiple publications have stated the importance of tolerance for ambiguity in DPT students and medical students (Blanton et al., 2020; Hancock & Mattick, 2020). Additional research is needed in this area to determine if the construct of tolerance for ambiguity is different among hybrid DPT students as compared to residential DPT students and to determine if tolerance for ambiguity impacts outcomes for DPT programs and licensure examinations.

Like TfA scores, participants in this study scored nearly the same scores on the FMPS-B as the published aggregate data. Data from this study showed a difference of less than .5 points between the two subscales compared to the data collected from the PT-GQ (Dudley-Javoroski & Shields, 2022). This supports the findings from Dudely-Javroski & Shields (2022), which pose

that DPT students tend to score higher in the strivings category than the concerns category, suggesting more favorable outcomes towards adaptive perfectionism. Continued research is needed surrounding non-cognitive factors related to student experience and acceptance to DPT programs to determine the impact these factors have on student outcomes.

Key Considerations of Importance in Selection of a Specific Hybrid DPT Program

Results of this study show that more than half of the participants were accepted into multiple DPT programs and could select the program of their choice. Over 80% of respondents accepted to multiple programs had the option to attend a residential program yet selected a hybrid program. These data suggest that when students have a choice, the majority are likely to choose a hybrid pathway. This is impactful because it puts data behind the rationale for programs to offer the hybrid education pathway and invalidates the assumption that only students who cannot get into residential programs go to hybrid programs.

This study examined four categories of potential considerations and their importance in selecting a specific hybrid DPT program. The consideration categories included university factors, program factors, admission factors, and outcome factors. The outcome factors category was shown to have the most important considerations, having 4 out of the top 5 most important considerations. It is not surprising to see these considerations show up in the top 5 because CAPTE requires DPT programs to publish these outcomes on their websites, which makes this data some of the most readily available data to those selecting a program. The only other study examining factors of importance in an applicant's choice of program also included the NPTE pass rate percentages as being very influential (Ancrum-Smalls et al., 2000). The other consideration in the top 5 at number 3 was a program consideration of program duration. This is interesting because 87% of participants in this study are from hybrid DPT programs that could be

considered accelerated time to degree programs with program completion in 30 months (7 semesters) or less. This suggests that a shorter program duration may be more favorable in students' selection of a hybrid DPT program.

The admissions factors category included 3 of the least important considerations in selecting a hybrid DPT program, with the number 1 least important- lab visit, number 4- interaction with the program, and number 5- online webinar. These findings are important because programs must choose where to spend their recruitment funds. Providing staff and faculty coverage for lab visits, interactions with students, and online webinars can be costly and may be the least effective manner to use funds. Other considerations in the top 5 least important included number 2- diversity of students and number 3- housing cost. Diversity is a common topic of discussion in the recruitment and retention of DPT students; however, it seems that participants rank this as low importance in their selection of a hybrid DPT program. It is important to note that only 29.3% of respondents for this research were racial minorities, which could have impacted the importance of this factor among respondents. Housing costs may be of little importance to students because relocation is not required to complete a hybrid DPT, and only 18% of respondents reported relocating to attend their program. Therefore, the cost of housing in the physical location of the program may not be an important consideration since most participants did not relocate. The least important considerations in this study match several of the least influential factors found in the Ancrum-Smalls et al. (2000) study, with commonalities among student diversity and interaction with the program included. This research study acquired quantitative data on the important considerations for students in selecting their hybrid DPT program. Future studies should aim to collect qualitative data on this subject to determine if there were important considerations that were not listed in this study that had an

impact on student's decision to enroll in their specific hybrid DPT program. Additionally, research should aim to determine why students choose hybrid programs and residential programs.

Limitations

There were several limitations to this study. First, this study could only obtain information from approximately 10% of the current hybrid DPT student population, which is a limited sample. A normal distribution of respondents was not achieved. All students from all hybrid DPT programs with current cohorts were invited to participate; however, access to advertise the opportunity to participate in the research was limited by the program's willingness to disseminate the call for participation and the survey link to their students. A second limitation was oversight by the researcher in collecting the specific year of the program that respondents were in during the data collection. Respondents in their first year may have responded differently to student experience questions than respondents in their second year due to a lack of maturation in tolerance for ambiguity and perfectionism. A third limitation of the study was the lack of working definitions within the survey instrument. This left room for misinterpretation of the words used in the key considerations area of the survey.

Conclusion

This study provides key insight into the characteristics and experiences of hybrid DPT students, benchmarked against national aggregate data. The profile of a hybrid DPT student is similar to the national DPT student population in terms of age, demographics (age, sexual orientation, race/ethnicity), tolerance for ambiguity, and perfectionism. Hybrid DPT students are more likely to be married and/or have children, and the majority are accepted to multiple programs, including residential as well as other hybrid programs. Published graduate outcomes

are the most important factor for students when choosing to enroll in their hybrid program. This study lays the foundational work for expanded qualitative studies. As competition for students continues to grow with a growing number of hybrid and residential DPT programs, this study provides evidence that can be useful for hybrid DPT programs in making decisions about how to spend recruitment funds and which type of students to focus their recruitment efforts towards.

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Table 1

General Demographic Characteristics (*N* = 379)

Demographics	*n*	%
Gender		
Male	104	27.4
Female	273	72.0
Non-binary	2	0.5
Race		
African American/Black	18	4.7
American Indian/Alaskan Native	2	0.5
Asian	25	6.6
Caucasian/White	268	70.7
Hispanic/Latino	25	6.6
Native Hawaiian/Other Pacific Islander	3	0.8
Two or more races	33	8.7
Unknown	1	0.3
Education		
Bachelors	313	82.6
Masters	44	11.6
Clinical Doctorate	19	5.0
Terminal Degree	3	0.8

Table 2

Expanded Demographic Characteristics (*N* = 379)

Demographics	*n*	%
Sexual Orientation		
Heterosexual	347	91.8
LGBTQ+	31	8.2
Relationship Status		
Committed	281	74.1
Not Committed	98	25.9
Divorced	9	2.4
Separated	1	0.8
Married, Living with Spouse	126	33.2
Married, Living Apart	1	0.3
Not Married, Living with Partner	71	18.7
Not Married, Living Apart	83	21.9
Children		
Yes	45	11.8
1 Child	16	4.2
2 Children	19	5.0
3 Children	8	2.1
4+ Children	2	0.5
Expecting	6	1.6
No	328	86.5
Relocation		
Yes	69	18.3
No	309	81.7
Accepted to >1 DPT Program		
Yes	206	54.4
No	173	45.6
Accepted to a Residential Program		
Yes	171	45.1
No	208	54.9
Accepted to a Hybrid Program		
Yes	67	17.7
No	312	82.3
Accepted to another Hybrid and a Residential Program	38	10.0

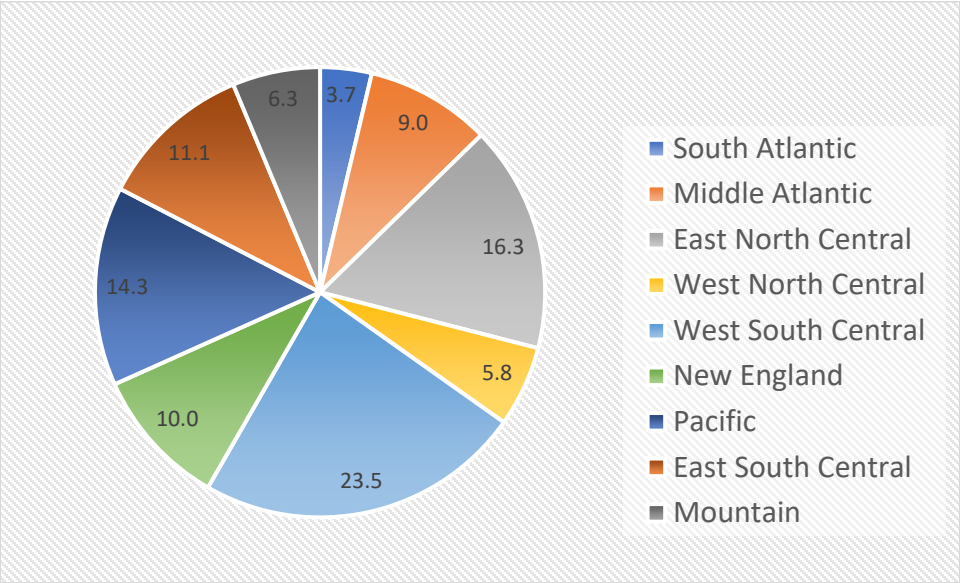
Table 3

Key Considerations in Enrollment in a Specific Hybrid DPT Program (*N* = 379)

Key Consideration	Very Important/ Important		Moderately Important		Slightly Important/ Not Important		Median
	n	%	*n*	%	*n*	%	
University Factors							
University Reputation	255	67.3	76	20.1	48	12.6	4
Tuition Cost	266	70.2	84	22.2	29	7.6	4
Travel Cost	217	57.3	92	24.3	70	18.5	4
Housing Cost	206	54.4	79	20.8	93	24.5	4
Program Factors							
Program Duration	315	83.1	41	10.8	22	5.8	5
Program Mission	224	59.1	83	21.9	72	19.0	4
Program Vision	226	59.7	82	21.6	70	18.5	4
Program Values	250	66.0	74	19.5	54	14.3	4
Program Faculty	292	77.1	48	127	37	9.7	4
Program Reputation	274	72.3	72	19	32	8.4	4
Program Lab Location	229	60.4	94	24.8	55	14.5	4
Admission Factors							
Online Webinar	220	58.0	71	18.7	86	22.6	4
Lab Visit	74	19.5	82	21.6	221	58.3	2
Interaction	214	56.4	76	20.1	87	23.1	4
Outcome Factors							
NPTE First Time Pass	312	82.4	37	9.8	30	7.9	5
NPTE Ultimate Pass	307	81.0	36	9.5	35	9.3	5
Diversity of Students	174	45.9	87	23	116	30.6	3
Graduation Rate	323	85.2	29	7.7	26	6.8	5
Employment Rate	319	84.2	29	7.7	30	7.9	5

Figure 1

Percentage of Participants per Regional Location



Appendix A

Tolerance for Ambiguity Scale[1]

Questions

1. It really disturbs me when I am unable to follow another person's train of thought.
2. If I am uncertain about the responsibilities involved in a particular task, I get very anxious.
3. Before any important task, I must know how long it will take.
4. I don't like to work on a problem unless there is a possibility of getting a clear-cut and unambiguous answer.
5. The best part of working on a jigsaw puzzle is putting in the last piece.
6. I am often uncomfortable with people unless I feel that I can understand their behavior.
7. A good task is one in which what is to be done and how it is to be done is always clear.

Scale

1: Strongly agree
2: Moderately agree
3: Slightly agree
4: Slightly disagree
5: Moderately disagree
6: Strongly disagree

[1] Geller, G., Tambor, E. S., Chase, G. A., & Holtzman, N. A. (1993). Measuring physician's tolerance for ambiguity and its relationship to their reported practices regarding genetic testing. Medical Care, 31(11), 989-1001. https://www.jstor.org/stable/pdf/3766298.pdf?refreqid=excelsior%3A9e0dbfbed02582388990f6afef881c98&ab_segments=&origin=&acceptTC=1

Appendix B

Frost Multidimensional Perfectionism Scale - Brief[2]

Please circle the number that best corresponds to your agreement with each statement below. Use this rating system:

Strongly disagree 1 2 3 4 5 Strongly agree

1.	If I fail at work/school, I am a failure as a person.	1	2	3	4	5
2.	I set higher goals for myself than most people.	1	2	3	4	5
3.	If someone does a task at work/school better than me, then I feel like I failed at the whole task.	1	2	3	4	5
4.	I have extremely high goals.	1	2	3	4	5
5.	Other people seem to accept lower standards from themselves than I do.	1	2	3	4	5
6.	If I do not do well all the time, people will not respect me.	1	2	3	4	5
7.	I expect higher performance in my daily tasks than most people.	1	2	3	4	5
8.	The fewer mistakes I make, the more people will like me.	1	2	3	4	5

Scoring: Sum items for the following subscales. Do not use a total score.
Striving: 2, 4, 5, 7
EC: 1, 3, 6, 8

[2] Burgess, A. M., Frost, R. O., & DiBartolo, P. M. (2016). Development and validation of the frost multidimensional perfectionism scale-brief. *Journal of Psychoeducational Assessment*, *34*(7), 620–633.

Appendix C

Entry-level Hybrid DPT Student Profile Survey

Standard: Informed Consent (0 Questions)
Standard: Purpose and Instructions (1 Question)
Block: Demographics (20 Questions)
Standard: Key Considerations (6 Questions)
Standard: Tolerance for Ambiguity (1 Question)
Standard: Perfectionism (1 Question)
Standard: Gift Card Opt In (0 Questions)

Start of Block: Informed Consent

Start of Block: Purpose and Instructions

Purpose: The purpose of this survey is to gather the demographic characteristics of students enrolled in entry-level hybrid Doctor of Physical Therapy programs, examine the student experience aspects of tolerance for ambiguity and perfectionism, and identify the key considerations for students when selecting a hybrid DPT program.

Instructions: This survey has four sections (Part I- Demographics, Part II- Key considerations in the selection of a hybrid DPT program, Part III- The Tolerance for Ambiguity Scale, and Part IV- Frost Multidimensional Perfectionism Scale-Brief). Please read the instructions above each section for the specifics of answering each section of questions. This survey should take you 15 minutes or less.

End of Block: Purpose and Instructions

Start of Block: Demographics

Please complete the demographic portion of this survey by answering the following questions.

*

Enter your current age in years.

_____

What is your gender?

- Male (1)
- Female (2)
- Non-binary (3)
- Let me type- Enter gender below. (7)

_____

What is your sexual orientation?

- LGBTQ+ (1)
- Heterosexual (2)

How would you describe yourself?

- ○ African American / Black (1)
- ○ American Indian / Alaskan Native (2)
- ○ Asian (3)
- ○ Caucasian / White (4)
- ○ Hispanic / Latino (5)
- ○ Native Hawaiian / Other Pacific Islander (6)
- ○ Two or more races (7)
- ○ Unknown (8)
- ○ I prefer not to answer (9)

What is your highest degree earned?

- ○ Bachelors (1)
- ○ Masters (2)
- ○ Clinical Doctorate (Pharm D, Nursing Doctorate, Doctor of Psychology) (3)
- ○ Terminal Doctorate (Ph.D., Doctor of Education, Doctor of Veterinary Medicine, Doctor of Engineering, Juris Doctor) (4)

Are you in a committed relationship?

- ○ Yes (1)
- ○ No (2)

Skip To: Q28 If Are you in a committed relationship? = No

Please select all that apply regarding your relationship.

- ☐ Married or in a civil union, living together (1)
- ☐ Married or in a civil union, living apart (2)
- ☐ Not married or in a civil union, living together (3)
- ☐ Not married or in a civil union, living apart (4)

Are you divorced, widowed, or separated? Select all that apply.

- ☐ Divorced (1)
- ☐ Widowed (2)
- ☐ Separated (3)
- ☐ None of these apply (4)

Do you have biological, adopted, foster, or stepchildren?

- ○ No (1)
- ○ No, but I am (or my partner is) pregnant or in the process of adopting (2)
- ○ Yes, one child (3)
- ○ Yes, two children (4)
- ○ Yes, three children (5)
- ○ Yes, four or more children (6)

Skip To: Q27 If Do you have biological, adopted, foster, or stepchildren? = No
Skip To: Q27 If Do you have biological, adopted, foster, or stepchildren? = No, but I am (or my partner is) pregnant or in the process of adopting

If you have children, what are the ages of your children, and do they live with you. Select all relevant options below.

	They do not live with me (1)	They live with me part-time (< 365 days a year) (2)	They live with me full-time (365 days a year) (3)
Preschool (Birth to 5 years) (1)	○	○	○
Elementary (6-13 years) (2)	○	○	○
Adolescent (14-18 years) (3)	○	○	○
Adult Children (19+ years) (4)	○	○	○

Are you a caregiver for someone other than your children?

○ Yes (1)

○ No (2)

Skip To: Q9 If Are you a caregiver for someone other than your children? = No

If you are a caregiver for someone other than your children, does the person you care for live with you?

- ○ Yes (1)
- ○ No (2)

Select the geographical region in which you lived prior to enrolling in your hybrid DPT program.

- ○ South Atlantic (DE, DC, FL, GA, MD, NC, PR, SC, VA, WV) (1)
- ○ Middle Atlantic (NJ, NY, PA) (2)
- ○ East North Central (IL, IN, MI, OH, WI) (3)
- ○ West North Central (IA, KD, MN, MO, NE, ND, SD) (4)
- ○ West South Central (AR, LA, OK, TX) (5)
- ○ New England (CT, ME, MA, NH, RI, VT) (6)
- ○ Pacific (AK, CA, HI, OR, WA) (7)
- ○ East South Central (AL, KY, MS, TN) (8)
- ○ Mountain (AZ, CO, ID, MT, NV, UT, WY) (9)
- ○ Other, please specify (10) _____

Did you relocate to be closer to the physical facilities of the hybrid DPT program?

- ○ Yes (1)
- ○ No (2)

Skip To: Q24 If Did you relocate to be closer to the physical facilities of the hybrid DPT program? = No

Select the geographical region to which you relocated.

- ○ South Atlantic (DE, DC, FL, GA, MD, NC, PR, SC, VA, WV) (1)
- ○ Middle Atlantic (NJ, NY, PA) (2)
- ○ East North Central (IL, IN, MI, OH, WI) (3)
- ○ West North Central (IA, KD, MN, MO, NE, ND, SD) (4)
- ○ West South Central (AR, LA, OK, TX) (5)
- ○ New England (CT, ME, MA, NH, RI, VT) (6)
- ○ Pacific (AK, CA, HI, OR, WA) (7)
- ○ East South Central (AL, KY, MS, TN) (8)
- ○ Mountain (AZ, CO, ID, MT, NV, UT, WY) (9)
- ○ Other, please specify (10) _____

Were you accepted into more than one DPT program?

- ○ Yes (1)
- ○ No (2)

Were you accepted into another hybrid DPT program?

- ○ Yes (1)
- ○ No (2)

Were you accepted into any residential (non-hybrid) DPT programs?

- ○ Yes (1)
- ○ No (2)

Think back to when you were a DPT applicant. How did you first hear about the DPT program that you chose?

- ○ Friend or family member (1)
- ○ Internet search (2)
- ○ PT-CAS (3)
- ○ Social Media (Instagram, Facebook, Twitter) (4)
- ○ Undergraduate professor or advisor (5)
- ○ Online advertisement (6)
- ○ Other, please specify (7) _____

End of Block: Demographics

Start of Block: Key Considerations

Select the level of importance for each key consideration utilizing the 1-5 Likert scale from 1= Not Important to 5= Very Important.

Select the level of importance for each key consideration.

	1: Not Important (1)	2: Slightly Important (2)	3: Moderately Important (3)	4: Important (4)	5: Very Important (5)
University Reputation (1)	○	○	○	○	○
Tuition Cost (2)	○	○	○	○	○
Travel Cost (3)	○	○	○	○	○
Housing Cost (4)	○	○	○	○	○

Select the level of importance for each key consideration.

	1: Not Important (1)	2: Slightly Important (2)	3: Moderately Important (3)	4: Important (4)	5: Very Important (5)
Program Duration (1)	○	○	○	○	○
Program Mission (2)	○	○	○	○	○
Program Vision (3)	○	○	○	○	○
Program Values (4)	○	○	○	○	○
Program Faculty (5)	○	○	○	○	○
Program Location for Onsite Labs (6)	○	○	○	○	○

Select the level of importance for each key consideration.

	1: Not Important (1)	2: Slightly Important (2)	3: Moderately Important (3)	4: Important (4)	5: Very Important (5)
Access to Online Webinar Regarding Program (2)	○	○	○	○	○
Pre-Admission Lab Visit (3)	○	○	○	○	○
Direct Interaction with Admissions Team (4)	○	○	○	○	○

Select the level of importance for each key consideration.

	1: Not Important (1)	2: Slightly Important (2)	3: Moderately Important (3)	4: Important (4)	5: Very Important (5)
National Physical Therapy Exam First Time Pass Rates (1)	○	○	○	○	○
National Physical Therapy Exam Ultimate Pass Rates (2)	○	○	○	○	○
Diversity of the Student Body (3)	○	○	○	○	○
Graduation Rates (4)	○	○	○	○	○
Employment Rate (5)	○	○	○	○	○

In this section, please include any other key considerations that were not listed above and then select the level of importance for each key consideration.

	1: Not Important (1)	2: Slightly Important (2)	3: Moderately Important (3)	4: Important (4)	5: Very Important (5)
Other, please specify (1)	○	○	○	○	○
Other, please specify (2)	○	○	○	○	○
Other, please specify (3)	○	○	○	○	○

End of Block: Key Considerations

Start of Block: Tolerance for Ambiguity

Please select the number that best corresponds to your agreement with each statement.

Use this rating system: 1 (Strongly agree) to 6 (Strongly disagree).

	1: Strongly Agree (1)	2: Moderately Agree (2)	3: Slightly Agree (3)	4: Slightly Disagree (4)	5: Moderately Disagree (5)	6: Strongly Disagree (6)
It really disturbs me when I am unable to follow another person's train of thought. (1)	○	○	○	○	○	○
If I am uncertain about the responsibilities involved in a particular task, I get very anxious. (2)	○	○	○	○	○	○
Before any important task, I must know how long it will take. (3)	○	○	○	○	○	○
I don't like to work on a problem unless there is a possibility of getting a clear-cut and unambiguous answer. (4)	○	○	○	○	○	○
The best part of working on a jigsaw puzzle is putting in the last piece. (5)	○	○	○	○	○	○
I am often uncomfortable with people unless I feel that I can understand their behavior. (6)	○	○	○	○	○	○

A good task is one in which what is to be done and how it is to be done is always clear. (7)	○	○	○	○	○	○

End of Block: Tolerance for Ambiguity

Start of Block: Perfectionism

Please select the number that best corresponds to your agreement with each statement below.

Use this rating system: 1 (Strongly disagree) to 5 (Strongly agree).

	1: Strongly Disagree (1)	2: Disagree (2)	3: Neutral (3)	4: Agree (4)	5: Strongly Agree (5)
If I fail at work/school, I am a failure as a person. (4)	○	○	○	○	○
I set higher goals for myself than most people. (5)	○	○	○	○	○
If someone does a task at work/school better than me, then I feel like I failed at the whole task. (6)	○	○	○	○	○
I have extremely high goals. (7)	○	○	○	○	○
Other people seem to accept lower standards from themselves than I do. (8)	○	○	○	○	○
If I do not do well all the time, people will not respect me. (9)	○	○	○	○	○
I expect higher performance in my daily tasks than most people. (10)	○	○	○	○	○
The fewer mistakes I make, the more people will like me. (11)	○	○	○	○	○

End of Block: Perfectionism

Start of Block: Gift Card opt In