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Perceptions and Factors Influencing Success in Professional Preparation Physical Therapy Education

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PERCEPTIONS AND FACTORS INFLUENCING SUCCESS IN

PROFESSIONAL PREPARATION PHYSICAL THERAPY EDUCATION

By

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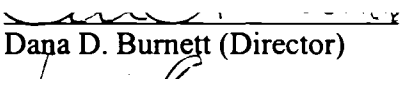M.S. August 1997, Old Dominion University

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ABSTRACT

PERCEPTIONS AND FACTORS INFLUENCING SUCCESS IN
PROFESSIONAL PREPARATION PHYSICAL THERAPY EDUCATION

Mira H. Mariano
Old Dominion University, 2006
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The purpose of this study was to gather data on student background

characteristics, the perceptions of social and academic support, and self-concept of

current professional preparation physical therapy (PT) students. A second purpose was to

determine whether any variables were predictive of academic success/retention and to

investigate whether there were differences in those variables between majority and

minority PT students. The study used mixed methods with entry-level PT students from

Virginia and North Carolina. Questionnaires were collected from 575 of 778 PT students

for a 74% response rate. Semi-structured interviews were conducted with 25 respondents.

Girves and Wemmerus' conceptual model of doctoral degree progress was used as the

theoretical framework for the study. Statistically significant differences were found

between ethnic groups in background characteristics, social support, academic support,

and all self-concept variables. Overall significant predictors of success were:

undergraduate grade point average (GPA), ethnicity, having personal financing sources or

loans for school, achieving an award, perceptions that coursework was academically

stimulating, perceptions of academic expectations, being satisfied with academic

performance, perceived ratings of both undergraduate and graduate performance, and

overall rating of their PT school experience. Statistical differences were found between

the ethnic groups for predictors of academic success. The interview data supported the

quantitative findings and added depth to the findings regarding both similarities and differences between the perceptions of facilitators and barriers experienced by majority and minority PT students. Constructs of the Girves and Wemmerus model were not fully supported for this population of graduate students; however, the combination of variables investigated in this study accounted for 55% of the variance in graduate GPA. The study's findings are utilized in making recommendations for the recruitment and retention of physical therapy students, particularly minority students, in hoping to increase the diversity of the physical therapy profession.

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This dissertation is dedicated to my husband, Butch, and my two little darlings, Sarah and Malia. First, to my husband I am forever grateful for the many times that you have had to "fill in" for me during the kid's activities, cooking, during bath times, and bedtimes. I know the last year has not been an easy journey. I would not have been able to complete this project without your support, encouragement, and love and I thank you for it all. To my little darlings, many thanks for being good for daddy while mommy was "at school".

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I would like to acknowledge several people for their time and expertise during transcription, data analysis, statistics consultation, and help in general; Kathie, Kim, Dr. Naik, and Jayesh. Many thanks to the all of the physical therapy students who took time out of their hectic schedules to talk to me about their physical therapy school experiences. I appreciate your honest and candid responses. Lastly, thank you so very much to my dissertation committee for their guidance, support, expertise, and editing of my manuscript during the entire dissertation process. I'd like to give particular thanks to my dissertation chair for his encouragement and support.

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INTRODUCTION

Context of the study

The United States is becoming more ethnically diverse. U.S. Census Bureau

statistics from 2000 reported that 71% of the country is White, non-Hispanic and that the

combined minority population is approximately 29%. It is projected that by the year 2050,

the percentage of the minority population will increase to approximately 45% of the U.S.

population. The Census Bureau estimates that at that time the percentage of the total

population comprised of minority groups will increase to 13% Black, 24% Hispanic, 9%

Asian, and 1% Native American. Projections show that over the course of the next 50

years, the Black and Native American population will remain relatively stable, while

substantial increases in the Hispanic and Asian populations will occur (U.S. Census

Bureau, 2000).

Minorities have been and continue to be underrepresented in the health

professions (Cornely et al, 1998; Gabard et al, 1997; McBride, 1980; Walsh, Brogan &

Barba, 2000). Professions such as medicine, nursing, dental hygiene, dentistry, dietetics,

and occupational therapy all report a deficit of minorities in their professions (Barbee &

Gibson, 2001; Brown et al, 2000; Cantor et al, 1996, Dhir et al, 2002; Dowell, 1996;

Greenwald & Davis, 2000). The American Physical Therapy Association (APTA) reports

that 89% of their membership is White, non-Hispanic. Thus, the minority membership

constitutes less than 11% of the membership (Table 1). Physical therapist (PT) minority

membership and physical therapist assistant (PTA) minority membership in the

association are 10.9% and 10.8% for the minority total (respectively).

Table 1.   *APTA Membership Statistics 2005 vs. U.S. Population by Race*

Racial/Ethnic Background	U.S.Census	*APTA Members	*APTA PT Students	**PT Faculty
White(non-Hispanic)	71%	89%	91%	91%
Hispanic	12%	1.9%	2.3%	2.0%
Black (non-Hispanic)	12%	1.5%	1.7%	2.0%
Asian	4%	4.2%	4.9%	3.3%
Native-American	.7%	.5%	.5%	.1%
Other/Unknown				1.6%

*April 2005 APTA Membership Statistics
** Commission on Accreditation of Physical Therapy Education (CAPTE) Accreditation Fact Sheet 2004

Definitions for race and ethnicity vary. The U.S. Census Bureau utilizes the Office

of Management and Budget's (OMB) definition of ethnicity or origin as "the heritage,

nationality group, lineage, or country of birth of the person or the persons' parents or

ancestors before their arrival in the United States" (U.S. Census Bureau 2000).

Furthermore, those persons who identify themselves as Spanish, Hispanic, or Latino may

be one of several races. The most profound change in the 2000 Census was the ability of

respondents to identify one or more races to indicate their racial background. For the

purposes of this study, participants will be asked to self-identify and classify themselves

according to the following categories: 1) White; 2) Black; 3) Mexican-American, Puerto-

Rican, or other Hispanic; 4) American Indian or Alaskan Native; 5) Asian or Pacific

Islander; and 6) other.

Statement of the Problem

Physical therapy education has had a relatively short life span of just over seventy years. It began as a certificate program in the 1920's and emerged in the 1960's-1970,'s as an entry-level professional bachelor's degree. During the early 1990's, physical therapy education underwent a major change in both degree awarded and curriculum (Echternach, 2003; Littell & Johnson, 2003). In 1998, the Board of Directors of the APTA issued a statement called *Vision 2020*, which specifically endorsed the Doctor of Physical Therapy (DPT) degree as the preferred entry-level professional preparation degree (Massey, 2003). Table 2 illustrates the changes that have occurred in the physical therapy education degrees awarded from 2001 to 2005.

Table 2. *Number of PT Accredited Education Programs in the U.S. 2001 & 2005*

	MS/MPT degree	DPT degree	Total
2001	140	64	204
2005	72	123	195

CAPTE Fact Sheet (2004); APTA List of Accredited PT Programs (2005)

Currently 72 physical therapy programs award the Master of Science in Physical Therapy (MSPT) or Master of Physical Therapy (MPT), and 123 programs award the Doctor of Physical Therapy (DPT) degree. The clinical doctoral degree is similar to other professional preparation degrees such as Doctor of Medicine (M.D.), Doctor of Pharmacy

(Pharm.D.), Doctor of Psychology (Psy.D.) and Juris Doctor (J.D.) in that the credit load is high, the curriculum is undertaken on a full time basis and is lock-step in nature, and the graduate is prepared to take a licensure or board examination prior to practice. The number of DPT programs has doubled since 2001. Credit load is high in these programs with the MS/MPT programs averaging 90 total credits and the DPT programs averaging 120 total credits. The length of time to obtain the DPT degree is three years, making the total minimal time to graduate with a DPT degree seven years (APTA Fact sheet, 2004).

The physical therapy profession has long recognized the lack of diversity within the profession and has initiated steps to increase that deficit and improve current therapists' level of cultural competence. To do this the APTA adopted the *Plan to Foster Minority Representation and Participation in Physical Therapy* in 1982 (APTA, 2001). At that time 95% of all physical therapists were white. Though increasing minority representation among physical therapy professionals was the number one goal of the association at that time, current membership statistics illustrate that only minimal gains have been made. The second goal of the association's plan was to increase the proportion of minority representation among students enrolled in physical therapy educational programs. The APTA has supported those goals by providing a Diversity Award to institutions that have made significant gains in increasing their student diversity and minority enrollment, and by providing a number of minority student scholarships to support students' final year of physical therapy education.

In 2003-2004 the percentage of minority students in accredited physical therapy programs, reported by the Commission on Accreditation of Physical Therapist Education

(CAPTE), had increased to 19.1% (CAPTE Accreditation Fact Sheet, 2004). This percentage is higher than the percentage reported in the APTA membership statistics (Table 1). The accrediting agency reports that the total number of students of all races enrolled in accredited physical therapy programs is 15,984 while the APTA PT student membership number is 9,757 (APTA, 2005). This indicates that not all PT students are members of the professional association.

Another problem facing the physical therapy profession is the lack of diversity of physical therapy faculty who are providing the teaching, scholarship and service in accredited educational programs. Table 1 illustrates that minority faculty constitute approximately 8% of the core faculty that provide the education in clinical knowledge and skills, leadership, vision, and mentorship for physical therapy students in the 195 accredited PT programs across the country (CAPTE Fact sheet, 2004). One hundred eleven, or 57%, of those 195 accredited PT programs reported not having even one minority faculty member in their department. A lack of minority PT faculty members who serve as role models and mentors to physical therapy students is likely a disincentive to minority student enrollment.

The many curricular changes in physical therapy education during the last ten years have been coupled with anecdotal reports of increased difficulty in the retention of all students, particularly minority students. There are concerns within the profession that the move to doctoral education will have a negative impact on the numbers of minority physical therapy students enrolled, due to higher standards for admission for doctoral studies, longer time to complete a physical therapy degree, and lack of financial resources

to complete the additional time to the degree (Walsh, Brogan, Barba, 2000).

Early departure of a student from a physical therapy program represents a loss to the student, to the physical therapy program (because classes move through the curricula in a sequential format with little or no choice for electives), to the institution, and ultimately to the healthcare system and society (Tierney, 1992; Tinto, 1993). To the student, the departure may have psychological and career implications as their quest to become a physical therapist ends. The physical therapy program and institution will suffer from tuition and fees revenue loss. The program's attrition rate may negatively impact its reputation within the professional community, due to quality concerns regarding the program. In turn, the healthcare system and society lose because student attrition results in fewer qualified licensed healthcare professionals to provide quality care to patients.

Theoretical Framework

There is a large amount of literature concerning factors that influence the general academic achievement and graduation rates of undergraduate and graduate minority students. However, there is limited research in the area of academic achievement and retention for the professional student. Perhaps the most widely researched theory concerning student attrition and departure is Tinto's Longitudinal Model of Institutional Departure (1975, 1989, 1993). Student departure is viewed using a longitudinal model that is a complex interplay between academic, social, and environmental factors. The main premise of the model is that

> ...persistence entails the incorporation, that is integration, of the individual as a
>
> competent member in the social and intellectual (academic) communities of the

college. It is the daily interaction of the person with other members of the college

in both the formal and informal academic and social domains of the college and

the person's perception or evaluation of the character of those interactions, and

those that involve the student outside the college, that in large measure and

determine decisions as to staying or leaving. (Tinto, 1987, p.126)

The model takes into account that undergraduate students enter college with different

backgrounds, skills, personal attributes, financial situations, dispositions, and pre-college

experiences and achievements. While each of these attributes directly or indirectly

influences persistence and retention, it is the combination of these combined with the

student's intentions and commitments that result in a congruence or incongruence of the

student with the institution.

Building upon Tinto's earlier work, Girves and Wemmerus (1988) developed

conceptual models of graduate degree progress for master and doctoral students. This

study will focus on the model related to overall graduate degree progress as illustrated in

Figure 1. This model is a two stage model that assumes that the first stage variables of 1)

department characteristics, 2) student characteristics, 3) financial support, and 4)

student's perceptions of their relationships with faculty would affect the second stage

variables of 1) graduate grades, 2) involvement in the program, 3) satisfaction, and 4)

alienation to ultimately influence degree progress.

Degree progress during doctoral education was defined as completion of the

coursework, completion of the examinations resulting in candidacy, and finishing all

degree requirements to degree completion (Girves and Wemmerus, 1988). Though

professional preparation physical therapy education incorporates similar stages, the

professional nature of physical therapy programs does not permit students to "progress at

their own rate" after passing comprehensive written and oral examinations, as in most

traditional doctoral programs. Clinical doctoral programs require a research study that is

publishable but no dissertation is required. The research is conducted during the last year

of professional studies and usually prior to the last sequence of clinical

residency/internships. Graduate students depend primarily upon the individual program

faculty and department-centered "community" for support, more so than the institution, in

general (Girves & Wemmerus, 1988). External communities, such as family and work,

also contribute positive or negative influences toward graduate persistence (Tinto, 1993).

Chapter two will elaborate further on graduate models of student retention specifically

within graduate education.

Figure 1.   Girves and Wemmerus' Model of Graduate Degree Progress
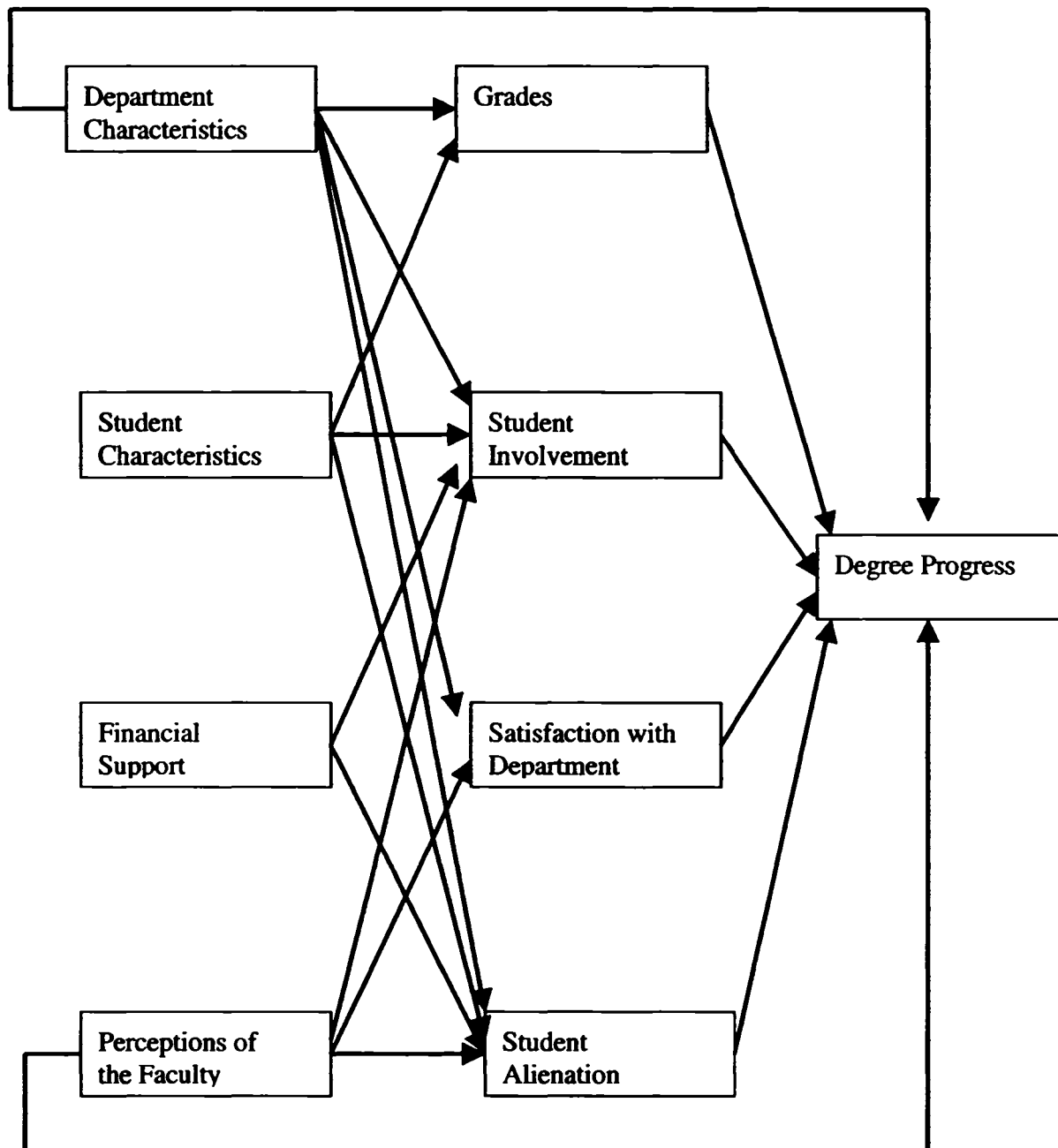
Previous studies have focused on the areas of recruitment, admission, and retention in physical therapy programs at the baccalaureate or master's degree level. There is a lack of research investigating variables that influence success in more contemporary physical therapy education. There is also a need to gather student perceptions of their experiences during their physical therapy education and investigate whether there are differences in those perceptions between majority and minority students. Knowledge of these perceptions could be applied to design strategies and interventions to address the recruitment and retention of all physical therapy students, not just the underrepresented minority physical therapy student.

Role of Diversity

Most institutions include a statement advocating cultural diversity in their mission statements as a formative tool for preparing men and women to assume roles of responsibility in a society that is shaped by an increasingly diverse population. Health care professionals will be significantly deficient if they cannot relate to individuals from diverse backgrounds in the workplace, or in their communities. Members of minority groups are far more likely than members of non-minority groups to practice in ethnic neighborhoods (Cantor et al, 1996; Keith et al, 1985; Komaromy et al, 1996). Previous research has demonstrated that minority health care workers were more sensitive to the needs of their own culture and were better able to communicate and build rapport with clients of minority groups (Oremland, 1989; Werning, 1992). In addition, Oremland (1989) concluded that the integration of minority members in the health care team builds greater cultural awareness and understanding among the team. Clawson (1999) agreed

with the need for diverse healthcare professionals and stated that "someone raised in a specific racial, ethnic, or cultural environment is more likely to return to service those populations, and when they do, can do a better job because they understand the culture" (p.38).

The Council on Graduate Medical Education (COGME) Twelfth Report: Minorities in Medicine states that the overall health status of minorities is worse than that of whites, with a result that thousands of minority deaths are attributable to cancer, cardiovascular disease, diabetes, infant mortality, substance abuse, and violence. Minorities lack health insurance, are overrepresented as Medicaid users, and suffer from lack of access to health care for other reasons such as differing health practices, differing cultural practices, language barriers, and other environmental stresses. (U.S. Department of Health and Human Services, 1998) These problems appear to be accentuated in urban areas due to the higher level of minorities that live in these areas. Increasing the number of minority health care professionals will benefit urban areas if minority health care professionals choose to work in these underserved regions. The "Twelfth Report" also discussed the need for "culturally competent" practitioners in all areas of health care, including other health professions such as physical therapy.

In addition to providing more minority health care professionals in much needed urban areas, diversity in health care education programs also benefits students by exposing them to different health beliefs, attitudes, and cultural perspectives (Astin, 1993). This exposure is necessary for students to become effective practitioners for patients and clients with diverse health care needs. The APTA's Guide for Professional

Conduct lists this ability in Principle 1.1: "Physical therapists shall recognize that each individual is different from other individuals and shall respect and be responsive to those differences" (APTA, Guide for Professional Conduct, 1999). It is more difficult for a homogenous student population to discuss diversity issues if other-race peers are lacking. Kachingwe (2003) provides a definition of culturally competent care as

"providing care within the cultural context of an individual in an unbiased manner to meet one's needs and can be accomplished by appreciating and respecting the cultural differences and similarities within and between cultural groups and by acknowledging and incorporating the importance of culture."

Student diversity in the classroom is a necessary component in a thorough investigation of the perspectives related to the cultural, racial/ethnic, gender or socioeconomic similarities and differences between people. Respecting and appreciating differences within fellow students is the beginning to the development of cultural competence.

Purpose

Other than enrollment data and graduation rates, data are sparse on the backgrounds, experiences, and attitudes towards their education of current professional preparation physical therapy students. There is also little understanding of how differences in students' backgrounds, experiences, and attitudes, along with ethnicity, may affect the graduate performance of these students, both in the didactic component and in clinical performance.

The purpose of this study is to gather descriptive data on student background characteristics, the perceptions of social support structures, the perceptions of academic

support systems, and self-concept in professional preparation physical therapy students in Virginia and North Carolina. A second purpose is to determine whether any of the student background characteristics, the perceptions of social support structures, the perceptions of academic support systems, and self-concepts are predictive of academic success/retention. Also, this study will investigate whether there are differences in those variables between majority and minority professional preparation physical therapy students in Virginia and North Carolina and whether different variables are predictive of academic success/retention in majority versus minority students.

Research questions

The following research questions will be addressed in this study:

1.) What are the background characteristics, perceptions of social support systems, academic support systems, and ratings of self-concept/self-perceptions of professional preparation MPT/DPT students in Virginia and North Carolina?

2.) What variables are predictors of academic success/retention for professional preparation MPT/DPT students in Virginia and North Carolina?

3.) Are the variables that predict academic success/retention different for majority professional preparation MPT/DPT students than for minority professional preparation MPT/DPT students in Virginia and North Carolina?

4.) Are there differences between the perceptions of minority and majority students regarding facilitators or barriers to academic success/retention during their physical therapy education?

Summary

Though the population of the country is steadily increasing in its diversity, the demographics of health care professionals appear to continue to lag behind the diversity of the general population. Many efforts have been made in medicine to attract and enroll minority medical students to foster the increase in the number of minority physicians. The profession of physical therapy, however, appears not to have made important gains in increasing its numbers of minority physical therapists and minority physical therapist faculty. Along with the need for more physical therapists of diverse ethnicity, there is a need to produce more culturally competent practitioners who are receptive to the needs of a diverse clientele.

Factors such as poverty, inadequate education, racism, and lack of financial resources have been identified as contributing to the underrepresentation of minorities not only in health care but also in higher education in general (Haskins, 1989; 1994; Moore et al., 2003). This study is exploratory in nature and will seek to gather information regarding student background characteristics, perceptions of the social environment, perceptions of the academic environment, and perceptions of satisfaction and self-concept in professional preparation physical therapy students in Virginia and North Carolina. It will also seek to determine the influence of ethnicity, if any, upon academic success/retention in professional preparation physical therapy students. It is the intent of this researcher that the information gained from this study will fill a void in the literature and provide a starting knowledge base that will assist physical therapy educational programs to develop strategies and interventions to increase the academic

success/retention rates of all physical therapy students.

Definitions

Majority student: student that classifies himself or herself as White or Caucasian.

Minority student: student that classifies himself or herself as Black, Asian/Pacific

Islander, Hispanic, or Native American.

Academic success/retention: operationally defined by the graduate school grade point

average (G.P.A.) with continuance in a professional physical therapy program.

Highly successful: student with a reported graduate GPA of 3.75 to 4.0.

Moderately successful: student with a reported graduate GPA of 3.25 to 3.74.

Minimally successful: student with a reported graduate GPA of 3.0 to 3.24.

Not successful: student with a reported graduate GPA of 1.75 – 2.99.

MPT student: student enrolled in an accredited professional preparation entry-level

Master of Physical Therapy program that is generally two to three years in length.

DPT student: student enrolled in an accredited professional preparation entry-level

Doctor of Physical Therapy program that is generally three years in length.

Background characteristics variable: Includes survey items such as gender, age, ethnicity,

parents' education, parents' occupation, marital status, undergraduate GPA,

undergraduate major, amount of debt from undergraduate education, master's degree,

school status (whether a full-time student only, full-time student with part-time or full-

time employment).

Social support systems variable: Includes survey items such as financial aid type, sources

of funding for PT education, program and campus involvement, quality of student-

student, student-faculty, and advisor/student interactions, ratings of the social

environment, perceptions of racial discrimination on campus, sense of campus

community, and level of minority representation in department.

Academic support systems variable: Includes such survey items such as quality of

student-faculty advising and mentoring, ratings of quality of faculty instruction, guidance,

student-faculty relations, and the academic environment.

Self-concept/Self-perception variable: Includes such survey items such as rating of the

undergraduate education, reason for choosing a particular PT program, self-ratings of

academic performance, and overall satisfaction with their graduate physical therapy

education.

CHAPTER II

LITERATURE REVIEW

Introduction

This chapter begins with a brief overview of the problem of underrepresentation

of minority individuals in healthcare. It is important to review factors identified in the

literature as barriers to minority retention and graduation in order to understand the

possible reasons for minority under representation in the physical therapy profession. Due

to the paucity of research specific to the field of physical therapy, much of the literature

review will focus on doctoral graduate studies, in general. Nursing literature will not be

covered in this section because much of entry-level professional preparation nursing

education takes place at the baccalaureate level, not the graduate level. The major issues

identified in the literature, which influence doctoral success, are: student background

characteristics, social and academic supports, and self-concept.

The next section will discuss the models of student persistence/departure theories

beginning with the most widely researched undergraduate conceptual model of student

persistence/departure and following with discussion of various graduate persistence

models. The chapter concludes with a summary tying in the current literature with the

proposed methodological approaches.

Underrepresentation of Minorities in Healthcare

The U.S. Census Bureau projects that non-Caucasians will represent 32.0% of the

U.S. population by 2010 and 47.2% of the U.S. population by 2050 (U.S. Department of

Health and Human Services, 1998). Demographic changes drive the need for diverse health care professionals who will provide care to a population with different health care needs and problems than the population of the last century. The National Commission on Allied Health in a 1992 report identified its concerns pertaining to the lack of diversity in allied health education and the low numbers of minorities and persons with disabilities in health education (U.S. Congress, 1992).

The U.S. Department of Health and Human Services (2000) echoed this concern in its goals for healthcare in *Healthy People 2010* that one of the primary goals of a national health promotion and disease prevention plan is the elimination of health care disparities among racial and ethnic groups. In particular, the lack of health care professionals in disadvantaged, mostly urban areas serves as an impediment to health care access for minority populations. One way to address this problem is to increase the number of minority health care providers.

Previous research has demonstrated that minority health care providers were more likely to serve members of their own racial or ethnic population than members of other groups (Cantor et al, 1996; Clawson, 1999; Keith et al, 1985; Komaromy et al, 1996; Moy & Bartman, 1995; Oremland, 1989; U.S. Department of Health and Human Services, 1998; Werning, 1992). A study investigating the success of an affirmative action program in one medical school also addressed the practice location decisions of minority physicians. It found that minority physician graduates (11.6%) chose to practice in federally designated health-manpower shortage areas almost twice as often as non-minority physician graduates (6.1%) (Keith et al, 1985). Cantor et al (1996), in a more

recent study found similar results among minority medical students. This study utilized surveys of physicians and found that women physicians and minority physicians were more likely to serve minority, low-income, and Medicaid populations that traditionally have had poor access to care.

No evidence could be found in the literature, however, that indicated that minority physical therapists chose to practice in under-served areas more so than non-minority physical therapists. This was not surprising given the results of a national survey of admission practices in health professions programs conducted in 1999. Health education program students in health information management, occupational therapy, physical therapy, and respiratory therapy were asked to rank 14 admission criteria from one to fourteen, with 1 being the most important criterion and 14 being the least important criterion. In physical therapy education, GPA in foundation courses and overall GPA ranked one and two, respectively. Increasing diversity among students ranked eighth in importance and students' desire to work in an underserved community ranked thirteenth (Agho, Mosley, Williams, 1999). However, we do know that minority populations tend to live and work in more diverse urban locations therefore increasing the number of diverse healthcare professionals who would benefit all areas of the population, especially the urban population.

Many factors have been identified in the health literature as barriers to minority representation. Perhaps the most common issue is lack of academic preparation. Many of the differences in academic achievement between minority students and Whites begin much earlier than in post-secondary education. The National Center for Education Statistics (NCES) found a large gap in average mathematics and science scores between

majority and minority 4th and 8th graders, when measured between 1990 and 2003.

Though all ethnic groups increased their average math scores during that period, Black, Hispanic, and Native American scores remained about 30 points lower than White scores. Black and Hispanic average science scores were about 35 points lower than White scores (NCES, 2003).

The numbers do not improve with the level of education. Table 3 shows recent educational attainment statistics based on race.

Table 3.   *Educational Attainment by Race*

	White (Non-Hispanic)	Black	Asian	Hispanic
High school completion	89%	80%	88%	57%
Bachelor degree completion	30%	17%	50%	11%

2003 Census Bureau

Additionally, standardized testing scores such as the SAT, GRE, and ACT continue to show a gap in scores, up to a 100 point difference, for White and Black students (Gray et al, 1999).

A recent study by Tekian (2001) investigated the problem solving abilities of underrepresented minority (URM) medical students at one medical school as compared to non-URM medical students. This study suggested that medical students' problem solving abilities were related to cognitive ability, which was measured by undergraduate grade point average and MCAT scores. This study also reported that URM medical students did not perform as well as non-URM students on basic science exams, a critical foundation

for progression in medical education (Tekian, 2001).

Another reported barrier facing minority students is the lack of role models within the health professions. The lack of diverse healthcare professionals limits the number of role models that are available to attract minority students to the medical profession. The lack of diverse healthcare professionals, along with diminished minority access to healthcare, results in limited contact between minority role models that serve as potential recruitment tools. URM physician assistant students reported that having same-race mentors and role models during their training was beneficial to their educational experiences (Garcia & Fowkes, 1987). Similarly, in a survey to 564 fourth year medical students (66% White, 21% Asian, 13% URMs) across the United States, URM medical students reported as significant barriers: lack of support systems and lack of same-race role models and mentors (Bright et al, 1998). In contrast, in a survey of students (chiropractors, nurses, and medical students) who potentially could apply to physical therapy school, potential minority applicants did not perceive the lack of minority faculty as a barrier to the profession (Gabard et al, 1997).

Student Background Characteristics

The vast amount of research related to retention, attrition, and predictors of academic success and retention has been conducted, for the most part, using undergraduate students. Research addressing those same issues with graduate students and especially with minority graduate students is sparse. A review of the few existing studies revealed that the variables that were mentioned most often when describing student background characteristics linked to academic achievement for minority graduate students were previous grades, standardized test scores, social backgrounds, family

backgrounds, socioeconomic status, parents' educations, and value orientations (Brazziel & Brazziel, 1994, Gillingham et al, 1991, Wolfle, 1985).

One of the first studies in the contemporary literature to compare the educational experiences of Black, White, and Hispanic doctoral graduate students was research conducted by Nettles (1990). This study used a survey administered to doctoral students at four institutions: Florida State, Rutgers, Ohio State, and University of Maryland – College Park. The institutions were chosen because they were classified as either research 1 or research 2 universities (now doctoral university/extensive and doctoral university/intensive) and because they were among the top 25 leading producers of Black and Hispanic doctoral degree graduates between 1976 and 1985. Nine hundred fifty-three Doctoral Student Surveys were collected (74.1% response rate) with 23% Black, 11% Hispanic, and 69% White respondents. Nettles used descriptive statistics along with regression analysis to contrast the differences between the three groups of students.

The major findings of the study were that Hispanic doctoral students were more likely to be science majors in graduate school, have more social interaction with faculty, and receive more research assistantships than Black doctoral students. They were also found to come from higher socioeconomic status (SES) backgrounds, received higher undergraduate and graduate grades than Blacks, and felt that their institution was less racially discriminating. In contrast, Black doctoral students came from the lowest SES backgrounds, were more likely to major in education in both their undergraduate and graduate programs, and received the lowest grades in their undergraduate and graduate studies. Black doctoral students were also less likely to be teaching or research assistants, and perceived feelings of racial discrimination at their institution.

White doctoral students had higher SES backgrounds, higher undergraduate and graduate grade point averages, received more assistantships, and attended more selective undergraduate institutions. White students were less likely than Black or Hispanic students to perceive a racially discriminating campus environment. In summary, Nettles (1990) felt that black doctoral students needed the most intervention to achieve success during their graduate studies. Suggestions for interventions such as more teaching and research assistantships and financial aid were presented.

Social Supports

In addition to background characteristics, institutional and student social support have been identified as influencing factors for student persistence. Social support, or social integration, is included in most conceptual models of student departure (Bean & Metzner, 1985; Cabrera et al., 1992; Girves &Wemmerus, 1988; Tinto, 1987, 1993). Research of doctoral degree persistence has shown a similar relationship between the influence of social support and degree completion. Girves and Wemmerus (1988) found involvement in one's program, the role of the faculty advisor, and financial support to be the most significant predictors of doctoral student progress. The faculty advisor/mentor relationship was the most significant predictor of graduation of African-American students in professional schools in another study by Blackwell (1987).

Financial support and the level of involvement were shown to be related as students who were employed in assistantships, whether teaching or research, were more likely to be involved in department activities and social events. This can facilitate socialization within the departmental culture that resulted in more informal contact with faculty due to more time spent within the department. In turn, the student's increased

involvement in the department increased the likelihood that faculty within the department got to know the student better, respected the student's abilities, and supported the student during their educational pursuits (Brazziel & Brazziel, 1994).

The importance of financial support contributing to student involvement was echoed in a study using a survey to 74 African-American doctoral degree recipients in sport and exercise disciplines. The factors that were identified as significantly contributing to student persistence were financial aid and academic support services (King & Chepyator-Thomson, 1996). This research also indicated that 78% of the respondents reported that there were no Black professors in their doctoral department. In addition, 56% of the respondents felt that Black faculty/mentors were important to the persistence of Black doctoral students at predominantly White institutions.

Finances and support from family and friends were found to be factors influencing retention in physical therapy school in a recent qualitative study by Moore, et al. (2003). This study investigated factors contributing to the selection of physical therapy as a profession, selection of a physical therapy program, and retention within that program of people from underrepresented (UR) ethnic backgrounds and predominantly represented (PR) ethnic backgrounds. Moore and colleagues conducted individual semi-structured interviews with 74 students (44 PR students and 30 UR students) from 9 accredited PT programs in the Northeast region of the United States. The researchers found that relationships with faculty and classmates as well as personal drive were important to all students with regards to retention. However, geographic location and the level of diversity of the city/town significantly influenced the UR students' choice of which program to attend. More UR students than predominantly represented students reported that one of

the biggest challenges during their PT education was self-confidence issues and career issues within the physical therapy profession. The UR students also reported substantial financial challenges during their PT education.

A quantitative study that utilized the Doctoral Student Survey was conducted at the University of Minnesota (Williams, 2000). The sample consisted of Black, Asian, Hispanic, and Native-American doctoral students and recent Ph.D. recipients. Four hundred twenty-five surveys were returned for an overall response rate of 51%. Statistically significant findings in this research indicated that Black and Native-American doctoral students reported more negative perceptions of the social environment than the Hispanic or Asian students. Mean group scores indicated that all but the Asian group had negative perceptions of the social environment on campus. The social environment variable incorporated ease of making friends with peers, adjusting to the campus, and perceptions of racial discrimination and sense of community at the institution. Minority doctoral students felt that the academic environment and student-faculty relationships were positive, yet they indicated a lack of involvement in program activities such as study groups, department social events, and assistantships. Though not a finding in this study, previous research demonstrated that the lack of social integration could negatively influence graduate student persistence (Golde, 2000; Hamilton, 1998; Willie et al., 1991)

Self-concept

The term self-concept has been defined in many different ways in the literature. Most common operational definitions found in the literature were: 1) how one views themselves, 2) one's perceptions of their capabilities, 3) how one defines or describes

themselves, and 4) one's self-perceptions (Sedlacek & Brooks, 1976; Sedlacek, 1982, 1996). This variable refers to the relative feeling of a self-strength and strength of character. It also indicates whether the student expects to do well, successfully complete courses, handle new situations and academic challenges, and works with determination and independence. Minority students face many obstacles during their journey to reach higher education and may require greater determination to graduate (Sedlacek, 1976, 1982). It has also been suggested that greater determination is needed for minority students to succeed in higher education because they come from a different cultural background than most of the students and faculty that they will encounter during their college experience (Sedlacek, 1982, 1996).

Findings from a study that investigated the relationships between academic self-concept, achievement related expectancies, and college attrition in White undergraduate students at one institution found that students' self-rating of overall academic ability and their commitment to the institution were significantly related to both 2-year and 4-year persistence for males and females, and higher self-ratings of math ability were associated with increased persistence by female students (House, 1992). In summary, the research indicated that academic self-concept and achievement related-expectancies were significantly related to student persistence, at least for non-diverse undergraduate students.

The importance of intrinsic motivation is reiterated in King and Chepyator-Thomson's study (1996) discussed earlier. An important characteristic of the study's population was that 56% of the respondents earned their baccalaureate degrees from historically black colleges and universities (HBCUs) and 100% received their doctoral

degrees at predominantly white institutions (PWI). In addition to the findings regarding

the importance of financial aid and social support in facilitating persistence, the

researchers found that the most cited factor (49%) for the completion of doctoral

education was intrinsic motivation. This factor was described by terms such as personal

drive, determination, and self-confidence. It was the reliance on these qualities that

enabled the students to overcome the types of negative environmental factors that Black

students often experience on a PWI campus (Kea, et al., 2003; Nettles, 1990; Williams,

1996, 2000).

In the previously discussed qualitative study in physical therapy education, Moore

et al. (2003), found that a positive self-concept did not appear important to the

respondents in regards to their retention in their physical therapy programs. The

researchers did find, however, that "personal drive", relationships with classmates, and

credentials and relationships with faculty were found to be important factors to all

respondents with regards to retention in physical therapy school.

Recruitment and retention of minority physical therapy students has been

addressed occasionally in the physical therapy literature over the last 20 years. Much of

the literature is dated and does not adequately reflect the drastic changes that physical

therapy education has undergone over the last five years, with the emergence of the DPT

degree. Retention of students has always been an issue to PT program administrators but

recruitment of minority PT applicants appears to be a larger problem. Two recent studies

in physical therapy addressed factors influencing minority students' choice of physical

therapist programs (Wilcox, et al., 2005) and perceptions of why ethnic and White

students' chose their career paths (Greenwood & Bithell, 2005). Self-perception of

careers in medicine, nursing and physiotherapy (term used instead of "physical therapy"

outside of the United States) was highlighted in these studies.

Wilcox et al. (2005) surveyed first year professional physical therapy students

enrolled in 66 accredited physical therapy programs across the United States. The survey

design was a Likert-scale format that rated the influence of 51 items on the students'

selections of PT programs. The study received a 66% response rate and found that more

than 75% of the respondents choose 11 items as very influential or influential in their PT

school choice: 1) type of degree offered; 2) perception of quality; 3) accreditation status;

4) program atmosphere; 5) marketability of degree received; 6) general university

reputation; 7) pass rate in the national licensure examination; 8) physical therapy faculty

reputation; 9) student/faculty ratio; 10) length of the program; and 11) small class size.

The researchers also found significant differences between ethnic and age groups.

Minority students rated cost, program faculty, and ethnic, cultural, and gender issues

higher than non-minority students. Traditional students rated campus atmosphere, PT

program characteristics, and general reputation of the university higher than

nontraditional students.

Another study investigated the factors influencing attitudes and perceptions,

specifically of students of different ethnicities, to careers in physiotherapy in the United

Kingdom (Greenwood & Bithell, 2005). This study utilized a survey and follow-up

interviews to 651 local and college students from 16 schools local to St. George's

Hospital Medical School and Kingston University. Nearly one in six respondents knew

nothing about physiotherapy and males and minority students were significantly less

likely to know anything about it. Overall, three-quarters of respondents were aware that

physiotherapy was a degree but minority students were less likely to know this than White students. A career in medicine was more popular with minority students due to the emphasis on prestige and "being a professional", completion of a degree, a scientific career, opportunities for self-employment, and high salaries. In particular, Asian students commented on the "higher status and salary" of medicine as compared to nursing and physiotherapy.

Santasier (2004) conducted a study that addressed similar research questions as the previous two studies, however, the research design was qualitative. This study compared the responses of 25 undergraduate Black, White, and Hispanic students during 1:1 non-structured interviews that addressed influencing and inhibitory factors during the pursuit of PT school. The journey was depicted as a three-stage journey that included a fact-finding stage, a decision making stage, and a prerequisite preparation stage. Intervening factors could occur at any point during the journey with barriers and facilitators along the way. The study found that there were many similarities among the ethnic groups with regards to the inhibiting factors (varying prerequisites, 4.0 GPA rumor, financial hardship, difficult science courses) and enabling factors (hands on, active, scientific profession, financial aid, characteristics of a PT). However, there were more inhibitory factors for the Black and Hispanic students and more facilitatory factors for the White students.

In addition to the inhibitory factors experienced by all ethnic groups, the researcher found that Black students also experience healthcare disparity, limited exposure to the profession, limited knowledge of PT, educational inadequacies, absence of role models and networking opportunities, inadequate academic advising, academic

distractions, and racism. Hispanic students also suffered from the same inhibitory factors as Black students except for inadequate academic advising, academic distractions, and racism. Conversely, White students benefit from multiple exposures to the PT profession, knowledge of PT, role models and networking opportunities, and improved academic foundations. The researcher concluded that all students were capable and could achieve the goals of entering and succeeding in PT education but Black and Hispanic students had a more difficult pursuit of this goal. They are more likely to succeed in this pursuit if there are the necessary resources, repeated exposures to PT, and the support of many people during the journey. Implications for how to accomplish this were presented at the conclusion of the research.

Finally, a recent replication study investigated the current recruitment and retention strategies of minority students in physical therapy education (Haskins & Kirk-Sanchez, 2006). The original study was conducted in 1993-1994 by the same first author (Haskins & St-Prix, 1994), with the rationale for replication being changes in the degree awarded in PT education and increased use of instructional technology in PT curricula. Program directors from 137 programs were sent the survey with 52 MPT programs and 18 DPT programs responding. The response rate was 41% for usable surveys. A majority of PT programs (71%) reported special effort in recruiting and retaining minority students, however, only 12% of programs received special funding for this purpose. The study utilized mean equity scores (MES) that calculated a ratio of the proportion of minority students enrolled in the PT program to the proportion of minority members between the ages of 18-29 in the state's population.

The results of the study indicated that programs that made a special effort to

recruit and retain minority students did no better than programs that did not make a special effort. Even more disappointing was that the schools that received special external funding for recruitment and retention purposes faired no better in attracting and retaining minority students. Minority students had graduation rates very similar to majority students once enrolled, except for Black students. The overall recruitment strategies that were associated with higher MES for minority student enrollment were utilizing program brochures/fliers, use of current non-minority faculty, and serving as mentors for potential minority students. For Hispanic students, use of current minority faculty and financial aid information were significant. For Black students, visits to elementary schools and minority institutions, participation in health fairs, use of current non-minority faculty, and pre-professional enrichment courses were significant strategies.

Theoretical framework

The last section presents various research findings related to the theoretical constructs that purport to describe student persistence. Perhaps the most widely referenced conceptual model is Vincent Tinto's Longitudinal Model of Institutional Departure, which addressed undergraduate persistence and departure (Tinto, 1975, 1987, 1993). Persistence was defined as "the quality of being persistent" or "existing for a long or longer than usual time or continuously..." (Merriam-Webster, 2005). It can have positive and negative connotations, but in the context of student retention, persistence was viewed as a positive trait and was generally defined as program completion.

Tinto's model posited that student retention is a function of student background characteristics, which influences the student's institutional commitment to persist in his or her educational endeavors. The two main components of the model are student

commitment and academic and social integration. The interaction between the academic and social systems of the campus environment determines congruence or incongruence within the institution. Incongruence refers to a misalignment of the values, culture, or "fit" of the student with the institution. Incongruence with the institution is thought to facilitate early departure. (Nora, 1987; Nora & Rendon, 1990; Pascarella & Terenzini, 1980).

Tinto's model asserted that the greater the alignment between academic and social integration, the greater the probability of student persistence. Academic integration referred to the student's academic performance during their coursework within the educational program. Social integration referred to involvement in extracurricular activities, peer group interactions, and other formal and informal relationships with persons both inside and outside of the classroom. Informal interactions were potential enhancers of academic development and facilitated higher levels of intellectual integration into the institution. Lower levels of social and academic integration were associated with higher levels of student departure. Tinto recognized that while integration into the institution's academic and social systems was preferable, full integration into both systems was not necessary for persistence to occur. It was possible for a person to have extensive academic integration combined with strong individual goal commitments, lack any extensive social integration, and still persist through degree completion.

Departure is described as being "involuntary" or "voluntary". "Involuntary departure" refers to student departure from institutions because of academic failure. "Voluntary departure" refers to student departure as a result of other reasons such as lack of commitment, social isolation, or difficulty adjusting. In the undergraduate population,

Tinto reports that most students depart "voluntarily" (Tinto, 1993). In contrast to undergraduate findings, most attrition in professional medical education appears to be due to academic failure, not voluntary departure (Giliberti, 1998; Kassebaum & Szenas, 1994; Simpson & Budd, 1996; Tekian, 1998). Persistence during professional education appears to be facilitated by student motivation for degree completion due to future occupational attainment.

Tinto's undergraduate model of departure has undergone two revisions since it was originally proposed. Contemporary researchers have raised concerns that the model has not been applied to non-traditional students and minority students, and that previous findings from empirical research had not been incorporated into the model's latest revisions (Braxton, 2000; Hurtado & Garcia, 1997; Tierney, 1992). The large body of empirical evidence supporting Tinto's framework is predominantly in research using freshmen or traditional students. In fact, professional preparation physical therapy students more closely fit the description of a non-traditional student, as defined by Bean & Metzner (1985), than a traditional student. This definition indicated that the student was:

> "older than 24, does not live in a campus residence (e.g., is a commuter), or is a
>
> part-time student, or some combination of these factors; is not greatly influenced
>
> by the social environment of the institution; and is chiefly concerned with the
>
> institution's academic offerings (especially courses, certification and degrees)."
>
> (p. 489)

With two-thirds of the physical therapy programs offering an entry-level Doctor of Physical Therapy (DPT) degree, the typical student applying to and enrolling in physical

therapy education is older (average 24.8 years) and fulfills many of the criteria of a

nontraditional student (Goldstein & Gandy, 2001; Guffey et al, 2002).

Using data from seventy previous research studies including two-year colleges,

four-year commuter-oriented colleges, and a sample of four-year residence-oriented

colleges, Bean and Metzner developed a conceptual model of the dropout process for the

nontraditional undergraduate student. This model used much of the framework from

Tinto's (1975,1987,1993) and Pascarella & Terenzini's (1980) work and indicated that

dropout decisions were primarily caused by four variables: academic factors, intent to

leave, background and defining variables, and environmental variables. This model

posited that environmental variables were more important to non-traditional students than

academic variables. For example, when academic and environmental variables are

positive, persistence was facilitated. However, when environmental variables (e.g. cannot

pay for school, no child care, or spouse on military deployment) were poor but academic

variables were good, the positive effects of the academic variables were lessened.

Furthermore, when environmental support was good and academic support was poor, the

environmental variables could overcome the poor academic variables in this model (Bean

& Metzner, 1985).

The problem with this model's applicability to professional preparation physical

therapy education is that academic variables are greatly emphasized in professional

programs, in both the didactic and clinical internship performances, generally requiring

students to maintain a 3.0 grade point average (GPA) to remain viable within these

programs. There was no empirical evidence found to validate this model in the current

literature.

Tinto conceptualized a Longitudinal Model of Doctoral Persistence in the appendix of *Leaving College: Rethinking the Causes and Cures of Student Attrition*. This model emphasized the importance of more local student and faculty communities and the presence of financial aid that impact the level of social integration of graduate students (Tinto, 1993). This model, however, fits better with traditional doctoral education rather than professional preparation education such as a clinical doctorate without a dissertation requirement. The model's last phase includes a candidacy/research phase that can be highly influenced by such factors as the faculty-advisor relationship, financial support, and external commitments. Physical therapy students are required to design, conduct, and complete a group research study that may be submitted in publishable form and quality prior to their final clinical internships. However, the students are still engaged in didactic education during the year that it takes them to complete the research component of the curriculum.

Finally, Girves and Wemmerus (1988) developed a conceptual model of graduate degree progress that drew from the previous work of Spady (1971), Tinto (1987,1993), and Bean and Metzner (1985). The authors developed two conceptual models; one for master's degree students and one for doctoral level students. Though this study includes both levels of graduate students masters and doctoral), the model related to doctoral level progress (Figure 1) will be used as the conceptual framework for this study since many of the MPT programs are three years in length and require close to 90 credit hours. Neither the MPT nor DPT degree requires a traditional thesis or dissertation at the conclusion of the didactic requirements.

The conceptual model of doctoral student degree progress is divided into two

stages. Stage one contains four variables 1) department characteristics, 2) student

characteristics, 3) financial support, and 4) perceptions of the faculty. The researchers

believed that financial support and the student-faculty relationship were fundamental to

the graduate education experience. Furthermore, any of these first-stage variables, in any

combinations, were expected to affect the four intervening variables in the second stage

1) graduate grades, 2) involvement in one's program, 3) satisfaction with the program,

and 4) alienation (see table 4).

Table 4.   *Variables for Girves and Wemmerus (1988) conceptual model*

First stage variables	Second stage variables
Department characteristics	
Hard/soft science	Graduate Grades
Applied/Basic research	Involvement in Program
Life/non-Life science	Satisfaction/Alienation
Student characteristics	
Age	Three steps to Doctoral Degree Progress
Race/ethnicity	Completion of didactic course work
Marital status	Completion of comprehensive exams
Residence	Earned doctorate degree
Parental status	
Enrollment status	
Gender	
Financial Support	
Fellowships	
Assistant ships	
Own resources	
Loans	
Other employment	
Perceptions of Faculty	
Treated as junior colleague	
Advisor quality	
Mentor	

Girves and Wemmerus (1988) tested their conceptual models of graduate degree

progress at a Mid-western university in the fall of 1985 using a population of 948

graduate students across twelve colleges and 42 departments. The researchers received a survey response of 59.1%. The results of the study provided empirical support for the use of two models to describe graduate degree progress. The results of the study indicated that each model, the master's degree model and the doctoral degree model, explained almost one-third of the variability associated with graduate degree progress (30 percent and 29 percent, respectively). For master's degree students, grades were the best predictors of degree progress. Student perceptions of the faculty were also associated with grades and were indirectly associated with degree progress.

In contrast, grades did not have a significant impact on doctoral degree progress in this study. Involvement in the program, the faculty/advisor relationship, type of financial support, and departmental characteristics either indirectly or directly influenced doctoral degree progress. A limitation of the study was that the researchers did not address differences between gender or racial/ethnic groups in this research. Another concern was that the different types of financial support were not specifically investigated. Positions such as teaching or research assistantships can influence the level of student socialization and involvement within a program by engaging the student in activities that positively influences the student-faculty relationship (Brazziel & Brazziel, 1994). The findings were similar to previous research findings using Tinto's framework regarding the influence of academic and social variables on student persistence.

Only one research study could be found in the literature that tested Girves and Wemmerus (1988) models of graduate degree progress. Toliver (1997), in her dissertation research, tested the model on 132 African-American graduate students at one institution using a questionnaire. Though she could not fully support all the constructs in Girves and

Wemmerus (1988) conceptual model, she did find that grades, financial support, and involvement in one's program were statistically significant predictors of degree progress accounting for 19.4% of the variance. Additionally, grades were positively related to degree progress in the absence of financial support and involvement.

Summary

A review of the literature identified several areas that influence academic success/retention in doctoral students, in general. These areas, student background characteristics, social and academic support systems, and self-concept/self-perception, affect academic success/retention differently for different race graduate students. What remains unknown is whether these variables affect and contribute to academic success/retention in professional preparation physical therapy students and whether those same variables influence majority physical therapy students different than minority physical therapy students.

Much of the previous research on doctoral students, in general, was quantitative in nature and was not applicable to physical therapy. Also lacking is literature regarding the relationship between academic achievement/retention and student background characteristics, social support, academic support, and self-concept in any professional students.

A possible explanation for the lack of physical therapy specific research with regards to factors that impact success in doctoral physical therapy education is that the clinical doctorate degree is relatively new for the profession. Less than 50% of professional preparation physical therapy programs were awarding the DPT degree in 2001. Physical therapy educators are anxiously waiting to see the effects of the change in

degree awarded on student attrition rates due to higher educational requirements for the DPT degree at most institutions.

This research seeks to fill the gap in the literature by gathering quantitative and qualitative data to describe the differences and similarities in MPT/DPT students in two Mid-Atlantic States. It also seeks to determine if student background characteristics, perceptions of social support systems, perceptions of academic support systems, and ratings of self-concept are significant predictors of academic achievement and ultimately retention. It also seeks to determine whether there are perceived differences between majority and minority physical therapy students in those areas.

Furthermore, the qualitative portion of the study adds a perspective that would give a voice to physical therapy students who are presently enrolled in accredited entry-level professional preparation physical therapy programs and investigate if themes emerge among groups of physical therapy students with regards to ethnicity. The qualitative portion of the study will serve to confirm, clarify, and add in-depth, rich information to support the findings from the questionnaire. With the use of a combination of methodologies, the researcher hopes to add to the literature and fill the present knowledge gap.

CHAPTER III

METHODS

Overview and Research design

The purpose of this study was to gather descriptive data on student background characteristics, the perceptions of social support structures, the perceptions of academic support systems, and self-concept in professional preparation physical therapy students in Virginia and North Carolina. A second purpose was to determine whether any of the student background characteristics, the perceptions of social support structures, the perceptions of academic support systems, and self-concepts were predictive of academic success/retention. Also, this study investigated whether there were differences in those variables between different ethnic groups of professional preparation physical therapy students in Virginia and North Carolina and whether different variables were predictive of academic success/retention in the different ethnic groups of students. The following research questions were addressed in this study:

1). What are the background characteristics, perceptions of social support systems, academic support systems, and ratings of self-concept/self-perceptions of professional preparation MPT/DPT students in Virginia and North Carolina?

2). What variables are predictors of academic success/retention for professional preparation MPT/DPT students in Virginia and North Carolina?

3). Are the variables that predict academic success/retention different for majority professional preparation MPT/DPT students than for minority professional preparation MPT/DPT students in Virginia and North Carolina?

4). Are there differences between the perceptions of minority and majority students

regarding facilitators or barriers to academic success/retention during their physical therapy education?

This chapter is organized to discuss the research design and methodology; the role of the researcher; participants and measures; data collection and analysis; ethical issues; and verification and confirmability.

This study utilized a two-phase design incorporating quantitative and qualitative measures. This design enabled the researcher to collect descriptive information on the different study variables, determine if a relationship existed between those variables and academic success/retention, and if there were any differences between majority and minority physical therapy students in the study sample. The quantitative portion utilized a questionnaire that addressed the first three research questions. A qualitative research portion was chosen for the second phase of this study because the researcher was seeking to explore students' perceptions of their experiences during physical therapy school and determine if there were differences between the perceptions of minority and majority students regarding facilitators or barriers to academic success/retention during their physical therapy education. This portion of the study enabled the researcher to gather more in-depth information regarding students' perceptions of their experiences in order to make comparisons between the experiences of majority and minority physical therapy students.

The phenomenological method was used because the study focused on "descriptions of what people experience and how it is that they experience what they experience" (Patton, 1990; pg. 71). The goal of phenomenology is to capture deeper understandings and interpretations of those experiences (Creswell, 1994). The interviews

occurred in the students' natural setting (i.e. at their own institution) allowing for the perspective of the individual, the emic, to drive the research, rather than be influenced by the etic perspective of the researcher (Miles and Huberman, 1994). Furthermore, the qualitative method of research was best suited to uncover beliefs and attitudes, perceptions, and opinions regarding the influencing factors affecting success during professional physical therapy education allowing the respondent to answer questions in their own words and not be bound to the wording of a questionnaire.

Phase one of this study utilized a modified version of the Doctoral Student Survey originally developed by Nettles (1990). This questionnaire was designed to measure students' background characteristics, students' perceptions of social support, students' perceptions of academic support, and students' perceptions of their self-concept and satisfaction with their doctoral experiences. The population for this phase of the study consisted of all physical therapy students enrolled in entry-level accredited professional preparation physical therapy programs in Virginia and North Carolina. Phase two of this study utilized individual interviews with a purposeful sample of majority and minority physical therapy students in the same two states.

Role of the Researcher

In utilizing qualitative methodology where the researcher was the primary instrument for data collection, it was necessary to identify any personal biases or preconceptions that may have arisen during this portion of the study. The credibility of the study depends on the skill and competence of the interviewer (Patton, 1990).

The researcher has been a full-time faculty member and admission director of an entry-level professional preparation physical therapy program since 1997. The physical

therapy program, which the researcher is associated with along with many other programs, struggles with recruiting, attracting, admitting, and retaining quality minority physical therapy students. As an admission director for the School of Physical Therapy, the researcher is aware of the lack of qualified minority students that apply to physical therapy programs and subsequently, the difficulty in the retention of those same students who are admitted and matriculate. The researcher has also attempted to statistically determine what variables contribute to student attrition in the program and address student retention by various means such as tutoring, advising, and study groups.

The researcher is an Asian American who has lived in urban, suburban, and rural areas throughout her lifetime. There have been many instances where the researcher has felt like the "different" one amongst fellow classmates, and there have also been times where the researcher has acculturated well into the environment. The researcher has been on the receiving end of "ethnic jokes" and thus knows firsthand what it feels like to be made aware of racial and ethnic differences. The researcher has lived in a variety of places including large cities such as New York City, Boston, and the suburbs of Philadelphia as well as quite rural places such as northeastern Maine, upstate New York, and rural western Pennsylvania. With the exception of the large cities during her childhood, the researcher was usually the only minority or one of a few minorities among classmates, participating in extracurricular activities (e.g. the basketball/volleyball/track teams, pep band, choir, etc.) or at professional meetings in adulthood. The researcher believes that as a minority person she has a vested interest, both personally and professionally, in exploring minority students' experiences as they begin and progress through professional school. Although the researcher may have certain viewpoints or

bias, every effort will be made to remain objective and neutral during data collection and analysis. With the exception of those students from the researcher's institution, she will not know any of the student participants at any of the institutions, and it is the researcher's hope that her status as a "person of color" will facilitate a candid and frank discussion and interactions during the interviews, particularly among minority students.

Participants

The participants for phase one of this study were students enrolled in entry-level accredited professional preparation physical therapy programs in Virginia and North Carolina. All of the programs offer either the Master of Physical Therapy (MPT) degree (two-year degree) or the Doctor of Physical Therapy (DPT) degree (three-year degree). There are five programs located in Virginia and six programs located in North Carolina (see Table 5). There are approximately 780 students in this population. The rationale for using the two chosen Mid-Atlantic States was the geographic proximity to the researcher and the desire to increase the potential for reaching diverse population of students within the two historically black colleges and universities (HBCUs) in the region. A revised version of the Doctoral Student Survey, renamed the Graduate Student Survey in order to include both MPT and DPT students, was sent to the Program Directors of each of these programs in September 2005 to delegate to an appropriate faculty member for distribution to their students during September and October 2005. The researcher received permission from the author of the revised Doctoral Student Survey to use and revise the survey instrument for use in this research. A copy of an email giving this permission is located in Appendix F.

Table 5.   *Accredited Professional Physical Therapist Programs in VA & NC*

Institution	Location	Total # of PT students*	Classification
Hampton University	Hampton, VA	35	DPT - Private – HBCU
Marymount University	Arlington, VA	53	DPT - Private
Old Dominion University	Norfolk, VA	93	DPT - Public
Shenandoah University	Winchester, VA	90	DPT - Private
Virginia Commonwealth Univ.	Richmond, VA	160	DPT - Public
Duke University	Durham, NC	81	DPT - Private
East Carolina University	Greenville, NC	50	DPT - Public
Elon University	Elon, NC	70	DPT - Private
UNC @ Chapel Hill	Chapel Hill, NC	48	MPT - Public
Western Carolina University	Cullowhee, NC	63	MPT - Public
Winston-Salem State	Winston-Salem, NC	38	MPT - Public – HBCU

*estimated

The participants for phase two, or the qualitative portion, of this study were students at accredited professional preparation physical therapy programs in Virginia and North Carolina. In particular, this portion of the research used a purposeful sampling of different ethnic groups of students using groups of people as the units of analysis. Criterion sampling was used for this portion because respondents were purposefully sampled due to their status as members of one of the five ethnic groups that were used for this research. Patton (2002) described criterion sampling as the best method to determine information-rich cases that meet some pre-determined criterion of importance. The

purpose of using this type of sampling was to gather experiences of this group of students in greater depth (Patton, 2002). The participants were interviewed individually in a one-on-one semi-structured format.

The interviews were conducted during October and November 2005 at each respective institution. Communication to facilitate interview scheduling was via email and telephone contact directly to the participants. Individual assistance from the Program Director or another faculty or staff member was needed to facilitate common available times and locations for the interviews at each institution.

Data Collection

Questionnaire. The Doctoral Student Survey developed by Nettles (1990) and revised by Williams (1996), is a 65-item questionnaire that measures the perceptions, experiences, and background characteristics of doctoral students as they relate to success during their doctoral education. The questionnaire contains Likert-type scale items, free-response questions, and fixed-alternative items, such as closed-ended questions. Williams (1996) revised the questionnaire (Appendix A) into a 35-item survey, deleting questions that concerned salary expectations, career expectations, educational level of spouse/partner, employment of spouse/partner, questions about study skills/habits, hours of time spent studying, and number of graduate schools applied to. The researcher felt that questions pertaining to the deleted items were not pertinent to his particular research.

This study utilized a modified version of William's survey. The changes that were made were adaptations for its use in physical therapy education. The researcher contacted Dr. Williams by email and received his permission for the revisions (Appendix F). Questions regarding study skills/habits, hours of time spent studying, and the numbers of

graduate schools applied to, and accepted by, were added to the questionnaire. There were several questions that were deleted because professional preparation physical therapy educational programs are full-time "lock-step" programs with no option for part-time status. This resulted in a new 32-item questionnaire that was used for this study (Appendix B).

The new questionnaire was divided into four sections. The initial portion of the questionnaire contained seven background and demographic questions. The second section asked five questions pertaining to the participants' undergraduate education experiences. Section three addressed the participants' perceptions of their current graduate education and contained thirteen questions. The final section contained seven main questions that were arranged into subsections with Likert-type scale items. This last section addressed student behaviors, attitudes, perceptions and reactions in relation to various aspects of the participants' professional preparation PT graduate education including the social environment, the academic environment, self-concept and satisfaction with their education, and faculty advisors. The participants were also given another sheet to fill out to determine if they were willing to participate in a structured individual interview and to obtain demographic and identifying information. This sheet was kept separate from the questionnaires at all times to protect the confidentiality of the participants (Appendix C).

Williams (1995) reported a Cronbach's alpha of .84 for his revised version of the Doctoral Student Survey. Content validity appears to be supported because all of the areas addressed in Girves & Wemmerus' (1998) model of graduate degree progress were contained in the survey.

Pilot testing of the questionnaire was conducted with four physical therapy alumni to establish readability and content/construct validity. These alumni were not included in the study sample due to their successful completion of their curricula and graduation in May 2005. A physical therapy faculty member with extensive experience in survey development performed an expert review. Suggestions for revisions regarding wording and content were obtained and minor wording changes to the questionnaire and cover letter were made.

Interviews. The content for the interviews was based on the content areas contained in Girves and Wemmerus' model of graduate degree progress (1988) and the content areas in the questionnaire. The interview consisted of nine questions regarding students' perceptions of factors contributing to participants' choice of the profession of physical therapy and their institution, positive and negative experiences during physical therapy education, perceptions of the influence of ethnicity on their academic performance and social support, and satisfaction with faculty and the academic environment (Appendix E).

Pilot testing of the interview questions was conducted prior to data collection to ensure proper wording, timing, flow of questions, or potential problems with questions. Four individual interviews were completed with both majority and minority physical therapy alumni resulting in minor changes to the sequencing of the questions. Data from these interviews were not included in the study sample results.

Procedure. A cover letter was sent to the Program Directors of the eleven accredited professional preparation physical therapy programs in Virginia and North Carolina explaining the purposes of the study, timeframes for collection of the surveys,

and times during which the students might be available for interviews (Appendix D). An email or phone call followed the initial letter to confirm participation in the study and gather the number of questionnaires that were needed. The Program Directors distributed the questionnaires directly to the students or they delegated the task to another faculty member. The surveys were distributed by the faculty member at the end of a class period and collected by the faculty member to increase the survey response rate. A postage paid self-addressed mail envelope was included with the survey instruments to facilitate ease of return of all of the completed questionnaires.

Two weeks after mailing the questionnaires to each institution, a reminder email was sent and a phone call was made to the Program Directors to remind them to distribute the questionnaires and return them back to the researcher. A third phone call was necessary to three Program Directors five weeks after the initial receipt of the questionnaires to facilitate the return of their questionnaires. Though Portney and Watkins (2000) state an acceptable survey response rate is 60%, the researcher set the minimally acceptable response rate for this study at 40%.

The individual interviews took place at the participants' campuses at a time and location that was convenient for the participants. Participants for phase two were recruited at the same time as requests for participation for phase one. The researcher conducted twenty-five individual interviews at six institutions: three in Virginia and three in North Carolina. The researcher interviewed at least three respondents from each of the ethnic groups, except for the "other" category, which contained two participants.

Individual structured interviews, rather than focus groups, were utilized in order to facilitate discussion with the participants (Strauss & Corbin, 1998). In consideration of

the research topic and the time limitations of both the interviewer and the participants, the structure of the interview was a semi-structured format utilizing a prepared blueprint of interview questions and follow-up probes. The use of a semi-structured interview format encouraged some standardization between interviews. Patton (2002) states that the main purpose of a standardized open-ended interview is to minimize interviewer effects by asking the same questions during each interview session. All participants were asked the same blueprint of interview questions in the same order with some variation in follow-up probes in order to clarify information or gain greater depth and meaning. The interviews lasted from approximately 25 to 50 minutes. Participants were sent an email one week prior to the interview to confirm the date, time, and location. All interviews were audio taped with dual micro-cassette recorders and the interviewer took detailed notes during each interview session. Participants chose pseudonyms to ensure confidentiality.

The sampling method during phase two of this research was partially dependent on the data gathered from phase one. If a participant responded to the questionnaire, they had the choice to participate in phase two. At two institutions, however, interview respondents were recruited by word of mouth while the researcher was conducting previously arranged interviews. Participants for phase two came from institutions within Virginia and North Carolina with different classifications such as public, private, or an HBCU. Sampling, however, was not representative of the general population due to using a criterion sampling method to purposely interview respondents from each of the five ethnic groups during this phase.

Interviews were conducted until the researcher felt that data saturation was reached. Lincoln and Guba (1985) emphasized this concept by stating that sample

selection is determined by informational considerations. "The sampling is terminated

when no new information is forthcoming from the new sampled units; thus redundancy is

the primary criterion" (Patton, 2002; pg. 246).

Data Analysis

   Questionnaire. The data analyses that were used in this study were descriptive and

predictive. Descriptive statistics such as frequencies and percentages were used for the

student demographic data and undergraduate school data. Chi-square tests were used to

make comparisons among the different racial groups of students on categorical variables

located in sections one through three of the questionnaire. Analysis of variance

(ANOVA) was used to compare the means of the groups of students on factors measuring

their experiences and perceptions during physical therapy education located in section

four. Ordinal regression analyses were used to investigate which variables were the best

predictors of graduate student success, defined by graduate GPA. Since range restriction

was potentially a problem in this study due to the majority of the graduate GPAs being

clustered from 3.0 to 4.0, the student success variable was transformed into an ordinal

variable of not successful, minimally successful, moderately successful, and highly

successful.

   The independent variables that were used in this analysis were the background

variables, perceptions of social support variables, perceptions of academic support

variables, and self-concept/self-perception variables found in the last section of the

questionnaire. Data analysis was also performed to compare first-year and third-year

students' GPAs in an attempt to determine if there were any significant differences

between the groups of students regarding retention. This cross sectional analysis allowed

a comparison of the GPAs across the strata to determine if students in their final year of

study possessed something "extra" that enabled them to progress successfully throughout

the curriculum.

Though Williams (1996) reported a Cronbach's alpha for his revised Doctoral

Student Survey, the researcher also calculated a reliability index for each of the scales of

the Graduate Student Survey to determine the internal consistency of the survey items.

Though the revisions to the questionnaire were minor, it was necessary to investigate the

Cronbach's alpha, or the extent to which items measure the same characteristic for the

survey items (Portney & Watkins, 2000).

Interviews. The interviews were recorded and the researcher took field notes

during the interview and after the interview to capture the participant's perceptions of

their experiences. Participants chose a pseudonym to preserve their identity. The field

notes were reviewed and content analysis began by creating topic areas. The primary

investigator trained a graduate research assistant in performing content analysis and

theme coding. Each investigator independently created topics areas from the responses to

the interview questions. Categories within the topic areas were generated and the

researchers coded the original data using an abbreviation for each category.

A kappa statistic was used to determine the reliability of coding, or the measure of

inter-observer variability, between the two researchers' topic and categories. The goal

during this portion of the analysis was to achieve an 80% agreement between the two

researchers. Upon first attempt, 80% agreement was not achieved and the researchers

discussed their results from their individual coding. Coding of themes was again

performed and a > 80% agreement was reached. Patton (2002) encourages discussion

between researchers because important insights can emerge from the different ways that two people view the same set of data. Data analyses of this portion of the study were on going to allow the researcher to dissect, interpret, and investigate the meaning of the data.

Member checks allowed the participants to review their interview transcript to verify the content and "essence" of the session (Patton, 2002). Additions or changes were made, if needed, to ensure completeness and accuracy of the session. Methods triangulation was used during this study to compare the data gathered from the quantitative and qualitative portions of the study. This triangulation allowed the researcher to perform a comparative analysis and crosscheck the consistency of data across the two methods (Patton, 2002).

Since interviews were on-going through October to December 2005, the researcher used an audit trail to assist in keeping track of the research. This "personal journal" allowed the researcher to keep track of the progress throughout this research study by keeping records during the data collection and data analysis phases of the study. Patton (2002) describes the use of an audit trail as a way for an investigator to check the quality of analysis, document the rigor of an investigator's fieldwork, and check the confirmability of the data collected.

Ethical issues

This study was submitted to the Human Subject's Review Board at Old Dominion University and received approval for data collection in May 2005. Each prospective respondent was asked to participate in the study by including a cover letter with the questionnaire explaining the purpose of the study and noting that agreeing to participate would not affect their classroom or clinical grades in any way. Participants could decide

to withdraw from the study at any time. All interviews and field notes used pseudonyms.

All research materials from this study will be kept in locked file cabinets at the

investigator's work and home office for five years and then destroyed.

CHAPTER IV

RESULTS

All eleven physical therapy programs in Virginia and North Carolina indicated

interest in the research and 778 questionnaires were sent in September/October of 2005.

The quantitative portion of the research was completed in December 2005 with 575

questionnaires returned for an overall response rate of 74%. Due to small numbers of

Hispanic, Native American, Asian, and other race physical therapy students in the sample,

ethnicity was broken down into three categories for statistical analysis: White, Black, and

other race students (see Table 6).

Table 6.   *Quantitative sample by All Ethnicities & Three Ethnicities*

	Frequency	Percentage		Frequency	Percentage
White	480	83.5%	White	480	83.5%
Black	52	9.0%	Black	52	9.0%
Hispanic	12	2.1%	Other race	43	7.4%
Native American	2	.3%			
Asian	11	1.9%			
Other	18	3.1%			
Totals	575	100%		575	100%

The results section will be organized in order of the four research questions. The

first three research questions were answered from phase one of the study using data from

the questionnaire. The questionnaire contained categorical, ordinal, continuous, and

Likert-type variables; therefore, many types of statistical analyses were employed. A

probability level of .05 was selected to denote statistical significance. Background data

were analyzed using Chi-square tests for the categorical variables and one-way ANOVAs

with post hoc tests for the continuous variables. Ordinal regression and one-way

ANOVAs were used to determine the predictors of success for answering research

questions two and three. [SPSS versions 11.0 and 13.0 Graduate package software were

used to analyze the data.] The fourth and final research question was answered using the

qualitative data from phase two of the research and will be discussed in the later portion

of this chapter.

Research question one: What are the background characteristics, perceptions of social

support systems, academic support systems, and ratings of self-concept/self-perceptions

of professional preparation MPT/DPT students in Virginia and North Carolina?

Descriptive findings – Background characteristics

Age. There was no significant difference in the students' ages between the ethnic

groups (F = .353, df = 2, p<.703). The mean age of the sample was 25.1 years. Other race

students reported the highest average ages with a mean of 26.6 years followed by White

and Hispanic students at 25.1 years, Black students at 24.9 years, and Asian students at

24.6 years.

Gender. There was a significant difference in gender between the three ethnic

groups (χ^2 = 10.3, df = 2, p< .006). There were more female (80.2%) than male (19.5%)

students. For all the ethnicities, other than the two male Native American students,

females outnumbered the males by more than 70%.

Parents' education. Parent's education was measured on the questionnaire using a

nine-category scale ranging from elementary school or lower to a doctoral degree at the

upper end (see Tables 7 and 8). Father's education was not statistically significant (p <

.068) however; mother's education was statistically significant (p < .000). It is interesting

to note that Black students' fathers have a lower percentage of doctoral degrees but higher

percentage of mothers with doctoral degrees.

Table 7.   *Father's Education Level by Percentage*

	White	Black	Other	Totals
Elem. school or less	1.3 (6)	2 (1)	4.7 (2)	1.6 (9)
Some high school	2.3 (11)	9.8 (5)	4.7 (2)	3.1 (18)
HS diploma or equivalent	14.6 (70)	17.6 (9)	14 (6)	14.9 (85)
Some college, business, trade school	17.2 (82)	23.5 (12)	11.6 (5)	17.3 (99)
Associate's degree	5.9 (28)	3.9 (2)	9.3 (4)	5.9 (34)
Bachelor's degree	23.4 (112)	23.5 (12)	18.6 (8)	23.1 (132)
Some grad or prof. school	4.8 (23)	9.8 (5)	4.7 (2)	5.2 (30)
Master's degree	19.2 (92)	7.8 (4)	18.6 (8)	18.2 (104)
Doctoral degree	11.3 (54)	2 (1)	14 (6)	10.7 (61)
Totals	100 (478)	100 (51)	100 (43)	100 (572)

(Ns in parentheses)

Table 8.   *Mother's Education Level by Percentage*

	White	Black	Other	Totals
Elem. school or less	.2 (1)	2 (1)	7 (3)	.9 (5)
Some high school	1.5 (7)	3.9 (2)	9.3 (4)	2.3 (13)
HS diploma or equivalent	18.4 (88)	15.7 (8)	14 (6)	17.8 (102)
Some college, business, trade school	14.6 (70)	15.7 (8)	14 (6)	14.7 (84)
Associate's degree	10.9 (52)	11.8 (6)	7 (3)	10.7 (61)
Bachelor's degree	26.4 (126)	13.7 (7)	25.6 (11)	25.2 (144)
Some grad or prof. school	6.1 (29)	5.9 (33)	4.7 (2)	5.9 (34)
Master's degree	19.9 (95)	21.6 (11)	16.3 (7)	19.8 (113)
Doctoral degree	2.1 (10)	9.8 (5)	2.3 (1)	2.8 (16)
Totals	100 (478)	100 (51)	100 (43)	100 (572)

(Ns in parentheses)

Parents' occupation. Parents' occupation was measured on a seven-category scale

ranging from doctors/executives at one end and homemakers at the other end. There was

no significant difference in parental occupations (father's; $p < .056$; mother's; $p < .480$)

between the ethnic groups. The occupations of the fathers tended to cluster in the high

and mid-level business executive and small business owner categories while the mothers

clustered at the mid-level business executive or homemaker categories (see Tables 9 and

10). Another interesting finding is that while 17.4% of the sample listed mothers'

occupation as homemaker, 25.6% of other race students' mothers were homemakers.

Marital status. There were no significant differences ($p < .287$) in marital status

between the ethnic groups of students. 76.8% of the graduate students were single, 22%

were married and 1.2% divorced or separated.

Table 9.   *Father's occupation by Percentage*

	White	Black	Other	Totals
MD, high level business exec	39.8 (188)	22.9 (11)	39.5 (17)	38.4 (216)
Teacher, nurse, mid-level exec	18.4 (87)	6.3 (3)	11.6 (5)	16.9 (95)
Manager, farmer, small business owner	18 (85)	29.2 (14)	23.3 (10)	19.4 (109)
Secretary, Dental assi., plumber	9.5 (45)	12.5 (6)	14 (6)	10.1 (57)
Sales clerk, truck driver, mail carrier	5.5 (26)	14.6 (7)	7.0 (3)	6.4 (36)
Laborer, waiter, farm worker	8.5 (40)	14.6 (7)	4.7 (2)	8.7 (49)
Homemaker	.2 (1)			.2 (1)
Totals	100 (472)	100 (48)	100 (43)	100 (563)

(Ns in parentheses)

Table 10.   *Mother's occupation by Percentage*

	White	Black	Other	Totals
MD, high level business exec	9.1 (43)	9.8 (5)	7.0 (3)	9 (51)
Teacher, nurse, mid-level exec	46 (218)	47.1 (24)	34.9 (15)	45.2 (257)
Manager, farmer, small business owner	8.6 (41)	5.9 (3)	14.0 (6)	8.8 (50)
Secretary, Dental assi., plumber	8.6 (41)	17.6 (9)	7.0 (3)	9.3 (53)
Sales clerk, truck driver, mail carrier	7 (33)	5.9 (3)	7.0 (3)	6.9 (39)
Laborer, waiter, farm worker	3.6 (17)		4.7 (2)	3.3 (19)
Homemaker	17.1 (81)	13.7 (7)	25.6 (11)	17.4 (99)
Totals	100 (474)	100 (51)	100 (43)	100 (568)

(Ns in parentheses)

Undergraduate major. There was no significant difference (p < .536) in the selection of undergraduate major by ethnic group. 55.4% of the sample reported an undergraduate major in a Health related field. Students listed majors such as health sciences, exercise science, health and physical education, athletic training, and sports medicine, to name a few, in this category. Biology/physical sciences followed with 27.1% and social sciences comprised 5.7% of the undergraduate majors reported by the sample.

Table 11.   *Undergraduate Majors by Percentage*

	White	Black	Other	Totals
Agricultural	.4 (2)		2.4 (1)	.5 (3)
Arts/Humanities	4 (19)		2.4 (1)	3.5 (20)
Bio/Physical Sciences	26.1 (123)	33 (17)	31 (13)	27.1 (153)
Business/Communications	2.3 (11)		2.4 (1)	2.1 (12)
Education	1.7 (8)	3.9 (2)	2.4 (1)	1.9 (11)
Math/Stats	.6 (3)		2.4 (1)	.7 (4)
Engineering	1.5 (7)		2.4 (1)	1.4 (8)
Health Related field	56.4 (266)	52.9 (27)	47.6 (20)	55.4 (313)
Computer sciences				0 (0)
Social science	5.7 (27)	7.8 (4)	2.4 (1)	5.7 (32)
Other majors	1.3 (6)	2 (1)	4.8 (2)	1.6 (9)
Totals	100 (472)	100 (51)	100 (42)	100 (565)

(Ns in parentheses)

Undergraduate grade point average (GPA). The students were asked to categorize their undergraduate GPA using the scale shown in Table 12. The three ethnic groups differed significantly in their reported undergraduate GPAs. (χ^2 = 48.9, df = 12, p < .000). Eighty-one percent of White students reported an undergraduate GPA of greater than 3.25, while Black students and other race students reported 62.8% and 53.5%,

respectively, for the same range. Six percent of White students reported an undergraduate

GPA of less that 2.99 while 24% of Black students and 28% of other race students

reported that their GPAs were lower than 2.99.

Table 12.   *Reported Undergraduate GPA by Percentage*

	White	Black	Other race	TOTALS
4.0 GPA	2.7 (13)			2.3 (13)
3.75 – 3.99 GPA	27.8 (132)	11.8 (6)	11.6 (5)	25.1 (143)
3.25 – 3.74 GPA	50.5 (240)	51 (26)	41.9 (18)	49.9 (284)
3.0 – 3.24 GPA	12.6 (60)	13.7 (7)	18.6 (8)	13.2 (75)
2.75 – 2.99 GPA	5.9 (28)	19.6 (10)	25.6 (11)	8.6 (49)
2.0 – 2.74 GPA	.4 (2)	3.9 (2)	2.3 (1)	.9 (5)
TOTALS	100 (475)	100 (51)	100 (43)	100 (569)

(Ns in parentheses)

   Undergraduate debt load. There was a significant difference between the students

in amount of debt load from their undergraduate education ($\chi^2 = 23.9$, df = 8, p < .002).

White students and students categorized as other race students, 56.1% and 48.8%

respectively, were more likely to not carry any debt from their undergraduate education

into graduate school. Black students had more debt load (41.1% with > $17000) than

White students (17.5% with > $17000) and other race students (18.8% with > $17000)

(see Table 13).

Table 13.   *Undergraduate debt load by Percentage*

	White	Black	Other race	TOTALS
None	56.1 (266)	27.5 (14)	48.8 (21)	53 (301)
Up to $7999	10.3 (49)	15.7 (8)	14 (6)	11.1 (63)
$8000 - 16999	16 (76)	15.7 (8)	18.6 (8)	16.2 (92)
$17000 - $25999	12 (57)	23.5 (12)	11.6 (5)	13 (74)
> $26000	5.5 (26)	17.6 (9)	7 (3)	6.7 (38)
TOTALS	100 (474)	100 (51)	100 (43)	100 (568)

(Ns in parentheses)

Master's degrees. There was no significant difference ($p < .053$) between the

ethnic groups of students that entered physical therapy education after completion of a

master's degree. More than 90% of all three ethnic groups had not received a master's

degree prior to entering physical therapy school. Physical therapy education, at the

clinical doctorate degree level, does not require a master's degree prior to matriculation

into the professional entry-level program.

Student status. Students were asked whether they were a full-time student with no

employment, a full-time student with full-time employment, or a full-time student with

part-time employment. There were no differences between the ethnic groups ($p < .214$) in

overall student status. Overall, 64.5% of the students were not employed at all and 34.1%

were employed part-time while attending full-time physical therapy education.

Graduate GPA. Graduate GPA was viewed as a dependent variable in this study

and was used as a measure of student success. The students were asked to categorize their

current graduate GPA using the ordinal scale shown in Table 14. There were significant

differences between the ethnic groups in reported graduate GPA ($\chi^2 = 35.9$, $df = 14$, $p <$

.001). Forty-five percent of White students reported a graduate GPA of 3.75 or above

while Black students and other race students reported percentages of 26% and 17.1%, respectively. Twenty-eight percent of Black students and 29% of other race students reported graduate GPAs between 3.0 and 3.24 as compared to 16% of White students.

Table 14.   *Reported Graduate GPA by Percentage*

	White	Black	Other race	TOTALS
4.0 GPA	15.8 (73)	12 (6)	4.9 (2)	14.6 (81)
3.75 – 3.99 GPA	28.8 (133)	14 (7)	12.2 (5)	26.2 (145)
3.25 – 3.74 GPA	33.3 (154)	44 (22)	43.9 (18)	35.1 (194)
3.0 – 3.24 GPA	16 (74)	28 (14)	29.3 (12)	18.1 (100)
2.75 – 2.99 GPA	3.7 (17)	2 (1)	7.3 (3)	3.8 (21)
1.99 – 2.74 GPA	2.4 (11)		2.4 (1)	2.2 (12)
TOTALS	100 (462)	100 (50)	100 (41)	100 (553)

(Ns in parentheses)

Descriptive findings – Social support characteristics

Financial support. There was a significant difference between the ethnic groups in the type of financial aid that student received during their physical therapy education (χ^2 = 23.0, df = 10, p < .011). The questionnaire asked the students to indicate whether they received grants/scholarships, loans, teaching or research assistantship positions, tuition waiver, or none. Seventy-one percent of Black students listed loans compared to 57% and 51% of White and other race students, respectively. Additionally, 7.8% of Black students indicated that did not receive any financial support as compared to 26.6% of the White students and 32.6% of other race students.

Table 15.   *Type of Financial Support by Percentage*

	White	Black	Other race	TOTALS
Grants/scholar & fellowships	13.9 (66)	19.6 (10)	16.3 (7)	14.6 (83)
Loans	56.8 (269)	72.5 (37)	51.2 (22)	57.7 (328)
Graduate TA or RA	2.3 (11)			1.9 (11)
Tuition Waiver	.4 (2)			.4 (2)
None	26.6 (126)	7.8 (4)	25.4 (144)	25.4 (144)
TOTALS	100 (474)	100 (51)	100 (43)	100 (568)

(Ns in parentheses)

Sources of funding. This portion of the questionnaire asked what percentage of the

students' physical therapy education was provided by personal sources (e.g. personal

savings, parents, or spouse), university assistance (e.g. Teaching, research, or

administrative assistantships), other grants or fellowships, other employment related to

graduate studies, other employment not related to graduate studies, or loans. The students

indicated none, less than 50%, near 50%, more than 50%, or all for each category (see

Table 16). There was a significant difference between the ethnic groups in personal

sources ($\chi^2 = 18.3$, df = 10, p < .050) and teaching/ research/administrative assistantships

($\chi^2 = 21.0$, df = 8, p < .007).

Table 16.   *Personal Sources of Financing School by Percentage*

	White	Black	Other race	TOTALS
No personal sources of aid	26.1 (124)	11.8 (6)	35.7 (15)	25.5 (145)
Less than 50%	42.9 (204)	60.8 (31)	26.2 (11)	43.3 (246)
Near 50%	8.6 (41)	2 (1)	9.5 (4)	8.1 (46)
More than 50%	9.7 (46)	13.7 (7)	7.1 (3)	9.9 (56)
Entire schooling funded by	12.6 (60)	11.8 (6)	21.4 (9)	13.2 (75)
TOTALS	100 (475)	100 (51)	100 (42)	100 (568)

(Ns in parentheses)

Professional activities. The students were asked whether they had participated in any of the following professional activities while in graduate school: received an honor or award, published and article, presented a paper at a conference, or attended a national conference. The only difference between the ethnic groups was in publishing an article ($\chi^2 = 6.9$, df = 2, p < .032). .8% of White students and 5.1% of other race students reported publishing an article. Overall, only 6.5% of students reported receiving an award or honor during their graduate schooling, 99% of the students have not published an article, 97% of the students had never presented a paper at a conference, and 87% of the students had never attended a national physical therapy conference.

Additionally, the students were asked if they had ever participated in activities of a minority group organization, taken a course from a non-white faculty member, or taken a course from a female faculty member during their physical therapy education. There was a significant difference between the ethnic groups in participation in a minority organization activity ($\chi^2 = 84.4$, df = 2, p < .000) and whether they had taken a course from a nonwhite faculty member ($\chi^2 = 25.0$, df = 2, p < .000). Forty-six percent of Black

students had participated in minority student organization activities while only 7.2% of

White students and 37.5% of other race students had done so. Seventy-six percent of

Black students had taken a course from a nonwhite faculty member during their physical

therapy education as compared to White and other race students at 41.7% and 30%,

respectively. There was no difference between the ethnic groups in students taking a

course from a female faculty member. Overall, 97% of the students had taken a course

from a female faculty member during their physical therapy education.

Involvement in campus/program activities. This section utilized a five-point

Likert scale rating from never (1), seldom (2), sometimes (3), often (4) and very often (5)

and asked students about their perceptions of their involvement in campus and PT

program activities. One-way ANOVAs were utilized for this analyses using ethnicity as

the independent variable and the mean scores of each numbered item in each section for

the dependent variables. The items that were significantly different between the ethnic

groups are shown below (see Table 17).

Table 17.   *Significant items from Question 28*

	F	p-value	Post hoc
h. Discussed personal problems/concerns with a faculty member	4.323	.014	WB .010
k. Socialized informally with other graduate students	4.073	.018	WO .044
n. Participated in group activities with graduate students of color (on campus)	9.710	.000	WB .000 BO .006
o. Taken courses from non-white faculty	27.9	.000	WB .000 BO .000

W = White students, B = Black students, O = other race students

Tukey's honesty significant difference (HSD) post hoc tests were run to determine

between which of the ethnic groups the mean differences occurred. For question 28h,

White students' mean was 1.91 while Black students' mean was 2.33 indicating that Black students seldom to sometimes discussed personal problems and concerns with a faculty member while white students never to seldom did the same. White students were more likely to informally socialize with other graduate students than Black or other race students. Black students were significantly more likely than White or other race students to participate in group activities with other graduate students of color and have taken courses from non-white faculty members.

Hours spent in school and non-school related activities. The participants were asked to report how many hours per week they spent in the following activities: in class, reading or preparing for class, preparing papers and studying for examinations, conducting research or scholarly activities outside of regular class work, working on their research projects, preparing for or teaching classes, working a job, or other school activities. Significant differences between the ethnic groups were found in the self-reported number of hours that students spend in class each week, hours spent for class preparation, and hours spent preparing for exams (see Table 18). Black students' self-reported hours were the highest of the three ethnic groups in "academic time" spent in didactic coursework.

Though not significant, Black students also reported the highest mean number of hours spent in employment activities. The self-reported mean hours of outside employment during school were 4.21 hours/week for all students, however, the mean hours for Black students were 6.08 hours/week and the mean hours for White students were 3.93 hours/week.

Table 18.   *Mean self-reported hours per week in school and non-school related activities*

	N	M	SD
In class hours/week	568	24.46	7.33*
White	476	24.08	6.97*
Black	49	28.08	7.86*
Other race	43	24.58	9.45
Class prep hours/week	565	10.20	7.73*
White	473	9.74	7.53*
Black	49	13.59	8.52*
Other race	43	11.35	8.07
Exam prep hours/week	564	12.93	8.55*
White	473	12.75	8.10*
Black	49	15.73	10.47*
Other race	42	11.71	10.41*
Research/activity hrs/wk	559	1.72	3.52
White	471	1.64	3.44
Black	49	2.06	4.01
Other race	39	2.26	3.87
Employment hours/week	562	4.21	7.03
White	470	3.93	6.73
Black	50	6.08	7.91
Other race	42	5.05	8.82
Other school activities hrs/wk	547	2.54	4.31
White	460	2.48	4.19
Black	48	2.19	3.70
Other race	39	3.56	6.07

* Statistical significance at p < .05.

Perceptions of social environment on campus. This section utilized a five-point

Likert scale rating from strongly disagree (1), disagree (2), neutral (3), agree (4), to

strongly agree (5) and asked students their perceptions of the social environment. The

following items of this section were found to be significantly different between the three

ethnic groups (see Table 19).

Table 19.   *Significant items from Question 29*

	F	p-value	Post hoc
a. It was/is easy to make friends with other students.	5.028	.007	WB .005
c. I am confident that I made the right decision in attending my choice of institution.	4.599	.010	WB .007
h. I am satisfied with the types of student organizations offered in my dept.	9.635	.000	WB .000 BO .006
i. My social experiences on campus are/were enjoyable for the most part	6.055	.002	WB .002
j. There is good representation of minorities in my doctoral program	6.875	.001	WB .002 BO .004

W = White students, B = Black students, O = other race students

For questions 29a and 29c, White and other race students were more likely to agree or

strongly agree with the statement while Black students' mean scores were 3.82 and 3.80,

respectively, indicating neutral to agree. Black students were not satisfied with the types

of organizations offered by the department and disagreed with the statement that their

social experiences on campus were enjoyable. Interestingly, White and other race students

disagreed with question 29j while Black students were neutral for this question.

Descriptive findings – Academic support characteristics

Perceptions of the PT graduate program. This section utilized a five-point Likert

scale rating from very dissatisfied (1), dissatisfied (2), neutral (3), satisfied (4), to very

satisfied (5) and asked students about their perceptions of the PT graduate program.

Tables 20 and 21 illustrate the significant findings.

Table 20.   *Significant items from Question 26*

	F	p-value	Post hoc
a. Quality of faculty instruction	13.248	.000	WB .000 BO .020
c. Fairness in grading	13.256	.000	WB .000 BO .002
d. Collegial atmosphere among faculty/students	12.399	.000	WB .000
e. Communication between faculty/students	13.886	.000	WB .000 BO .013
f. Availability of faculty	9.977	.000	WB .001 WO .008
h. Quality of overall faculty/student relations	11.460	.000	WB .000
i. Quality of guidance provided by faculty	6.792	.001	WB .001

W = White students, B = Black students, O = other race students

For questions 26a, 26c, 26d, 26e, and 26h, Black students' rating of the faculty were significantly lower than White and other race students indicating less satisfaction with those aspects of the faculty. Regarding availability (26f) and quality of guidance (26i) of the faculty, White students were significantly more likely to be satisfied to very satisfied than Black students.

The second section contained a four-point Likert scale rating from major problem (1), minor problem (2), not a problem (3), and don't know (4) and asked students their perceptions of the administrative portions of their PT program.

Table 21.   *Significant items from Question 27*

	F	p-value	Post hoc
b. Few jobs requiring graduate degrees in my field	8.812	.000	WO .001 BO .000
f. Registration difficulties	7.135	.001	WB .001
g. Financial difficulties	4.578	.011	WB .007
h. Lack of encouragement from faculty	3.855	.022	WB .032

W = White students, B = Black students, O = other race students

For question 27a, more other race students rated few jobs requiring a graduate degree as not a problem or don't know than White or Black students. Black students were more likely to have registration, financial difficulties, or perceive lack of encouragement from faculty than White students.

Perceptions of academic environment on campus. This section utilized a five-point Likert scale rating from strongly disagree (1), disagree (2), neutral (3), agree (4), to strongly agree (5) and asked students their perceptions of the academic environment on campus. The following items were significantly different between the ethnic groups (see Table 22).

Table 22.   *Significant items from Question 30*

	F	p-value	Post hoc
c. I have done as well academically as I expected	4.810	.008	WO .008
d. White faculty have lower expectations of minority students versus white students	5.021	.007	WB .016
e. At least one faculty member here has had a strong impact on my professional development	6.441	.002	WB .003 BO .005
f. I have located a faculty member who I can turn to for support and encouragement	3.732	.025	WB .019
g. Most faculty here are sensitive to the interests, needs and aspirations of all students	5.825	.003	WB .002
i. I am/was satisfied with my academic performance in this graduate program	6.948	.001	WB .008 WO .038
j. If a student seems to be doing poorly, this dept. goes out of its way to help the student stay in school	4.550	.011	WB .014
k. There is a great deal of contact between professors and students outside of the classroom	5.144	.006	BO .011

W = White students, B = Black students, O = other race students

Other race students were more likely to remain neutral than agree with question 30c regarding academic expectations, however, they were more likely to agree with 30k that

there is a great deal of contact between professors and students outside of the classroom. White students more strongly disagreed with question 30d than Black students who disagreed. The remaining differences between the ethnic groups for this section were mostly between the Black students and White students.

Perceptions of faculty advisors. This section utilized a five-point Likert scale rating from strongly disagree (1), disagree (2), neutral (3), agree (4), to strongly agree (5) and asked students their perceptions of their physical therapy faculty advisor. Table 23 indicates the significant items for this section.

Table 23. *Significant items for Question 31*

	F	p-value	Post hoc
e. is/was knowledgeable in his/her field	6.802	.001	WB .001
i. demonstrates scholarly or research excellence	3.683	.026	WB .034

W = White students, B = Black students, O = other race students

For both questions 31e and 31i, a significant difference was found between Black and White students' mean responses. White students' mean scores were 4.34 and 4.08, respectively, while Black students' mean scores were lower at 3.92 and 3.76, respectively.

Descriptive findings – Self-concept characteristics

Reason for choosing graduate PT program. The students were asked to indicate the reason that they chose the physical therapy program that they are attending. Responses were categorized as only one accepted to, quality of the program, prestige of the program, financial aid offered, recommendation of the faculty, recommendation of friends, location of the school, attended an open house, or other reason. There was a significant difference ($\chi^2 = 26.8$, df = 16, p < .044) between the ethnic groups of reasons why they chose the program to attend. Overall, 49% of the students indicated quality of the program, 25%

indicated the school's location, and 8.4% indicated the school's prestige as a deciding

factor to attend their physical therapy program.

Table 24.   *Reason for choosing graduate PT program by percentage*

	White	Black	Other race	TOTALS
Only one accepted to	3.8 (18)	9.6 (5)	7 (3)	4.5 (26)
Quality of the program	52 (248)	30.8 (16)	46.5 (20)	49.7 (284)
Prestige of the program	7.3 (35)	15.4 (8)	11.6 (5)	8.4 (48)
Financial aid offered	.8 (4)	1.9 (1)		.9 (5)
Recommended by faculty	.4 (2)	3.8 (2)		.7 (4)
Recommended by friends	2.5 (12)	3.8 (2)		2.4 (14)
Location of the school	25.2 (120)	26.9 (14)	25.6 (11)	25.3 (145)
Attended open house	1.7 (8)		4.7 (2)	1.7 (10)
Other reason	6.3 (30)	7.7 (4)	4.7 (2)	6.3 (36)

(Ns in parentheses)

Undergraduate quality. There was a significant difference between the ethnicities

on students' ratings of their undergraduate education ($\chi^2 = 23.17$, df = 6, p < .001).

Students were asked to rate the quality of their undergraduate education as excellent,

good, adequate, or inadequate. While 56% of White students rated their undergraduate

education as excellent, only 35% of Black students and 37% of other race students gave

their undergraduate education an excellent rating.

Academic performance. There was also a significant difference between the

different groups in the study on students' ratings of their own academic performance

during physical therapy school ($\chi^2 = 12.9$, df = 6, p < .045). The students were asked to

rate their academic performance as "much above average", "above average", "about

average", "or below average". Forty-eight percent of White students rated themselves as

"much above average" or "above average" while 43% of Black students and 32.5% of

other race students rated themselves in those categories. Conversely, only 1.7% of White

students rated themselves as "below average" while Black and other race students

comprised 6% and 7%, respectively.

Satisfaction with graduate program. Students were asked to rate their overall

experience as a physical therapy graduate student at their institution as excellent, very

good, good, fair, or poor. There was a significant difference between the ethnic groups on

their satisfaction with their program ($\chi^2 = 45.0$, df = 8, p < .000). White students and

other race students tended to rate their satisfaction higher than the Black students with

73% of White students rating their experiences as excellent to very good as compared to

Black students at 32% and other race students at 52%.

Table 25.　　*Student Rating of PT Experience at Institution*

	White	Black	Other race	TOTALS
Excellent	25.5 (121)	8 (4)	19 (8)	23.5 (133)
Very Good	47.2 (224)	24 (12)	33.3 (14)	44.1 (250)
Good	22.5 (107)	52 (26)	33.3 (14)	25.9 (147)
Fair	4.2 (20)	14 (7)	9.5 (4)	5.5 (31)
Poor	.6 (3)	2 (1)	4.8 (2)	1.1 (6)
TOTALS	100 (475)	100 (50)	100 (42)	100 (567)

(Ns in parentheses)

The next section will summarize the results of the statistical differences that were found

between the students based on ethnic group (White, Black, Other race).

Background characteristics. The following background characteristics showed a

significant difference between the ethnic groups: gender, mother's education level,

undergraduate GPA, and undergraduate debt load.

Social support variables. Type of financial aid and proportion of type of financing of the graduate education, whether the student had published an article, participated in a minority group organization, taken a course from non-white faculty, and 10 of the 25 social support Likert-scale questions were significantly different between the three ethnic groups. Most differences were found between White and Black students or other race and Black students.

Academic support variables. There were 39 Likert-scale questions pertaining to academic support. The questions covered attitudes regarding the PT graduate program, administrative aspects of the PT program, academic support within the department and questions regarding their PT faculty advisor. Twenty-one of the 39 items in this section showed a statistical difference in the responses between students of the three ethnic groups. Sixty-five percent of the differences were between White and Black students, 21% was between Black and other race students, and 14% was between White and other race students.

Self-concept variables. Four questions on the questionnaire addressed self-concept, or the students' perceptions of their abilities and satisfaction. All four areas were found to show significant differences between the ethnic groups: rating of the quality of their undergraduate education, reason why they chose the PT program that they are attending, rating of their graduate academic performance as compared to other students in the program, and overall rating of their experience as a PT graduate student.

Predictive Findings

Ordinal regression analyses (categorical and ordinal variables) and one-way

ANOVAs (for Likert-scale items) were used to determine the variables that were determined to be the predictors for success. These analyses used the variable "success" as the dependent variable. Academic success was operationally defined by the self-reported graduate GPA and was categorized as not successful (1.75 – 2.99), minimally successful (3.0 – 3.24), moderately successful (3.25 – 3.74), and highly successful (3.75 – 4.0). Independent variables were the clusters of background characteristics, social support variables, academic supports variables, and self-concept variables. Statistical analyses used a dichotomous variable for ethnicity: majority (White) and minority (all other ethnicities). One-way ANOVAs were used in order to make comparisons between the mean values for the two ethnic groups' responses for the Likert-scale items.

The second and third research questions are related and will be addressed in the next section. Research question two: What variables are predictors of academic success/retention for professional preparation MPT/DPT students in Virginia and North Carolina? Research question three: Are the variables that predict academic success/retention different for majority professional preparation MPT/DPT students than for minority professional preparation MPT/DPT students in Virginia and North Carolina?

Background characteristics. This grouping of variables included father's education, mother's education, father's occupation, mother's occupation, marital status, undergraduate major, undergraduate GPA, student status, age, and ethnicity. Overall, ethnicity (p < .007) and undergraduate GPA (p < .001) were the only significant predictors of academic success for all students. Marital status (p < .023) and undergraduate GPA (p < .001) were significant predictors of success for majority students. Mother's education (p < .036) and father's occupation (p < .004) were

significant predictors for minority students.

Social support variables. This cluster of variables included financial support,

sources of financial support, professional engagement activities, and perceptions of social

environment within the department and on campus. Overall, having their education

covered by personal sources (p < .014) and loans (p < .034) and achieving an award (p <

.014) were significant predictors of academic success for all students. Receiving an

award (p< .014) was a significant predictor for majority students but not for minority

students. Table 26 indicates the significant items in the social support Likert-scale

questions (questions 28 and 29) regarding students' perceptions of the social

environment. This category of variables had the most predictors for success for all

students and for majority students.

Table 26.   *Significant predictors - Social support variables*

	All	Maj.	Min.
a. Participated in independent studies	P <.018	P < .045	
b. Worked with a faculty member on a research/teaching/committee	P < .000	P < .019	P < .007
d. Received feedback about your academic progress (not grades)	P < .016	P < .018	
g. Discussed career plans and ambitions with a faculty member	P < .000	P < .000	
h. Discussed personal problems/concerns with a faculty member	P < .001	P < .001	
m. Attended dept. parties and gatherings at the home of a faculty member	P < .000	P < .000	

Academic support variables. This cluster of variables included four clusters of

Likert-scale questions that addressed the students' academic support environment. Table

27 indicates the significant predictors for academic success for all the students, majority

and minority students. This category of variables had the most predictors for success for

minority students.

Table 27.   *Significant predictors - Academic support variables*

	All	Maj.	Min.
26c. Fairness in grading	P < .006		P < .005
f. Availability of faculty	P < .015		
27b. Few jobs requiring graduate degrees in my field			P < .045
d. Scheduling appointments with advisor			P < .022
30b. My courses are/were intellectually stimulating	P < .009	P < .014	P < .037
c. I have done as well academically as I expected	P < .000	P < .002	P < .000
g. Most faculty here are sensitive to the interests, needs and aspirations of all students			P < .009
i. I am/was satisfied with my academic performance in this graduate program	P < .000	P < .000	
l. This institution makes an effort to attract students of diverse ethnic and social backgrounds in the graduate program			P < .025

Self-concept variables. There were four items that addressed students' perceptions of their self-concept: 1) rating of their undergraduate preparation; 2) reason for choosing the PT institution to attend; 3) rating of their graduate academic performance; and 4) overall rating of their PT graduate school experience. For all students and for majority students, each item was statistically significant. Ethnicity was also significant as a predictor of success. However for minority students, the only significant predictor of success was rating of their academic performance (p < .000)

A Cronbach's alpha was computed for the Likert-scale section of the questionnaire with an overall internal consistency of .89, indicating very good to excellent reliability (Portney & Watkins, 2000). Individually, the academic support section and social support sections had Cronbach alpha scores of .90 and .74, respectively.

Overview of Results – Phase II (Qualitative)

Twenty-five interviews were completed between September and November of 2005 with 17 female and 8 male physical therapy students (see Table 28). The intent of this portion of the research was to answer the fourth research question: Are there differences between the perceptions of minority and majority students regarding facilitators or barriers to academic success/retention during their physical therapy education?

Interviews were conducted at six institutions in Virginia and North Carolina at public, private, and public/private HBCU institutions. Five hundred ninety-five minutes of audiotapes were transcribed into 132 pages of interview transcripts. Each audiotape was transcribed verbatim into a Word document and emailed as an attachment to each respondent for content analysis. Some respondents required one or two emails to confirm the accuracy of their transcripts and they were given the opportunity to add to or delete any of the information verbalized in the transcript.

The researcher reviewed the transcripts and developed both topic areas and categories within those topic areas. The data were coded independently with the goal to achieve a Kappa statistic score of .80. The researchers produced a Kappa of .71 on the initial attempt prompting discussion of the categories within the topic areas. Individual coding was again performed with a resulting Kappa of .82.

Table 28.	Demographics of respondents for Phase II						
Pseudonym	Ethni.	Gend.	Age	Age Exposed to PT	Generation college grad	SES	Type of institution
Fred	White	M	48	30	1st	Low/mid	Public
Steve	White	M	27	15	4th	Middle	Public
Laura	White	F	24	13	2nd	Middle	Public
Sara	White	F	26	17	2nd	Middle	Public
Frankenstein	White	F	23	15	3rd	Middle	Public
Stephanie	White	F	23	13	2nd	Mid/high	Private
U2Yacko	White	M	41	20	1st	Middle	Pub-HBCU
Kiarra	Black	F	24	11	2nd	Middle	Public
Makyia	Black	F	25	13	2nd	Middle	Public
Stacey	Black	F	30	19	1st	Middle	Pri-HBCU
LeaAnne	Black	F	27	19	1st	Middle	Pri–HBCU
Lisa	Black	F	27	17	1st	Low/mid	Pri–HBCU
Webee	Black	M	23	12	3rd	Low/mid	Pri-HBCU
Julius	Black	M	24	22	1st	Middle	Pri-HBCU
Kim	Black	F	23	20	1st	Middle	Pub-HBCU
Susan	Black	F	21	16	2nd	Middle	Pub-HBCU
Bobby	Black	M	27	16	2nd	Middle	Pub-HBCU
Darlene	Asian	F	25	15	1st	Middle	Public
Beth	Asian	F	25	16	1st	Middle	Public
Britney	Asian	F	25	20	3rd	High	Private
John	Hisp.	M	22	14	1st	Middle	Public
Casey	Hisp.	F	24	23	2nd	Middle	Public
Juan	Hisp.	M	26	17	1st	Middle	Pub-HBCU
Leigh	Other	F	24	12	2nd	Middle	Pri-HBCU
Chris	Other	F	23	13	3rd	Middle	Public

Question 1: Describe factors that influenced your choice of physical therapy as a career. Responses were categorized into three main topic areas: interested in a career in the healthcare field or speaking to someone in the healthcare field (52%), exposure to PT either as a patient or through a family member or friend that was a patient (29%), and volunteering or working in PT (19%). More majority students had become interested in

the profession after personally receiving PT while more minority students were interested

in a healthcare career in general and became interested after speaking to someone about

the PT profession. Being exposed to physical therapy as a patient peaked interest in the

profession for many of the respondents.

> In sixth grade I started receiving PT and loved it! I just knew I was in the clinic
>
> and I'd just be like looking around. I just thought it was cool and I was trying to
>
> guess everybody else's injury and what was wrong and why they were there.
>
> And…it was the first thing that I liked, really totally peaked my interest. I've
>
> always said since then that I wanted to go to PT school. (Stephanie)

Four of the respondents made comparisons to medical school and indicated their reasons

for choosing PT over a career in medicine.

> I like the schedule of physical therapists because I want to have a family some day
>
> and I want to have normal working hours and be able to take care of them. And
>
> also the thing is that I want to help people. At the end of the day I want to feel like
>
> I made a difference in peoples' lives. Also, I don't want to do surgery. That's why
>
> I'm not a doctor. I don't like holding peoples lives like whether they're going to
>
> live in my hands. So with physical therapy it's very important and vital to people
>
> but they won't…it's not usually life threatening! (Bobby)

Question 2: What are your reasons for choosing this PT school to attend?

Responses were again categorized into three main topic areas: geography/location (50%),

program characteristics (39%), and only school accepted into (11%). Half of the

responses to this question involved choosing the PT program based on school's location

or the need to remain an in-state student for financial reasons. Most minority students choose the PT school based on location but many stated that they also chose the institution based on reputation/prestige and quality of the program. Two minority students expressed wanting to attend an HBCU as the primary reason for choosing the PT program. This sentiment was illustrated in the following comment.

> Well, to be honest with you, being in high school or really all throughout my whole life, I've always been in a predominantly white setting. Not to say that I've had any problems in predominantly white settings...I just really became interested in learning more about myself. I thought it would be beneficial for me to see people like me you know in a profession that is very underrepresented... doing what I want to do as well. I wanted to be at a school where there was some form of representation of my race and of my culture to where you know it would help me identify more so... (Julius)

Other program characteristics included choosing the PT program based on positive interactions prior to matriculation such as being advised by faculty members, attending an open house, or having a preferred curriculum or program start date (e.g. summer vs. fall program start).

Question 3: Describe some positive/negative experiences, if any, that you have had during your physical therapy education. Almost equal numbers of positive (48%) and negative (52%) experiences were related to the researcher in answering this question. Responses were categorized into two main topic areas: program issues and non-program issues. Seventy-one percent of the positive experiences involved PT program experiences. Respondents rated the PT program faculty and being in the clinical environment as

positive experiences. The other 29% of the positive experiences involved non-program issues: forming friendships with peers and personal self-development.

The majority (67%) of the negative experiences also involved program issues and included comments on faculty issues, having negative clinical experiences, and curriculum/PT facility issues (e.g. not having equipment to practice on, scheduling of classes/labs, too many courses during one semester). The remaining 33% of the negative responses were related to non-program issues such as financial stresses, workload and time management, and peer issues. This respondent's comment seems to summarize her feelings.

> The positive I'd have to say is my classmates because if there's something we
>
> don't understand, there's someone who does and they're willing to help you.
>
> Negative is (that) we have no free time. This program expects you to be available
>
> always, literally 24 hours a day. Umm, and I'm just not used to that. (Kim)

Both majority and minority students commented on the positive experiences with faculty but more majority students commented on the positive experiences from the clinic and PT faculty and negative comments on curriculum/PT facility issues. Minority students commented more on the formation of friendships as positive experiences and workload/"balancing it all" as a negative experience.

Question 4: Describe things that you think would make a new student successful during physical therapy school. The responses to this question fell into three main topic areas: study habits (59%), coping skills (26%), and school-related behaviors (15%). The majority of responses involved having good study habits and were suggested by both majority and minority students (see Table 29).

Table 29.   *Responses to make a student successful*

		Percentage Overall	Frequency Overall
Study habits		59%	(39)
Time management	17%		
Dedication/discipline/self-motivation	16%		
Good test taking skills	14%		
Group study/tutorials	12%		
Coping skills		26%	(17)
Support system	14%		
Stress management	14%		
Doing things outside of class	4%		
School-related behaviors		15%	(10)
Get to know professors	9%		
Exposure to PT	6%		

Minority students stressed the importance of test taking skills/good study habits, stress management, and having a support system. Both groups emphasized the importance of discipline and self-motivation but majority students felt that getting to know the professors was also helpful. One respondent was very clear about her advice.

First, you have to be very focused. You can't come in with a whole lot of external things going on to distract you. Umm, I think something that will help you succeed is a positive attitude because everyday is not going to be a good day... I also say it takes a lot of dedication and sacrifice. Because a lot of time people are going to call; can you go here, can you go there and the answer is going to have to be no! Because you have to study. Also, support from family and friends. Because sometimes when you reach out they're the ones to hold you up and try to keep you going and you can do it. (LeaAnne)

Question 5: Describe any barriers, if any, to success that you have encountered during your PT education. The responses to this question were categorized into four main topic areas: personal barriers (42%), program barriers (26%), time management (22%), and no barriers (10%). Personal barriers included responses regarding personal problems and financial issues. Program barriers included faculty/advisor issues and institutional/program issues. Majority and minority students reported similar responses regarding a lack of time management skills and not enough time to get their work done and financial barriers. Minority students reported more personal barriers, faculty issues, and institutional/program barriers. The following comments relate to personal barriers.

> I think the only barrier is personal barriers where like you just get to a point where you're stuck...you're totally burnt out. And you, I don't know, you just get to the point where like should I just keep going or do I need to stop here. And you're just like you've had a bunch of stuff in a row or during exam time and that's just like I feel like I hit a barrier where I just can't go anymore. (Stephanie)

> ...where I'm from, a small town, if you don't get out quick, you're stuck there. And a lot of people there don't see college as a priority. So you're kinda brainwashed into thinking that you can't make, you won't make it and you're not going to make it. I guess it's my nature to want to prove everybody wrong. (Leigh)

One student discussed difficulty with his PT academic advisor.

> One of the barriers that I have I guess you can say I had to contend with is my advisor...we have a hard time communicating with each other. I mean because it's

hard I mean it's hard to go somewhere to talk to a wall. You need the guidance

and me feeling like I don't have that guidance, it's like something were to go

wrong. It kind of sets me back because I feel like I've got to do a lot more for

myself. (Webee)

A follow-up probe asked the respondents what they did to overcome their barrier(s).

Eighty five percent of the respondents stated that they adjusted their study habits and just

"dug down". The remaining respondents turned to classmates and family for additional

support.

Question 6: In what ways do you feel that your ethnicity is related to any of your

experiences, whether positive or negative, in physical therapy school? Overall, 70% of

the respondents felt that their ethnicity was not related to any of their PT school

experiences. Though most students felt that ethnicity had no relation to their experiences,

some respondents felt strongly that it did.

I think that as a white male, I still kind of get by. You know I just think even in

this profession, which is largely women, I still think there's something about a

male authority that gets played out sometimes. I think sometimes I'm given extra.

I sometimes think with other ethnicities I'm somewhat patronizing in a way

almost because I want to make up for the fact that I'm, you know, the big bad

white male. (Fred)

It's probably right up there! One, my father is African-American; two, my mother

is Caucasian. Because some people are down my way and would say I wasn't

white enough to hang with the White people and I wasn't black enough to hang

with the Black people. So a lot of it was finding people that just really didn't care

one way or another. (Leigh)

Various probes were used to elicit responses regarding the importance of ethnicity to the

respondents and the importance of associating with people of same/different ethnicities.

Approximately 75% of the respondents felt that ethnicity was important to them and that

it was important to associate with people of the same and different ethnicities equally (see

Table 30).

Table 30. *Reponses regarding the importance of ethnicity to the respondents*

	Percentage Overall	Frequency Overall
Importance of ethnicity		
Considers it important	74%	20
Does not consider it important	15%	4
Does not think about ethnicity	11%	3
Importance of associating with people of same/different ethnicities		
Considers it important	77%	31
Does not consider ethnicity	13%	5
Not important for them	10%	4
Comparison to your majority/minority peers		
Feels equal	76%	31
Some differences	15%	6
Feels inferior to them	7%	3
Feels additional pressures	2%	1

Every minority respondent except one described the importance of their ethnicity

to them. One respondent stated, "To me, I think it just defines me". Another minority

respondent stated,

Besides the basic, it branches me from other people and I think it's good in a way

because it separates us and you know being at this level of grad school there's not

too many people, at least Spanish people at this level of grad school and in physical therapy and what not. Kind of makes me feel good that I've achieved this much and gotten this far and my family background as well that no one has gone to college and yet I'm already at this point already. (John)

The one minority respondent, an Asian female, responded that ethnicity really wasn't important to her explained her response in these words.

It's not really important to me. But to add to that I grew up in a very Caucasian environment... I grew up in an environment where race was never an issue. It didn't matter what race you were. And it kind of had to be that way because my parents, my mom is blond, blue-eyed you know. My dad is White with brown hair. My sister and I never looked like them. [Both were adopted] But we are not biological sisters. She is Asian also. (Brittany)

In contrast, six out of seven majority students responded that either they do not think about ethnicity or that they don't consider ethnicity important to them. Comments ranged from, "I really haven't noticed anything" to "I don't really think of my ethnicity that much".

Another probe asked the respondent how they felt in comparison to their majority and minority peers. Seventy-six percent of the respondents felt that they were equal but all four of the comments in the "feels inferior" and "feels additional pressures" came from minority students. Two students felt like they were being stereotyped.

Intellectually I see myself...I feel like everyone else in the class is like ten more times more intelligent but yeah, I have this feeling that I should be really smart

just because I'm Asian. I think that other people assume just because I'm Asian

that I'm very smart. And that's the one thing I don't like because I feel like I've

always been the oddball of all the Asian people and I've listened to the whole

math and science thing growing up. (Beth)

I think that in the beginning when we first got here, it almost felt like the

professors and even the students were surprised that you know the minorities were

doing well. That, I mean, I'm not sure. That's the way it felt a little bit. I think

they were just surprised that we were succeeding. That you know we were not

making [it] just right at the edge. We were up in the 90's, not the 85's. (Chris)

Another student verbalized the additional pressures that he felt to succeed.

I don't feel beneath them [the majority] but I do feel that... they come from

stronger education backgrounds. And I've got to work a little harder to get it. The

only other minority here is Black and I think, I feel they got it too more than I do.

They understand that they have a better education than I do. Or they are smarter,

let's put it that way. (Juan)

Question 7: What are your impressions of the faculty members in your

department? The majority (64%) of respondents indicated that the PT faculty were

supportive of them during their professional education. The remaining 36% responded

that their impressions were varied. Follow-up probes enabled the researcher to gather

more details explaining their initial answer. Fifty-eight percent of the responses described

ways in which the faculty were helpful: faculty were available, faculty had good clinical

skills, and they were supportive and helpful. The remaining 42% of the comments detailed reasons why respondents felt that the faculty were not helpful: faculty not available, faculty had ineffective teaching skills, faculty scheduling conflicts, faculty not approachable or not supportive or helpful.

When asked whether they perceived differences between White faculty and faculty of color, 71% responded that they did not perceive any difference. Equal numbers of majority and minority students indicated that they perceived a difference between White faculty and faculty of color. One respondent explained why she thought there was a difference.

> I can't say all the time, but sometimes it seems White faculty want you to get to know them on a personal basis so you can be comfortable coming to them about anything. Then it seems like minority faculty want you to remain with that professional level of like with names...you know call me Dr. Young. But sometimes I also think it's ethnicity because for minority faculty you know they might have had to take that extra step or work it even a little harder to get that recognition from peers to accept them, to realize that they're on the same level as their counterparts, which are white. (Makyia)

Another student verbalized her feelings towards her response this way.

> ...I feel like Caucasian professors get more leeway on things that they want. Like I've noticed that some of my university White teachers that they can maybe not be here as much or something can happen in class where a student is really upset and goes to the chairperson or whatever and nothing is really done with them. But if something like someone complains against a Black professor or professor of

another ethnicity other than Caucasian, then they're always getting reprimanded.

And I feel like they also get less recognition with their achievements. (Kim)

Two respondents stated that they have never had faculty of color teach them either in undergraduate or graduate school.

Question 8: To what degree are you satisfied with your academic achievements at this institution? Respondents provided short comments for this question, probably due to the nature of the wording of the question. They were, for the most part, either satisfied (83%) or somewhat satisfied (13%) with their academic progression thus far. Only one respondent stated that they were not satisfied with their academic achievements because they felt that they were not prepared to take the licensure examination. Two respondents verbalized that they were only somewhat satisfied because they felt that they could have performed better academically. One stated, "I'm satisfied but I could do better. But you know it's that internal personal thing". Another student replied, "I'm 90% satisfied. Well, I have two B's and I know they could have been A's so from that perspective I'm 90% satisfied". Others were extremely satisfied with their achievements as reflected in this student's comment.

Achievements? I'm just amazed at the fact that I've made it this far to be honest with you. It's just that day one of every semester they throw that syllabus at you and tell you what you're going to know by the end of it. It's like there's not way I'm going to get any of this. And I'm here and I'm pretty amazed! (Juan)

Follow-up probes of what helped or hindered their success and best advice to new PT students enabled the researcher to continue the discussion on the respondents'

perceptions of facilitators and barriers. Facilitators of success were categorized into two

main topic areas: support systems (86%) and behaviors (14%). Barriers to success were

also categorized into two main topics areas: time demands (88%) and program issues

(12%). Best advice categories were grouped into three main topic areas: behaviors (59%),

time management (35%), and exposure to PT (6%) (see table 31). There were no major

differences between the majority student responses and minority student responses.

Table 31. *Reponses regarding facilitator/barriers to success and best advice*

		Percentage Overall	Frequency Overall
Facilitators of success			
Support systems		86%	24
Support from classmates	13		
Support from faculty	6		
Support from family	5		
Behaviors		14%	4
Drive/self-motivation	3		
Ask questions	1		
Barriers to success			
Time demands		88%	15
Financial issues/work	6		
Not enough time	5		
Personal issues	4		
Program issues		12%	2
Lack of clinical experiences	1		
Lack of facilities/equipment	1		
Best Advice			
Behaviors		59%	19
Stay motivated	9		
Be flexible	5		
Get to know peers	3		
Get advising	2		
Time management		35%	11
Learn to manage time well	7		
Study groups	4		
Exposure to PT		6%	2
Volunteer/research field	2		

The importance of support systems, both within the program (classmates, faculty) and external to the program (outside friends, family) was reiterated again and accounted for 86% of the comments about facilitators to success. Respondents verbalized how essential the need for social support was during their physical therapy education. One student emphasized how crucial having support was to her success by the following comment:

> I would say support. Externally and… from friends I've made through this program as well because you have to be stuck to them; you do have to interact in class. I don't think you should try the program if you come to it and say I'm going to go to class and I'm going to get my information and I'm going to study by myself. I don't think you can do it. (LeaAnne)

Question 9: Why do you think minority students are underrepresented in the physical therapy profession? The last interview question was the most difficult for the respondents to answer and many respondents required the researcher to repeat the question. It was difficult to condense the responses into a few topic areas; therefore, Table 32 presents the categories of responses with percentages and frequencies of responses. Three-quarters of the respondents thought that lack of exposure to PT, lack of academic preparation, finances, and lack of role models in PT and PT faculty were related to the underrepresentation of minority students in the PT profession.

Table 32.　　*Reasons why minority students are underrepresented in PT*

	Percentage Overall	Frequency Overall
Lack of exposure to PT	30%	12
Lack of finances	16%	7*
Lack of academic preparation	16%	7
Lack of role models in PT/PT faculty	14%	6*
Don't know why	7%	3
Lack of recruitment	5%	2
Racism	5%	2*
Admission criteria	5%	2**
Lack of external support	5%	2*

*all minority student responses
**all majority student responses

Minority respondents were the only respondents that stated that finances, lack of role models in PT and PT faculty, racism, and lack of external support were reasons that they were underrepresented in the PT profession. One minority student stated, "Unfortunately, a lot of them just think it's about jobs and not a career. Like school is not as important as getting a job because a job pays the bills". Another minority respondent reiterated this rationale.

I think maybe the root of it really starts from childhood on up because it's about what you're exposed to. I think it's about how you're taught. Because if you are taught that you can get out of here and be anything [that] you put your mind to, you begin to believe that but everybody doesn't have that person in their life that could influence them in that way...But I think in order to get into this profession; it is something that you have to work very hard for. You have to have goals. A lot of people don't even have goals. They just grow up and work to make it day by

day to just live. I don't know if that's really why, but it may be financial also. The

fact is; everybody can't afford to go to college. (LeaAnne)

Two students discussed the issue of prestige and status during this question.

I would just say just because they go for other things like doctors, dentist... For

Asian people, I think, it's a lot to do with culture and status, prestige...a doctor

would be a higher status than a therapist... and maybe if they reached more

students in high school [people would learn more about PT]. (Beth)

I just see at least [in] my culture, my culture is either facing not going to college at

all, going straight to labor or if they're going to college, you're a really smart kid

and more than likely going to be a doctor or lawyer. They're going; there's no in-

between and not that I see PT as a high level career but you know most of us see

being a doctor as definitely that next level.... And it's just we either are going to

school to be athletes right now and just getting by or we're going to be doctors

and lawyers. The big, big money or we're not going to school at all. (Juan)

Majority student respondents thought that admission criteria were a possible reason for

the underrepresentation of minority students in PT school. One respondent thought that

maybe the use of graduate record examination (GRE) scores during the admission process

affected the number of minority students that were admitted. Another thought that schools

accepted students based more on "scores" and don't use enough "intangibles" in their

admission process.

The most frequent comment given by both majority and minority respondents for

this question was lack of exposure to the PT profession. Respondents thought that the public image of physical therapy is not well known, not presented accurately, and doesn't allow students to be interested in it if they had not been exposed as a patient or talked to someone in the profession.

> Just for the simple fact that I feel they don't know about PT. You know, we're in some community activities...people approaching me and saying, "What is physical therapy?" you know like "Are you guys just working in a gym?" They don't really understand what PT is. Also in my old community, they don't understand. They're like "Can I get a massage?" I mean PT is more than just working in a gym and massages. I think we just didn't have enough exposure to certain communities. Unless someone gets hurt then they see what PT does. (Lisa)

> Because they don't know about it...even when you are having a career day. How often do you even see a PT, whether they're a minority or not? They need to be brought into the picture. When you look on TV, when you do see a PT, they are always showing us massaging somebody! Because you don't know until you have an injury. (Makyia)

Summary of qualitative interviews

The purpose of the qualitative interviews was to investigate whether there were differences between the perceptions of majority and minority physical therapy students regarding facilitators and barriers to academic success/retention during their physical therapy education. The interviews also served as another data source to make comparisons between different ethnic groups of PT students on the variables that the

literature stated contributed to academic success and degree progress.

There were many similarities between the majority and minority students' perceptions of barriers during PT school. All students felt that they lacked time management skills, that they felt "overloaded" with work, and felt financial strains during school. All students also stated that the way they addressed those barriers were to adjust their study habits and keep motivated to work hard.

The most evident difference between the two groups of students was that minority students reported more personal barriers, faculty issues, and institutional/program barriers. Minority students gave 81% of the responses in these categories. Examples of comments ranged from difficulties in peer dynamics, personal issues that interfere with school (family, children, lack of confidence, self-doubt), faculty advisor difficulties, ineffective teaching, scheduling of classes, and lack of equipment/space in the program.

Facilitating factors for academic success were discussed in interview questions three, four and eight. Both majority and minority students felt that PT faculty had a positive effect on their education, formation of friendships and subsequent support from peers, having good time management skills and study habits, self-motivation, and support from friends and family were very important to their success. Minority students emphasized the need for support systems, whether it is friends or family or in faculty support as an advisor or mentor, and coping/stress management skills.

In addition to barriers and facilitators to success, two other important questions were asked during the interviews. The opening question asked how the respondent was influenced to choose PT as a career. The last question asked the respondent what they thought was the reason that minorities are underrepresented in the PT profession. Both

majority and minority students appeared to be most influenced toward a career in physical therapy after personally receiving PT, usually in high school, or after a family member received PT. However, many minority respondents knew that they wanted to pursue a career in healthcare even though initially it may not have been specific to PT. There had to be an intervening factor along the way. Perhaps a healthcare course or presentation about PT, personally speaking to a physical therapist or being mentored by a physical therapist, or volunteering in the field convinced the respondent to choose a career path towards PT.

The last interview question was the most difficult for the respondents to answer. The respondents did not have the opportunity to research the question so they spoke "from the top of their heads" and gave their opinions though some stated that they really weren't sure what the reasons were for the underrepresentation of minorities in the PT profession. Both groups of students agreed that lack of exposure to the field of PT, lack of academic preparation, finances, and lack of role models in PT and in the PT faculty were possible reasons. Minority students, however, mostly thought that lack of finances, lack of role model in PT and PT faculty, racism, lack of prestige and status in the PT profession, and lack of external support (family or friends, cultural influences) were also reasons. Two majority students expressed concern over the use of standardized testing and scoring of applicants during the admissions process and two majority students stated that they didn't notice the underrepresentation of minority students in PT and didn't really know why.

The next chapter will discuss the various findings of this research and relate the findings back to the previous literature. It will also describe the limitations of the study

and provide implications for future research and recommendations that may influence

policy and procedures both in physical therapy educational programs and the PT

profession.

CHAPTER V

DISCUSSION

The purpose of this study was to gather descriptive data on student background

characteristics, the perceptions of social support, the perceptions of academic support,

and self-concept in professional preparation physical therapy students in Virginia and

North Carolina. A second purpose was to determine whether any of the student

background characteristics, the perceptions of social support structures, the perceptions of

academic support systems, and self-concepts were predictive of academic

success/retention. There was also a need to describe the characteristics of contemporary

physical therapy students given the recent changes in physical therapy education from a

bachelor's degree to an entry-level master's or a clinical doctorate degree. These changes

may influence current recruitment and retention strategies that are needed for all students

and especially for minority students. This study also investigated whether there were

differences between majority and minority professional preparation physical therapy

students in Virginia and North Carolina and whether different variables were predictive

of academic success/retention in majority versus minority students.

The literature review focused on three main groupings of variables that have been

shown to contribute to graduate academic success: background characteristics,

social/academic support characteristics, and self-concept characteristics. The next section

will discuss each of these variables, their predictive relationships for academic success,

and addresses the first three research questions: 1) What are the background

characteristics, perceptions of social support systems, academic support systems, and

ratings of self-concept/self-perceptions of professional preparation MPT/DPT students in

Virginia and North Carolina?; 2) What variables are predictors of academic

success/retention for professional preparation MPT/DPT students in Virginia and North

Carolina?; and 3) Are the variables that predict academic success/retention different for

majority professional preparation MPT/DPT students than for minority professional

preparation MPT/DPT students in Virginia and North Carolina?

Background characteristics

Demographically, the study sample was similar to APTA demographics except

that this study had fewer Asian subjects (4.9% APTA vs. 1.9%) and more Black subjects

(1.7% APTA vs. 9.0%). The combined minority student sample was only 7.4% overall.

Twenty-eight (54%) of the Black subjects were students at the two HBCU institutions in

the sample. Twenty-three of the twenty-eight students came from one HBCU. That

institution is well known in the community as being a high-prestige HBCU, and the

physical therapy program holds true to it's mission of "commitment to multiculturalism"

(Hampton University Mission Statement, 2006) with 85% of the physical therapy students

being Black and 15% being White students. Recent statistics from the National Center for

Education Statistics report that in 2002, Black students were more than twice as likely as

Hispanic students to attend an institution where they comprised more than 80% of the

total enrollment (U.S. Department of Education, 2005). The only other institution with a

high percentage of minority students (32%) was an institution located very close to our

nation's capitol. This is not a surprising finding given the diverse urban location

surrounding Arlington, Virginia. All other schools enrolled between 0-6.4% Black

students in their physical therapy programs.

As expected, the sample was mostly female at 80%. This number is slightly higher

than the physical therapy professional organization's statistics that show 68% of the

membership is female (APTA Demographics, 2005). The effort to diversify professional

physical therapy students includes increasing the number of male students. However,

recent statistics indicate that the male share of bachelor's degrees in all majors has

declined from 57% in 1970 to 41% by 2001. Conversely, the number of bachelor's

degrees earned by women increased by 70% during the same period (U.S. Department of

Education, 2005).

The findings of this study were similar to previous findings in that previous

grades, social backgrounds, parent's educations, parent's occupations, and financial status

do correlate highly with academic achievement (Brazziel & Brazziel, 1994; Gillingham et

al, 1991; Nettles, 1990; Williams, 1996, 2000; Wolfle, 1985). There were statistically

significant differences between the ethnic groups in this study in mother's educational

level, undergraduate GPA, amount of debt load, and graduate GPA. This study did not

find any statistically significant differences between the ethnic groups in age,

undergraduate major, parental occupations, marital status, master's degree, or student

status. This is in contrast to Nettles (1990) research, which showed that Hispanic

students were more likely to be science majors and Black students were more likely to be

education majors. There were no differences in the undergraduate majors between the

ethnic groups in this study. A significant finding in undergraduate majors between the

different groups in this study would have been surprising. While students with aspirations

towards the physical therapy profession may choose any major for their undergraduate

education, most students choose a health related major or biology since the prerequisite

courses for entry level physical therapy education are included within these majors. The

subjects' top three undergraduate majors in this study were in health related fields, biology, and social sciences.

Comparing this study's findings with Nettles (1990) and William's (1996, 2000) research, which used the original version of the Graduate Student Survey, results in similar findings. Black students received the lowest undergraduate and graduate grades, were less likely to be teaching or research assistants, perceived less satisfaction in many aspects of their physical therapy experience and academic performance, and perceived more feelings of social isolation. The results of this study concur with previous findings that Black students need the most intervention to achieve success during graduate education.

The study found that ethnicity and undergraduate GPA are predictors of success for the sample of physical therapy students. Addressing the relationship between ethnicity and academic success, 78% of White students were highly successful or moderately successful (students with graduate GPAs > 3.25) as compared to 70% of Black students and 61% of other race students. However, if a broader range of success is utilized and academic success is classified as a graduate GPA greater than 3.0, 94% of White students, 98% of Black students, and 90% of other race students are included within this range. The finding that the higher the undergraduate GPA, the more likely the student is to succeed in graduate education is not a surprise and is well supported in the literature (Gillingham et al, 1991; Nettles, 1990; Tekian, 2001; Wolfe, 1985).

Ordinal regression analyses were conducted for majority students only (e.g. White students) and for minority students only (e.g. non-White students). The background characteristics that were predictors of academic success for majority students in this study

were marital status and undergraduate GPA. More married students were in the highly successful group (29%) than in the not successful (7%), minimally (20%) or moderately (20%) successful groups in this study. The finding that more married students had higher levels of academic success was a surprising finding. There is an assumption that single students do not have to worry about relationship difficulties stemming from the stress of the rigors of a professional program "freeing" them to focus solely on their studies. However, the positive effects of being married may actually facilitate academic success by decreasing the stressors of dating and relationship issues during school, adding positive social support for the student, and possibly decreasing major financial stressors since there is a spouse that may provide much of the financial support needed during graduate education. Emotional stability from a spouse may also be a positive influence for academic success. On the other hand, perhaps married students are older, non-traditional students and are more focused in their studies. Further research should investigate this relationship.

Mother's education and father's occupation were significant predictors of academic success for minority students. Eighty-four percent of students in the highly successful group had mothers who had completed some college, had an associate's, bachelor's, master's, or doctoral degree. Conversely, 60% of the students in the not successful group had mothers who had only completed high school or less. This finding suggests the importance of parental influence on students' aspirations towards post-secondary and graduate education. Minority women may emphasize a postsecondary education more than men and see education as way towards a better life for themselves and their children.

The most common occupations for fathers of students in this study were high-level business executive/physician/lawyer (30%), small business owner (28%), and electrician/plumber/secretary (13%). Students in the highly successful group were most likely to have father's who were high-level business executive/physician/lawyer (42%), a small business owner (26%), or a trucker/sales clerk (16%). Again, the high percentage of highly successful students with fathers possessing executive positions or doctoral degrees suggests that higher education levels emphasize higher education.

Social/academic support

There were significant differences between the ethnic groups in the social support variables of financial support, both in personal sources and the form of assistantships. The importance of financial support was echoed in the literature (Brazziel & Brazziel, 1994; Girves & Wemmerus 1988; King & Chepyator-Thomson, 1996; Moore, 2003). This study found that Black students had significantly more debt load than other students. They were also more likely to finance their physical therapy educations through loans and less likely to receive financial support in the form of assistantships or tuition waivers. The finding that White students are more likely to be teaching or research assistants is also supported in the literature (Nettle, 1990; Williams, 2000).

The literature describes the importance of students being involved in program and campus activities and the effect that social integration has on degree progress and retention (Girves & Wemmerus, 1988; Golde, 2000; Hamilton, 1998; Tinto, 1975, 1987, 1993; Toliver, 1997; Willie et al, 1991). Participating in independent studies, working with a faculty member on various activities such as research, discussing academic progress with a faculty member, discussing career plans or personal problems, having

financial support either in the form of personal sources or loans, and achieving an award were all found to be predictive of academic success for all students in this study. All of these variables were also found to be predictive for majority students.

For minority students, working with a faculty member on research was a significant predictor of success. Perhaps less minority students receiving teaching or research assistantships as compared to majority students, results in less opportunity for minority students to be involved in these types of activities. Working closely with a faculty member might provide a minority student with additional social support that would not have been available had it not been for the assistantship. The finding that teaching and research assistantships positively influences student involvement within the program and academic success is supported in the literature (Brazziel & Brazziel, 1994; Toliver, 1997).

Professional preparation physical therapy education involves a high credit load, usually 80 to 120 credits (CAPTE, 2004), over a two or three year period. The great majority of physical therapy programs are full-time and consequently allow little time for outside employment. This study found that the self-reported mean hours of outside employment during school were 4.21 hours/week. Significant differences between the ethnic groups were found in the self-reported number of hours that students spend in class each week, hours spent for class preparation, and hours spent preparing for exams (see table 18). Black students reported statistically higher mean hours spent on "academic" activities than White and other race students. Though not significant, Black students also spent the most time per week working. This finding was also discussed in the qualitative interviews. Black students discussed the need to manage their time appropriately due to

"outside demands" and distractions caused by the need to work due to financial difficulties.

The study also found statistically significant differences between the ethnic groups of students who had published an article, participated in minority student organizations, and who had taken a course from non-White faculty. Though statistically significant, the differences between ethnicities in publishing an article appear minor. There were no Black students in this study who had published an article as compared to four White students and two other race students in the entire sample. These findings are not a surprise given that students are more likely to have the opportunity to publish when they are working with faculty on research activities. An assistantship position would increase the chances of a student working closely with a faculty member in research. This study also found that Black students were less likely to be in an assistantship or research position. Results also indicated that while 46% of Black and 38% of other race students participated in minority group organizations, only 7% of White students did the same. The literature confirms that minority students are more likely to participate in minority student activities than non-minority students (Astin, 1993; Nettles, 1990; Rendon & Skinner, 1990).

Additionally, 76% of Black students in this study reported taking a course from a non-White faculty member as compared to only 41% of White and 30% of other race students. APTA statistics indicate that 8% of physical therapy faculty are non-White (CAPTE, 2004), therefore the likelihood that any student has taken a course from a non-White faculty member is low. However, a large portion of the sample of Black students for this research was located at HBCUs. Black students that were interviewed at HBCUs

reported having Black physical therapy faculty, in keeping with the institutions' missions of valuing multiculturalism and diversity.

The importance of social support is highlighted through the qualitative data. All students discussed the importance of forming friendships with peers and support from family and friends, but minority students stressed the importance of a support system to their success. In fact, 86% of the overall comments regarding what helped respondents achieve success in the program were comments about family, peer, and faculty support. The remaining 14% of the comments had to do with self-drive and self-motivation.

Support or influence from an advisor is well documented in the literature as an influencing factor and predictor for academic success (Blackwell, 1987; King & Chepyator-Thomson, 1996; Moore, 2003). Questionnaire items that specifically addressed the physical therapy faculty advisor were not shown to be predictors of success in this study. Some respondents indicated that they did not have a physical therapy faculty advisor. This was an unexpected finding in light of the Commission on Accreditation of Physical Therapy Education (CAPTE) standards that require all physical therapy core faculty to perform advising duties (CAPTE Evaluative Criteria, 2005). For minority students, however, areas such as fairness in grading (p < .005), availability of faculty (p < .015), scheduling of advisor appointments (p < .022), faculty being sensitive to the needs of all students (p < .009), and the institution making an effort to attract diverse students to the graduate program (p < .025) were significantly different from the majority students.

The qualitative data, however, support the positive influence that an academic advisor can have on students. The majority (64%) of all students felt that the physical therapy faculty were supportive. Most reported that the physical therapy faculty were

helpful and supportive and that they were readily available to them. In contrast, the majority of the "not helpful" comments (42%) involved the faculty not being available and not being supportive.

Five out of the six comments related to the lack of faculty support came from minority students. More work needs to be done in this area in order to distinguish what components of faculty advising affect student perceptions of academic support and to find out why Black students perceive less support from physical therapy faculty. Black students, in this study, who were more likely to have had same-race physical therapy faculty and advisors, had similar negative perceptions.

In King & Chepyator-Thomson's (1996) study, 56% of the respondents felt that having a Black faculty/mentor was important to their success and 78% of the respondents reported not having Black professors in their doctoral department. Given the demographics of minority faculty in the physical therapy profession, it is not surprising that in this study, 58% of White and 70% of other race students (excluding Black students) had never taken a course from a non-White physical therapy faculty member. Seventy-eight percent of the Black students in this study, however, had taken a course from a non-White physical therapy faculty member. This was most likely due to the majority of Black students in this sample attending physical therapy programs at HBCUs with minority faculty members at each institution.

Self-concept

A significant finding in this study is the differences in the self-concept/satisfaction variable across the different ethnic groups. All four areas (rating of the quality of their undergraduate education, reason why they chose the physical therapy program that they

are attending, rating of their graduate academic performance, and overall rating of their experience as a physical therapy graduate student) were found to show significant differences between the ethnic groups. White students were more likely to rate the quality of their undergraduate education as good to excellent, choose the physical therapy program because of their perception of quality, rate their academic performance as above average, and rate their physical therapy graduate school experience as good or excellent. Only 32% of Black students rated their physical therapy graduate school experience as excellent to good, 35% rated their undergraduate education as excellent, and 6% rated themselves as below average (as compared to 2% of White students). More research addressing issues of self-concept and perceptions of satisfaction with individual academic progress and the physical therapy department and faculty are clearly needed to determine the influence of these factors on academic success.

Black students were also more likely to choose the physical therapy program to attend based on location, perceived quality, and as a result of being the only one accepted into. The findings regarding location and perceived quality are similar to Wilcox et al (2005) results. A higher percentage of Black students (10%) reported that their physical therapy program was the only one that accepted them as compared to White students (4%). The influence of an institution being an HBCU was not specifically addressed in the questionnaire; however, it was discussed in the qualitative portion of the study. Only two Black respondents, out of the ten Black respondents in the sample, reported that they wanted to specifically attend an HBCU for their graduate education. White students were more likely to choose the physical therapy program based on location and their perceptions of quality and prestige.

Similar results regarding White undergraduate students' ratings of their overall academic ability and the relationship to academic achievements have been found. These traits were significantly related to student persistence in previous studies (House, 1992; Sedlacek, 1982, 1996). In contrast to previous studies and the quantitative data from this study, the qualitative portion of the data from this study indicate that 22 of the 25 respondents, or 88%, were satisfied with their academic achievements during physical therapy school. This difference across data methods could be interpreted in numerous ways. Perhaps during the interviews, students were able to verbalize their perceptions more freely without feeling bound by the psychometric properties of a Likert-scale questionnaire. On the other hand, only a small sample of students (25 out of the 575 students) was interviewed versus the larger number of students that responded to the questionnaire. Lastly, respondents had to volunteer extra time for the interviews and it was unlikely that students who were having academic difficulty or students that were highly dissatisfied with their physical therapy education would volunteer additional time to be interviewed.

The self-concept/perception variable also addresses the relative feelings of self-strength and strength of character (Sedlacek, 1976). Findings in this study concur with previous research findings that intrinsic drive and motivation are related to persistence for diverse students (King & Chepyator-Thomson, 1996; Moore, 2003; Nettles, 1990; Williams, 1996, 2000). Good time management skills and dedication, self-motivation and self-discipline were the most common things that were described by the respondents when asked about things that make a student successful during physical therapy school accounting for one-third of the responses.

The fourth research question asked: Are there differences between the perceptions of minority and majority students regarding facilitators or barriers to academic success/retention during their physical therapy education? An important rationale for the qualitative portion of the study was to enable the researcher to triangulate data sources and allow the respondents to clarify and expand topics that were addressed in the questionnaire in their own words. Respondents in this study echoed the comments of respondents in a study from the United Kingdom (Greenwood & Bithell, 2005) which found, minority students are less likely to know about the physical therapy profession and consider medicine as a profession with more prestige, "higher status and salary" type of profession. Minority respondents in this study commented on the poor public image from which they believed the profession of physical therapy suffers. References to "massages" or "working in a gym" were prevalent.

The findings from this study confirm the findings found in a recent study that addressed inhibitory and facilitatory factors during the pursuit of physical therapy school (Santasier, 2004). Santasier (2004) found that inhibitory factors for minority students were lack of academic preparation, lack of exposure to the physical therapy profession, and lack of same-race role models and mentors. Students, in the current study, commented that they thought the reasons for the underrepresentation of minority students in physical therapy were lack of exposure to physical therapy, lack of finances, lack of role models both in physical therapy clinicians and faculty, and lack of academic preparation. Minority students also expressed concern over inadequate academic advising, racism, lack of external support, personal distractions, and financial difficulties.

One unanticipated finding in this research was the larger than expected range of

graduate GPAs that were self-reported. For most graduate education, students must

maintain a 3.0 or above GPA to remain viable in the program. This study found that 91%

of the sample had a 3.0 GPA or higher and 9% of the sample had less than a 3.0 GPA.

There were statistically significant differences ($\chi^2 = 65.63$, df = 28, p < .000) between the

GPAs of different year students (e.g. first year Doctor of Physical Therapy student versus

third year Doctor of Physical Therapy student and first year Master of Physical Therapy

student versus second year Master of Physical Therapy student). The largest range in the

graduate GPAs were for first year Doctor of Physical Therapy students. By the final year

of the professional curriculum, regardless of whether students are enrolled in a Master's

or Doctoral program, all student GPAs except for one student, were above a 3.0 GPA.

Data for this research were collected during the fall semester of 2005. For some

programs, this was the first semester in the curriculum. For other programs, this was the

first full semester after a summer session start to the curriculum. Many students with a

GPA below 3.0 do not persist after the first two semesters after being placed on academic

probation, therefore the finding that "upperclass" students have higher GPAs is not

unexpected.

Summary of findings

  The previous sections provided discussion on the relevant findings regarding the

differences between the ethnic groups of physical therapy students in this study and the

predictive value for each group of variables. The important findings from this research are

summarized next.

  1) Undergraduate GPA predicts graduate GPA for all students.

  2) Minority students have less financial support in terms of personal sources, less

teaching/research assistantships, have more debt load in the form of loans, report more personal barriers to success, and value a support system during physical therapy school.

3) Black students are less satisfied in their perceptions of social and academic support, the quality of their undergraduate education, their academic performance, and their overall physical therapy experience.

4) The self-concept variable that includes perceptions of satisfaction and self-rating of academic performance was a strong predictor for academic success for all students. In other words, those who are more satisfied and perceive themselves as good students are more likely to be successful.

5) Majority students become interested in physical therapy from past experiences receiving physical therapy or having a family member/friend receive physical therapy while minority students become interested in physical therapy after speaking to someone in healthcare or attending a pre-health enrichment course.

6) Physical therapy students, regardless of ethnicity, chose physical therapy programs based on location.

7) Three-quarters of the respondents felt that lack of exposure to physical therapy, lack of academic preparation, lack of finances, and lack of role models/mentors in the profession are contributing factors to the underrepresentation of minority physical therapy students.

8) The physical therapy profession suffers from lack of prestige and a poor or nonexistent public knowledge of the profession.

Finally, the results of the study do not adequately support the Girves and

Wemmerus (1988) graduate model of doctoral student degree progress as indicated in

Figure 1. Department characteristics, a first-stage variable, was not a factor in this

research due to being completed in a single type of professional program. Though the

diversity level of the physical therapy faculty was discussed in the interviews, specific

data on the number and ethnic distribution of the physical therapy faculty were not

collected as part of this study. However, data collected by the accreditation agency for

physical therapy education (see Table 1) report that 91% of physical therapy faculty are

White, 3.3% are Asian, 2% each are Black or Hispanic, .1% are Native American, and

1.6% is either other race or the faculty race is unknown (CAPTE, Fact sheet 2004). Some

students in this sample reported not having any faculty of color both in their professional

physical therapy education and during their undergraduate education. It is easy to see

from the physical therapy faculty demographics that the lack of diversity continues to

persist, thus, limiting the opportunities for same-race mentoring and role modeling for

minority students.

Linear regression statistical analyses could not be used in this study due to the

nominal and ordinal nature of many of the variables, therefore stepwise, forward, and

backward regression analyses are not a valid method to predict the influence of the first

stage variables on the second stage variables. Ordinal regression analyses were used to

determine the how much of the theoretical model can be explained by each of the

variables. This study found that department characteristics, student background

characteristics, financial support, perceptions of the faculty, student involvement,

satisfaction with the department, and social support, together, account for about half of

the variance in graduate GPA in this study.

Fifty-five percent of the total variance in graduate GPA is explained by the combination of the seven variables in the theoretical model. Individually, each variable's contribution to the model is as follows: 1) satisfaction with the physical therapy department 8.62%; 2) perceptions of the physical therapy faculty 3.23%; 3) student social support/alienation 2.31%; 4) student involvement 2.17%; 5) student background characteristics 1.6%; 6) financial support .83%; and 7) department characteristics .22%. Figure 2 depicts a revised model, based on this study, which illustrates each factor's contribution to the model in explaining the variance in graduate GPA in professional physical therapy education. Bolder arrows indicate a higher contribution to the model than thinner arrows.

Each variable's individual contribution to the variance in graduate GPA is small. When viewed in the model, the individual variables account for nearly 19% of the variance. However, this does not take into account the strong interaction effects between the variables. When the variables are combined, the interaction effects increase the total contribution of the seven variables to account for 55% of the variance in graduate GPA. Department characteristics were previously discussed, however, the findings that background characteristics and financial support account for very little of the variance in graduate GPA and the larger contribution of social support and self-concept variables was unexpected based on previous literature (Nettles, 1990; Sedlacek, 1990, 1982; Williams, 2000).

Figure 2.   Revised Model of Factors Influencing Academic Success in Professional
             Physical Therapy Education

Satisfaction with Department	8.62%

Perceptions of the Faculty	3.23%

Student Social Support/Alienation	2.31%

Student Involvement	2.17%

Student Characteristics	1.6%

Grades ⇒ Academic success

Financial Support	.83%

Department Characteristics	.22%
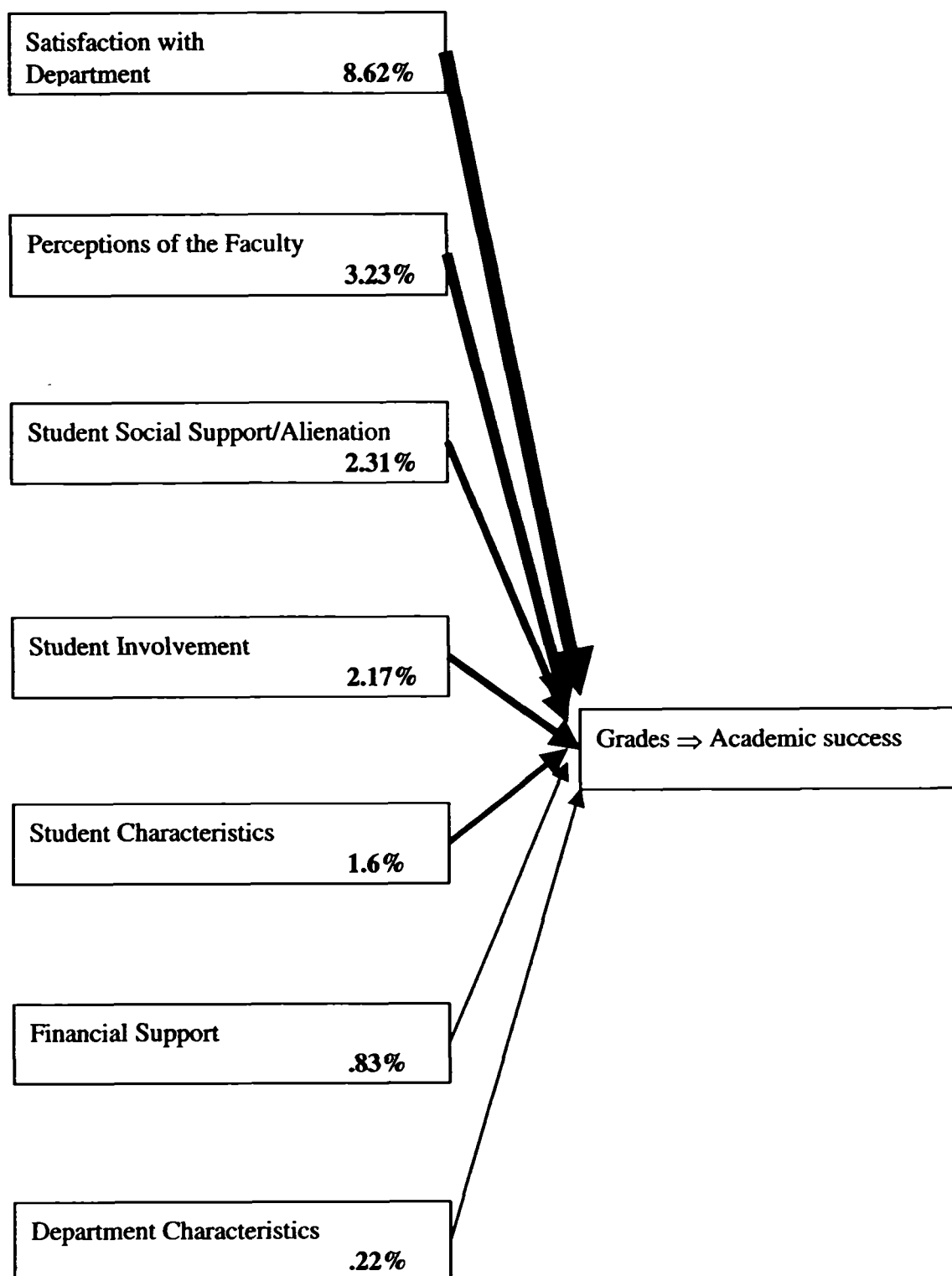
The contribution of social support, perceptions of the physical therapy faculty, and satisfaction with the physical therapy department were the most important factors in the revised model. Triangulation of the quantitative and qualitative data support the importance and significance of physical therapy students feeling "wanted" and comfortable in the academic and institutional environment, feeling satisfied with the physical therapy department, feeling satisfied with physical therapy faculty support, and having general feelings of satisfaction with their academic progress and "happiness" in graduate school.

Admission to physical therapy educational programs is highly competitive; therefore, the majority of students entering physical therapy professional programs have performed well academically in their undergraduate education. Since physical therapy students have already proven themselves to be successful in their undergraduate education, this research found that the facilitation of perceptions of satisfaction might be the key to academic success and retention during physical therapy education. Generally, satisfied people are people who have positive interactions and experiences. Faculty intuitively want to project positive experiences for their students, however, maybe we do not facilitate enough guidance and support for our students. Encouraging the culture of academic and social support via faculty advising, group study, and faculty availability are necessary elements to facilitate better student satisfaction and ultimately academic success.

For all students in the study sample, undergraduate GPA was a predictor of graduate GPA. Students admitted to professional physical therapy programs demonstrate the capacity to succeed based on their undergraduate achievements. Still, attrition does

occur and retention efforts may fail. This research highlighted the important contributions

of student satisfaction, positive perceptions of the physical therapy program and faculty,

and the influence of social support and student involvement on academic success during

professional physical therapy education. Consequently, strategies that address both

recruitment and retention can be developed based on the findings of this research that

may influence academic success for all students.

Limitations

Though the response rate for this study was very good at 74%, there were very

small numbers of minority student respondents for both the quantitative and qualitative

portions of the study. The sample for Black respondents was acceptable (52 subjects for

the questionnaire and 10 respondents for the interviews) but out of the sample of 575

subjects, only 12 respondents were Hispanic, 2 were Native American, 11 were Asian,

and 18 respondents indicated "other" race. Due to small cell sizes, the non-Black minority

groups were combined to form an "other race" category therefore making it difficult to

interpret conclusions about the individual (non-Black) minority groups. The sample for

this study was drawn from 11 institutions in two Mid-Atlantic States. As a result, the

findings may not be generalizable across all students in accredited physical therapy

educational programs in the United States. However, the sample included every physical

therapy program in the two states including public, private, and HBCU institutions

housed in urban, suburban, and rural locations.

The researcher's goal was to interview at least three respondents from each ethnic

group. Though three Asian respondents were interviewed, one respondent, though

classified as Asian, was Korean (Asian, by definition) but German by nationality and

culture who was adopted by a German family, raised in Germany, and attended graduate school in the United States. Generalization of results was not a concern with the qualitative portion of the study because the goal of the qualitative portion was not to apply the findings to a general population, but to permit reasonable extrapolations of the interview findings and student perceptions to a wider population.

There were also limitations that could have threatened the internal validity of the study. The instrument used in the quantitative portion of the study was not a new instrument and has been used twice before on doctoral student populations. The researcher did make minor modifications of the instrument for use in this study, deleting portions and adding other portions. The instrument, both in previous research and in the current research, proved to have high internal consistency scores.

Other limitations include informant reactivity and issues of social desirability of the responses. Pilot testing of the interview blueprint was conducted on three alumni prior to data collection to ensure timing, wording, and proper sequencing of the questions. The researcher listened to the audiotapes of the interviews two times to investigate voice inflections and tone of voice to maintain empathetic neutrality with the respondents, as described by Patton (2002). Respondents did not appear to "hold back" during their interviews and appeared forthcoming with their responses. There is always the possibility that respondents provided socially desirable answers instead of true answers during the interviews and questionnaire, which is a possibility during the use of all self-report measures. The researcher, as a member of an ethnic minority group, felt that her status as a person of color allowed the respondent to feel a camaraderie and comfort with the respondent knowing that the issues in question were very important to the researcher.

Some respondents needed time to digest the question before answering and member checks allowed the participants to confirm that the meaning, or "essence", of their responses was adequately interpreted during data analyses. Respondents were given the opportunity to add, change, or delete any of the interview information during the member checks.

The researcher used an audit trail during data collection and analyses in order to keep thoughts in writing both during the interviews and immediately after the interviews. Data analysis was continual during the qualitative portion of the study to enable the researcher to determine when data saturation had been reached. This study used two sources of data, questionnaire and interviews, triangulating the data sources during analyses.

Suggestions for Future Research

The purpose of this study was to add to the sparse literature on the perceptions and factors that influence academic success in professional preparation physical therapy students in Virginia and North Carolina. There are limited data on the similarities and differences in students' backgrounds, experiences, and attitudes of contemporary physical therapy students and how those factors influence academic success. Many recent changes have occurred in physical therapy education ranging from changing prerequisite courses to movement to post-baccalaureate education but the fact that there has been little change in the level of diversity in the physical therapy profession is both disappointing and challenging (Echternach, 2003; Littell & Johnson, 2003).

Recent studies investigating recruitment and retention in physical therapy education suggest that even when physical therapy programs make a special effort to

recruit and retain minority individuals, they still were not successful in their efforts (Haskins & Kirk-Sanchez, 2006). This study supports Haskins and Kirk-Sanchez' findings that minority students choose physical therapy schools to attend based on location, reputation, and HBCU status. Respondents also indicated that finances and social support were important to their decision, however, details regarding *how* much each factor contributes to an applicant's decision are still not known.

Future research could investigate similar variables used in this research but use a purposeful sample of physical therapy programs that have higher minority student populations and programs located at HBCU institutions. Though soliciting respondents at HBCUs only may not generalize the results to minority students at majority institutions, it is evident from this research that minority physical therapy students are difficult to find in large numbers, even at institutions with diverse undergraduate populations. This study also found that Black students do not choose their physical therapy program based solely on the institution being classified as an HBCU.

In particular, qualitative methodology is well suited to investigate differences and similarities in respondents, in their own words, which provides a powerful tool for exploring perceptions and attitudes that cannot be captured via quantitative methods. Maybe physical therapy schools with higher minority populations are located in areas with an already higher minority census. The results from this study do not support this rationale. Eight of the eleven institutions in this study were located in cities considered to have a high (>20%) minority census (U.S. Census Bureau, 2000). Only two physical therapy programs in the sample had greater than 20% minority students in their programs; one was an HBCU and the other was located near our nation's capitol. Two of the cities

in the researcher's host state that have the largest physical therapy programs have

minority populations of 62% and 52%, respectively, but only have 11% and 10% minority

students within their physical therapy programs. Some people fear that the move to the

clinical doctorate in physical therapy education will continue to decrease the already

small amount of diversity in physical therapy education. The Black and Hispanic

respondents in this study indicated that pursuing a graduate degree was a long, difficult

task. Many stated that their peers wanted to just "get out and get a job". Will physical

therapy programs that provide financial support to minority students increase their

minority enrollments? Many questions remain to be answered during future research

endeavors addressing the impact of the increasing cost of higher education on the

recruitment and retention of students in entry-level professional preparation physical

therapy education.

One perspective that has not been investigated is the perception and voice of

students, particularly minority students, who have applied to physical therapy school but

were unsuccessful in their pursuit of physical therapy education. Their voice would add to

the understanding of the impact that different variables have on academic success as

compared to students that achieved the goal of admission. Researchers should consider

using a sample of already accepted physical therapy graduate students and compare the

responses to students that failed to achieve admission. Perhaps using an already accepted

group of physical therapy students in this study was too narrow a focus to provide any

elaboration of the perceptions and factors that influence success because these students, in

fact, were already successful in their pursuit of a graduate professional education.

Another suggestion, though difficult in methodology, would be to investigate perceptions

and factors that influenced students in *not* being successful during professional preparation physical therapy education (e.g. students that left physical therapy school for academic or non-academic reasons).

Lastly, it is wise to remember that all physical therapy graduate students, regardless of ethnicity, appear to possess more similarities than differences in the stressors, barriers, and positive experiences that they experienced during their professional graduate education. Future researchers should not limit their populations to minority students only when designing research methodology because by investigating only the minority subpopulation, many similarities between student ethnic groups may be overlooked.

Recommendations

The APTA adopted the *Plan to Foster Minority Representation and Participation in Physical Therapy* in 1982 (APTA, 2001). At that time, 95% of all physical therapists were White. Over twenty years later, only minimal increases in the diversity of physical therapists have occurred, while the country's diversity has continued to increase. The following section will highlight recommendations for strategies to improve recruitment and retention of students not only in physical therapy professional education but for the physical therapy profession overall. These recommendations are supported by the outcomes of this study. The first two recommendations address professional recruitment issues while the last three recommendations address retention efforts at the program and institutional level.

Recommendation 1. Increase exposure to the physical therapy profession.
Respondents in this study discussed how the profession of physical therapy is not well

known to the public. Professions such as medicine and nursing are better known and medicine benefits from the prestige and status with which it is associated. Many people do not know that the majority of physical therapy schools award a clinical doctorate degree and graduates earn the privilege of calling themselves "Dr." after graduation from an accredited DPT program and receipt of licensure in the United States. For many minority students, that designation is very important to increase the perceived prestige level of the profession. Many minority respondents reported that there was some intervening event that led them towards a career in physical therapy and that the exposure was not by happen stance. For most minority students, it was a career day, a pre-health enrichment program, or seminar discussion about careers in the health professions, knowing someone or directly speaking to someone about physical therapy, or volunteering or working in physical therapy as a technician.

Strategies to increase the level of exposure of potential students to the physical therapy profession should begin as early as elementary and middle school and continue through high school. Most schools conduct a career day where various jobs/careers are presented to the children in an age appropriate format. Children as young as five or six love to learn about the human body. They are curious about how the body works and they love to touch bones or look at skeletons, and be physically active. It would be beneficial to have both majority and minority physical therapists at these events to show diverse students that the physical therapy profession is something that is obtainable for them. This is so important because with physical therapy education being at the post-baccalaureate level, many students cannot envision college, much less graduate school. Printed materials and handouts should be provided to the students on site. This would

allow the information to reach parents since the students are typically the only audience at school during these events.

If primary and secondary schools have science, pre-health, or pre-med type associations, physical therapists should contact the advisors of these organizations to set up a time where they can attend one of their meetings and discuss various aspects of physical therapy education and a physical therapy career. Most groups just want general information about what a career is like, what personal qualities someone should possess, the education that is required, and opportunities to volunteer at a local hospital, rehabilitation center, or outpatient facility. This contact may be the intervening factor that sways a pre-med student or student that is generally interested in "something in health" towards a career in physical therapy. Since many high school students are required to perform community service hours, opportunities for volunteering in physical therapy settings should be presented. This enables the student to observe many different health careers and determine first-hand if that career is interesting to them.

This strategy should also be used at the undergraduate level. There are many opportunities to talk to different student organizations on campus ranging from pre-health, pre-med, biology, exercise science, and sports medicine groups. Many of the respondents in this study stated that they were initially unsure of what major to pursue though they knew that they were interested in a career in the healthcare field. Some students think that getting into physical therapy school is too hard and previous research discussed the "4.0 rumor" in regards to physical therapy school admission (Santasier, 2004). Talking to student organizations will allow an informal exchange of information and participants can ask questions in a small group format. This can facilitate discussion

designed to dispel any incorrect perceptions of physical therapy school prerequisites and admission standards that may serve as an intimidation factor, particularly for minority students. Physical therapy programs often regard this as a recruitment tool not only for the profession but also for their individual programs.

In addition, these recruitment activities should occur in diverse neighborhoods, schools and at HBCU institutions. The results from this study indicated that minority students suffered the most from lack of exposure to the physical therapy profession. Including current physical therapy students, specifically minority students, in these activities is beneficial to allow opportunities for role-modeling and possible mentorship between current physical therapy students and students who aspire to become physical therapy students.

Recommendation 2. Increase and improve the public image of physical therapy. This recommendation relates to the first recommendation. Many respondents stated that they perceived a lack of external support during school and felt that it had to do with the lack of family, friends, and community understanding the rigors and demands of professional preparation physical therapy education along with a lack of understanding of the physical therapy profession. The APTA has recently increased it's public relations campaign and has produced magazine inserts, videos, and posters to educate the public, at large, on what a physical therapist is and does. A dissemination problem continues to exist because people who access the APTA web site usually are already showing some interest in the profession. More magazine and perhaps television advertisements should be used to reach the general public. The APTA has dedicated a generous amount of space for information for people interested in the physical therapy profession but again, people

who use this site are already somewhat interested in the profession.

Physical therapists should take the time to represent their profession at various community events such as health screenings for athletes and older adults as well as the general population. Much to the dismay of many physical therapists, the general population seems to know more about the careers of other health consultants such as personal trainers, massage therapists, and "fitness experts" than about physical therapy. The public should not know physical therapists only as people who give "massages". Emphasis should be placed on the physical therapy profession using science and evidence based approaches for patient and client examination, intervention, and patient/client management.

Patients, patients' family members, and other healthcare providers need to know more about physical therapy, the education that a physical therapist receives, and what services a physical therapist can provide. Many people, including healthcare providers, are not clear about what a physical therapist can do even when they are about to receive physical therapy interventions or when referring patients for physical therapy services.

Recommendation 3. Provide financial support in the form of assistantships. This study found that many students, especially minority students, suffer from financial stressors during their graduate education. Many students carry large undergraduate debt loads as they enroll as graduate students. This was evident in this study. Forty-one percent of Black students, 18% of White students, and 17% Hispanic students had indebtedness greater than $17,000. Physical therapy programs should aggressively seek the funding needed to employ students as teaching and research assistants within the physical therapy program. Assistantships are optimally awarded to non-first year students for the following

reasons. First, "upperclass" students have usually navigated the learning curve of balancing a high credit load with a large amount of didactic material to digest in a short period of time. Second, they have figured out how to study effectively and manage their time. Lastly, they have formed study groups and have developed friendships providing a solid network of social and academic support.

Faculty benefit from this arrangement in numerous ways. This would provide the academic support needed, especially in lower level coursework where teaching assistants can assist with laboratories, study groups, and tutoring. The teaching assistant can serve as a "liaison", facilitating open lines of communication between students and the faculty member. Research assistants can assist faculty members in the pursuit of scholarly and research activities. In turn, the research assistant benefits from the many skills that they must use as they develop their own set of scholarly and research activities. Employing physical therapy students as teaching and research assistants within a program benefits both the students and faculty. Also, students receive some much-needed financial support.

Recommendation 4. Provide academic and social support. Provide opportunities for students to receive academic support such as study groups led by faculty or teaching assistants, tutoring services, and referral to institutional resources on campus. Most all post secondary institutions provide services to students ranging from counseling services, disability services, sessions on test taking strategies, "the art of note-taking", time management, assistance with relationship issues, instruction on how to use the library, search the Internet, and assistance with writing composition. Many physical therapy students report that they were not challenged during their undergraduate educations and are ill prepared for the rigors of professional physical therapy education. Programs can

identify "at-risk" students and faculty advisors can facilitate use of institutional resources

that the students may not be aware of. Students in this study stated that the most difficult

tasks to learn were good time management skills, disciplined study habits, and the ability

to absorb large amounts of material in a short period of time. Identifying students within

the lower ranges of undergraduate GPAs, students with weaker science prerequisite

grades, especially in anatomy and physiology, and students with lower verbal graduate

record examination scores may be helpful in designing appropriate academic and social

support strategies that will facilitate academic success.

Programs could provide optional group study sessions led by teaching assistants

that will enable students to progress in their classes. The pace of instruction in a physical

therapy program is intense. Such support appears to be more beneficial for first year

physical therapy students since they are still learning how to balance the workload of an

average 15-20 credits per semester with a time commitment of 26-29 or more hours per

week in the classroom, laboratory and/or clinic.

This study found that Black students were less satisfied with their physical therapy

faculty advisors and their perceptions of the physical therapy department were less

favorable than White students. More effective student advising will facilitate increased

student success. Many students in this study reported that they did not have an advisor

though some students reported that they did not seek the help of their advisor even when

it was provided. Physical therapy programs should develop a "culture" of strong advising

by faculty so that students believe that they have the academic support that they need to

successfully navigate the curriculum. Advisors should meet with their advisees

frequently, never less than once a semester, and sessions should be documented and

retained in student files.

Social and academic support was found to be important factors for academic success. After taking into account undergraduate GPA, factors that correlated highly with academic success were: perceptions of the physical therapy department and physical therapy faculty, and perceptions of overall satisfaction with the physical therapy educational experience. Physical therapy programs could increase student success by facilitating support groups for all students but especially for minority students. One minority student in the qualitative interviews discussed how her physical therapy program provided a facilitated support group led by a minority faculty member. The faculty member also assisted minority students with finding test-taking and note-taking strategy sessions and with applying for minority scholarships. A support group could be mentored by a minority faculty member, if available, to provide same race mentoring and same race role modeling that has proven to be beneficial in previous studies (Garcia & Fowkes, 1987, Bright et al, 1998). Of course all students, regardless of ethnicity, could benefit from this type of support group, therefore, participation in a support group of this type should be highly encouraged, if not made mandatory for all students.

Recommendation 5. Include cultural competence within the curriculum. The concept of educating culturally competent physical therapists is discussed in APTA's Guide for Professional Conduct and the Normative Model for professional physical therapist education (APTA, 1999). Diversity in healthcare education programs is beneficial to students because it exposes them to different health beliefs, attitudes, and cultural perspectives (Astin, 1993). Raising the awareness of cultural influences, bias, and racism among all students is a beginning step towards becoming culturally competent.

Many majority respondents in this study stated that they really didn't think about ethnicity or notice ethnicity. One could assume that not thinking about ethnicity means that they were unaware of the impact that ethnicity has on culture and healthcare delivery. We should prepare our graduates to provide culturally competent care in meeting the diverse needs of a diverse patient population. Physical therapy program core faculty and clinical faculty should facilitate this development by being culturally competent themselves, engaging the students in discussions on race and culture, and threading the concepts of cultural competence throughout the curriculum, not just in one segment of a single course.

Conclusion

The intent of this research was to collect descriptive data about contemporary students in professional preparation physical therapy education and to determine if there were differences in the perceptions of majority and minority students. Many changes have occurred in physical therapy education in recent years making previous data dated and not applicable to the current problem of lack of diversity within the physical therapy profession. The researcher also investigated whether there were any differences between the ethnic groups on variables that influence academic success. This mixed methods research found that while there are many similarities between physical therapy students from different ethnic groups, there are also varying factors that either discourage minority students from pursuing a career in physical therapy or serve as additional barriers to academic success once enrolled in physical therapy education. If the physical therapy profession is to meet the challenges presented in the *Plan to Foster Minority Representation and Participation in Physical Therapy* (1982), we need to do a better job

of exposing all students, particularly minority students, to the physical therapy profession. We need to do a better job of educating the public about the profession and the educational requirements to become a physical therapist. Physical therapy educators must address self-concept and satisfaction issues, especially with Black students, to ensure that culturally competent care is addressed in the curriculum and diverse student needs are adequately addressed. Student perceptions of their overall satisfaction, self-concept, and social/academic support emerged as the most important variables in the revised theoretical framework. In fact, the combined effect of all the variables addressed in this study accounted for 55% of the total variance in graduate GPA in the sample.

There are many issues that contribute to the lack of diversity within the physical therapy profession. The focus of this study, however, was to address perceptions and factors that influenced academic success during physical therapy education. These results provide a starting point for designing effective strategies for increasing the diversity of contemporary physical therapy students. The qualitative portion provides a voice for physical therapy students to describe the challenges and support they experience and which impact their academic success. It is hoped that the results of this study will contribute to the literature by providing information that will enable both physical therapy programs and the physical therapy profession to design successful recruitment and retention strategies that will result in more a diverse group of physical therapy practitioners.

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APPENDIX A

Doctoral Student Survey, 1995
University of Minnesota

I. **This section of the questionnaire pertains to background characteristics.**

1.) What is your gender? (Circle one)

    1. Male   2. Female

2.) When were you born?   ⎯⎯ ⎯⎯ ⎯⎯
                               Month Day Year

3.) What is your racial/ethnic group? (Circle one.)

    1. White or Caucasian
    2. Black or African-American
    3. Mexican-American, Puerto Rican-American, or other Hispanic
    4. American Indian or Alaskan Native
    5. Asian-American
    6. Other⎯⎯⎯⎯

4.) Following are several broad groupings of occupations. Select the one grouping that most closely represents the occupation of your father or male guardian and your mother of female guardian (or if deceased, retired, or unemployed, the most recent job they held). (Circle one number in each column.)

	Father or Male guardian	Mother or Female guardian
Doctors, lawyers, professors high-level business executive, etc.	1	1
Teachers, accountants, nurses, pharmacists, mid-level business executives, etc.	2	2
Small business owners, farmers, supervisors, store managers, etc.	3	3
Electricians, plumbers, butchers, dental assistants, secretaries, etc.	4	4
Truck drivers, receptionists, sales clerks, nurses' aides, mail carriers,	5	5

| Laborers, custodians, farm workers, waiters, waitresses, etc. | 6 | 6 |
| Homemakers | 7 | 7 |

5.) What is the highest level of education completed by your father or male guardian and your mother or female guardian? (Circle one number in each column.)

	Father	Mother
Elementary school or less	1	1
Some high school	2	2
High school diploma or equivalent	3	3
Some college, business or trade school	4	4
Associate degree	5	5
Bachelor's degree	6	6
Some graduate or professional school	7	7
Master's degree	8	8
Doctoral degree (JD, MD, PhD, EdD)	9	9

6.) What is your current marital status? (Circle one.)
1. Married
2. Single
3. Divorced/Separated
4. Widowed

7.) What is your best estimate of your annual gross income last year? If you are married or live with a partner give the combined gross income of you and your spouse/partner. (Circle one.)
1. Less than $5000
2. $5000 - 9,999
3. $10,000 - 14,999
4. $15,000 - 19,999
5. $20,000 - 24,999
6. $25,000 - 29,999
7. $30,000 - 34,999
8. $35,000 - 39,999
9. $40,000 - 44,999
10. $45,000 or more

8.) What region of the country do you consider home? (Circle one)

1. East
2. South
3. Midwest
4. South West
5. North West
6. 6. West
7. Other_____

II.   This section of the questionnaire pertains to undergraduate school information.

9.   Into which of the following general categories does your undergraduate major fall?   (Circle one number in each column.)

Undergraduate

Agricultural	1
Arts and Humanities	2
Biological/Physical Sciences	3
Business/Communications	4
Education	5
Mathematics, Statistics	6
Engineering	7
Health Related Fields	8
Computer Sciences	9
Social Sciences	10
Other (specify)_____	11

10.   Write the name (and degree date) of the undergraduate institution where you received your baccalaureate degree.

11.   If your undergraduate grade point average were converted to a letter grade, what would it be? (Circle one letter.)

1. A   (4.0)   5. B-   (2.75 to 2.99)
2. A-   (3.75 to 3.99)   6. C+   (2.25 to 2.74)
3. B+   (3.25 to 3.74)   7. C   (2.00 to 2.24)
4. B   (3.00 to 3.24)   8. C-   (1.75 to 1.99)

12.   How would you rate the quality of your undergraduate education? (Circle one.)

1. Excellent   2. Good   3. Adequate   4. Inadequate

13.   About how much money did you owe on the cost of your undergraduate education when you received your undergraduate degree? (Circle one.)

1.) none
2.) up to $1,999
3.) $2,000 to $4,999
4.) $5,000 to $7,999
5.) $8,000 to $10,999
6.) $11,000 to $13,999
7.) $14,000 to $16,999
8.) $17,000 or more

III. **This section of the questionnaire is about your doctoral program at the University of Minnesota.**

14. Into which of the following general categories does your current doctoral studies fall? (Circle one)

Agriculture	1
Arts and Humanities	2
Biological/Physical Sciences	3
Business/Communications	4
Education	5
Mathematics, Statistics	6
Engineering	7
Health Related Fields	8
Computer Sciences	9
Social Sciences	10
Other (specify)_____11	

15. When did you begin your graduate studies at the University of Minnesota? (Circle one and fill in the year.)
    1. Fall   19___
    2. Winter   19___
    3. Spring   19___
    4. Summer 19___

16. Indicate the most important reason that you chose your doctoral   program. (Circle only the one most important reason.)
    1. It was the only one that accepted me
    2. Quality of the program
    3. Prestige of the school
    4. Financial aid offered
    5. Recommendations of faculty
    6. Recommendations of friends
    7. Location of school
    8. I could attend part-time
    9. Other (specify)_____

17. When you first enrolled in your current doctoral program, were you pursuing your doctorate full-time (registered for 7 or more credits)?

    1. Yes   2. No

18. Did you stay out of school for two or more quarters during pursuit of your doctoral degree? (Do not count summers) (Circle one.)

    1. Yes   2. No   If yes, how long did you stay out?
                                    _____quarters
    If yes, why did you stay out? (Circle one.)

    1. Financial reasons   3. Family problems   5. Working a job
    2. Personal reasons   4. Health reasons   6. Academic issues

19. Do you have a master's degree? (Circle one.)

   1. Yes 2. No

   If yes, when was it granted? 19____

20. Are you currently pursuing your doctorate full-time? (Circle one)

   1. Yes   2. No

21. Which of the following best describes your current status in the doctoral program? (Circle one.)

   1. Completed about one-quarter or less of required courses
   2. Completed about half of required courses
   3. Completed more than half, but not all of required courses
   4. Completed all required course work
   5. Completed written prelim exams, but not yet passed oral prelim
   6. Passed oral prelim, but not yet working on dissertation
   7. Working on dissertation
   8. Completed all degree requirements, but degree has not been awarded
   9. Completed the Ph.D.
   10. Other_____

22. During your graduate studies have you received any of the following types of financial aid from the university? (Circle one number on each line.)

	Yes	No
a. Grants/scholarships/fellowships	1	2
b. University loans	1	2
c. Teaching assistantship	1	2
d. Research assistantship	1	2
e. Administrative assistantship	1	2
f. Tuition waiver	1	2

23. Indicate the approximate proportion of your graduate education expenses provided by each of the following sources. (Circle one number on each line.)

	None	Less than 50%	Near 50%	More than 50%	All
a. Personal sources (savings, parents, relatives, spouse)	1	2	3	4	5
b. University assistance (research/ teaching/administrative assistant)	1	2	3	4	5
c. Other grants or fellowships	1	2	3	4	5

d. Other employment related to your graduate studies	1	2	3	4	5
e. Other employment not related to your graduate studies	1	2	3	4	5
f. Loans	1	2	3	4	5

g. Other_____

24. Which of the following best describes your overall activity status since you entered the doctoral program? (Circle one; full-time=7 or more credits, part-time=6 or fewer credits)

1. Full-time student with no employment
2. Full-time student with full or part-time employment
3. Part-time student with no employment
4. Part-time student with full or part-time employment
5. Alternating periods of employment and going to school

25. Which of the following letter grades best describe your graduate school g.p.a.?

1. A   (4.0)   5. B-   (2.75 to 2.99)
2. A-   (3.75 to 3.99)   6. C+   (2.25 to 2.74)
3. B+   (3.25 to 3.74)   7. C   (2.00 to 2.24)
4. B   (3.00 to 3.24)   8. C-   (1.75 to 1.99)

26. Compared with other students in your department, how would you rate your academic performance? (Circle one.)
1. much above average
2. above average
3. about average
4. below average

27. As a graduate student have you done any of the following? (Circle one number on each line.)

	Yes	No
a. Received awards or honors	1	2
b. Published one or more articles	1	2
c. Presented paper (s) at a conference	1	2
d. Attended national conferences	1	2

28. What was your primary reason for pursuing a doctoral degree? (Circle one.)

1. I need a doctorate to advance in my field
2. I want to be a college professor
3. I could not find a job, so I decided to go back to school
4. I want to increase knowledge in my field

5. I want to pursue personal interests
6. I want to earn more money, which is possible with a doctorate
7. I want academic freedom
8. Other (specify) _____

IV.   **Questions 29 through 34 are about your behaviors, attitudes and reactions in relation to various aspects of your doctoral program.**

29.   Indicate your level of satisfaction with each of the following by circling   the appropriate number on each line. (1=very dissatisfied; 5=very satisfied)

<div align="center">Very Dissatisfied</div>

<div align="center">Dissatisfied</div>

<div align="center">Neither Satisfied
nor dissatisfied</div>

<div align="center">Satisfied</div>

<div align="center">Very Satisfied</div>

a. Quality of faculty instruction	1	2	3	4	5
b. Fairness of dept. in providing financial aid	1	2	3	4	5
c. Fairness in grading	1	2	3	4	5
d. Collegial atmosphere among faculty and students	1	2	3	4	5
e. Communication between faculty and students	1	2	3	4	5
f. Availability of faculty to meet with students	1	2	3	4	5
g. Quality of career guidance provided by faculty	1	2	3	4	5
h. Quality of overall faculty-student relations	1	2	3	4	5
i. Quality of guidance and academic support provided by faculty	1	2	3	4	5

30. To what extent have any of the following posed a problem for you?
(Circle one number on each line.)

	Major Problem	Minor Problem	Not a Problem	Don't Know
a. Red tape involved in my doctoral program	1	2	3	4
b. Few jobs requiring doctoral degrees in my field	1	2	3	4
c. Locating an advisor	1	2	3	4
d. Scheduling appointments with advisor	1	2	3	4
e. Lack of support and encouragement from family or spouse	1	2	3	4
f. Registration difficulties	1	2	3	4
g. Financial difficulties	1	2	3	4
h. Lack of encouragement from faculty	1	2	3	4

31. How frequently have/had you done each of the following? (Circle one number on each line.)

	Never	Seldom	Sometimes	Often	Very Often
a. Participated in independent studies.	1	2	3	4	5
b. Worked with a faculty member on a research/ teaching/committees.	1	2	3	4	5
c. Discussed academics outside the classroom with faculty members.	1	2	3	4	5
d. Received feedback about your academic progress (not grades).	1	2	3	4	5
e. Called other graduate students in your dept. at their home numbers.	1	2	3	4	5
f. Socialized informally with a faculty member.	1	2	3	4	5
g. Discussed career plans and ambitions with a faculty member.	1	2	3	4	5

	Never	Seldom	Sometimes	Often	Very Often
h. Discussed personal problems/concerns with a faculty member.	1	2	3	4	5
i. Participated in a study group with graduate students.	1	2	3	4	5
j. Participated in dept. sponsored social activities.	1	2	3	4	5
k. Socialized informally with other graduate students.	1	2	3	4	5
l. Participated in some campus activity since enrolling in graduate school (sports, interest clubs, concerts, etc.)	1	2	3	4	5
m. Attended dept. parties and gatherings at the home of a faculty member.	1	2	3	4	5
n. Participated in group activities with graduate students of color (on campus).	1	2	3	4	5
o. Taken courses from non-white faculty.	1	2	3	4	5

32.   Circle the number that best reflects your agreement or disagreement with the following statements regarding the social environment on campus.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
a. It was/is easy to make friends with other students.	1	2	3	4	5
b. Adjusting to the social environment on campus was/is difficult.	1	2	3	4	5

c. I am confident that I made the right decision in choosing to pursue my studies at the U of MN.	1	2	3	4	5
d. There is little or no racial discrimination on this campus.	1	2	3	4	5
e. Most students at this university hold/held belief and attitudes similar to my own.	1	2	3	4	5
f. There is/was adequate representation of minorities in my graduate program.	1	2	3	4	5
g. There is/was a strong sense of community on this campus.	1	2	3	4	5
h. I am satisfied with the level and types of student organizations/committees in my department.	1	2	3	4	5
I. My social experiences on campus are/were enjoyable for the most part	1	2	3	4	5

33.   Circle the number that best reflects your agreement or disagreement with the following statements regarding the academic environment on campus.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
a. At least one faculty member here has had a strong impact on my intellectual development.	1	2	3	4	5
b. My courses/independent studies are/were intellectually stimulating.	1	2	3	4	5
c. I have done as well academically in this doctoral program as I thought I would.	1	2	3	4	5
d. White faculty on this campus seem to have lower expectations of	1	2	3	4	5

minority students than
of white students.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
e. At least one faculty member here has had a strong impact on my professional development.	1	2	3	4	5
f. I have located a faculty member who I can turn to for support and encouragement.	1	2	3	4	5
g. I have met 5 faculty members at the U of MN. that I would trust to write recommendations for me.	1	2	3	4	5
h. I have met a faculty member who serves/ served as my mentor.	1	2	3	4	5
i. I am/was satisfied with my academic performance in this doctoral program.	1	2	3	4	5

34.   Below is a list of statements that might describe your faculty advisor. Circle the number after each item that best characterizes your view of your advisor.

My faculty advisor (not necessarily your mentor)	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
a. has assisted me in acquiring research skills.	1	2	3	4	5
b. has advised me in the selection of beneficial courses.	1	2	3	4	5
c. has discussed career opportunities with me.	1	2	3	4	5
d. has played a significant role in helping me advance toward degree completion.	1	2	3	4	5
e. is/was knowledgeable in his/her field.	1	2	3	4	5
f. is/was accessible for consultation.	1	2	3	4	5
g. offers/offered useful critiques of my work.	1	2	3	4	5

h. has concern for my professional development.	1	2	3	4	5
i. demonstrates scholarly or research excellence.	1	2	3	4	5
j. is interested in my welfare, including concern for me as an individual.	1	2	3	4	5

35. Overall, how would you rate your experience as a doctoral student? (Circle one)

1. Excellent   2. Very Good   3. Good   4. Fair   5. Poor

Thank you for taking the time to complete this survey. Please return it in the enclosed envelope to:

University of Minnesota
Office of Equal Opportunity in Graduate Studies
331 Johnston Hall
Minneapolis, MN. 55455

APPENDIX B

GRADUATE STUDENT SURVEY

I. This section of the questionnaire pertains to your background characteristics.

1.) What is your gender? (Circle one)
      1. Male   2. Female

2.) When were you born?   _____ _____ _____
                            Month   Day   Year

3.) What is your racial/ethnic group? (Circle only one)
    1. White or Caucasian
    2. Black or African-American
    3a. Mexican-American; 3b. Puerto Rican-American   3c. other Hispanic
    4a. American Indian   4b. Alaskan Native
    5a. Asian-American   5b. Pacific Islander
    6. Other (specify)_____

4.) Following are several broad groupings of occupations. Select the one grouping that most closely represents the occupation of your father or male guardian and your mother or female guardian (or if deceased, retired, or unemployed, the most recent job they held). (Circle one number in each column).

	Father or Male Guardian	Mother or Female Guardian
Electrician, plumber, butcher, secretary, etc.	a	a
Physician, lawyer, PT, other professional, high level business executive, etc.	b	b
Homemakers	c	c
Teacher, accountant, nurse, mid-level business executive, etc	d	d
Small business owner, supervisor, dental assistant, PTA, store manager, etc.	e	e
Truck driver, receptionist, sales clerk, nurses' aide, mail carrier, etc.	f	f
Laborer, custodian, farm worker, waiter, waitress, etc.	g	g

5.) What is the highest level of education completed by your father or male guardian and your mother or female guardian? (Circle one number in each column)

	Father	Mother
Elementary school or less	1	1
Some high school	2	2
High school diploma or equivalent	3	3
Some college, business or trade school	4	4
Associate degree	5	5
Bachelors degree	6	6
Some graduate or professional school	7	7
Master's degree	8	8
Doctoral degree (JD, MD, PhD, EdD, DPT)	9	9

6.) What is your current marital status? (Circle one)

1. Married   2. Single   3. Divorced/Separated   4. Widowed

7.) What region of the country do you consider home? (Circle one)

1. East
2. South
3. Midwest
4. Southwest

5. Northwest
6. West
7. Other _____
   (Specify)

II. This section of the questionnaire pertains to undergraduate school information.

8.) Which of the following general categories does your undergraduate major fall? (Circle one)

1. Agricultural
2. Arts and Humanities
3. Biological / Physical Science
4. Business / Communications
5. Education
6. Mathematics / Statistics

7. Engineering
8. Health Related Field
9. Computer Science
10. Social Science
11. Other _____
    (Specify)

9.) Write the name (and degree date) of the undergraduate institution where you received your baccalaureate degree. (For example: William & Mary, May 2003)

10.) If your undergraduate grade point average were converted to a letter grade, what would it be? (Circle one)

1.	A	(4.0)	5.	B-	(2.75-2.99)
2.	A-	(3.75-3.99)	6.	C+	(2.25-2.74)
3.	B+	(3.25-3.74)	7.	C	(2.00-2.24)
4.	B	(3.00-3.24)	8.	C-	(1.75-1.99)

11.) How would you rate the quality of your undergraduate education? (Circle one)

1. Excellent   2. Good   3. Adequate   4. Inadequate

12.) What was the amount of debt you had related to your undergraduate education when you received your degree? (Circle one)

1. None	5. $8,000 to $10,999	9. $20,000 to $22,999
2. Up to $1,999	6. $11,000 to $13,999	10. $23,000 to $25,999
3. $2,000 to $4,999	7. $14,000 to $16,999	11. $26,000 to $28,999
4. $5,000 to $7,999	8. $17,000 to $19,999	12. $29,000 or greater

III. This section of the questionnaire is about your ENTRY-LEVEL PROFESSIONAL GRADUATE DEGREE MPT/DPT program.

13.) How many PT schools did you apply to? (Circle one)

1. One	3. Three	5. Five	7. Seven or more
2. Two	4. Four	6. Six	

14.) How many PT schools accepted you? (Circle one)

1. One	3. Three	5. Five	7. Seven or more
2. Two	4. Four	6. Six	

15.) When will you finish your MPT/DPT studies at your current institution? (Circle one and fill in year)

1.	Fall 20____	3.	Spring 20____
2.	Winter 20____	4.	Summer 20____

16.) Indicate the most important reason that you chose your MPT/DPT program. (Circle only the one most important reason).

1.	It was the only one that accepted me	5. Recommendations of faculty
2.	Quality of program	6. Recommendations of friends
3.	Prestige of the school	7. Location of school
4.	Financial aid offered	8. Attended an open house
		9. Other _____

17.) Do you have a master's degree? (Circle one)

1. Yes   2. No   If yes, what year was it granted? _____
                   If yes, what was your major?_____

18.) During your MPT/DPT studies have you received any of the following types of financial aid from the university? (Circle one per line)

		Yes	No
a.	Grants / scholarships / fellowships	1	2
b.	University loans	1	2
c.	Teaching assistantship	1	2
d.	Research assistantship	1	2
e.	Administrative assistantship	1	2
f.	Tuition waiver	1	2

19.) Indicate the approximate proportion of your MPT/DPT education expenses provided by each of the following sources. (Circle one per line)

	None	Less Than 50%	Near 50%	More than 50%	All
a. Personal sources (savings, parents, relatives, spouse)	1	2	3	4	5
b. University assistance (research/teaching/admin assistant)	1	2	3	4	5
c. Other grants or fellowships	1	2	3	4	5
d. Other employment related to your graduate studies	1	2	3	4	5
e. Other employment not related to your graduate studies	1	2	3	4	5
f. Loans	1	2	3	4	5
g. Other _____	1	2	3	4	5

20.) Which of the following best describes your overall activity status since you entered the PT graduate program? (Circle one; full time = 7 or more credits)

a. Full-time student with no employment
b. Full-time student with full-time employment (Employment >30 week)
c. Full-time student with part-time employment

21.) Which of the following letter grades best describe your MPT/DPT school GPA?

1.	A	(4.0)	5.	B-	(2.75-2.99)
2.	A-	(3.75-3.99)	6.	C+	(2.25-2.74)
3.	B+	(3.25-3.74)	7.	C	(2.00-2.24)
4.	B	(3.00-3.24)	8.	C-	(1.75-1.99)

22.) Compared with other students in your PT program, how would you rate your academic performance?
(Circle one)

1. Much above average
2. Above average
3. About average
4. Below average

23.) As a PT graduate student have you done any of the following? (Circle one per line)

		Yes	No
a.	Received awards or honors	1	2
b.	Published one or more articles	1	2
c.	Presented paper(s) at a conference	1	2
d.	Attended national conference(s)	1	2

24.) Indicate the approximate number of hours per week you spend in each of the following.

1.	In class	_____ hours per week
2.	Reading and preparing for class	_____ hours per week
3.	Preparing papers & studying for exams	_____ hours per week
4.	Conducting research or scholarly activities outside of regular classwork	_____ hours per week
5.	Writing a dissertation	_____ hours per week
6.	Preparing for and teaching classes	_____ hours per week
7.	Working in a job	_____ hours per week
8.	Other	_____ hours per week

25.) Have you ever done any of the following during your PT education? (Circle one number on each line.)

		Yes	No
a.	Participated in activities of a minority group organization?	1	2
b.	Taken a course from non-white faculty?	1	2
c.	Taken a course from female faculty?	1	2

IV. Questions in this section are about your behaviors, attitudes and reactions in relation to various aspects of your PT graduate program.

26.) Indicate your level of satisfaction with each of the following by writing the appropriate number on each line. (Circle one number on each line)

1 = Very Dissatisfied   2 = Dissatisfied   3 = Neutral   4 = Satisfied   5 = Very Satisfied

a. Quality of faculty instruction	1	2	3	4	5
b. Fairness of department in providing financial aid	1	2	3	4	5
c. Fairness in grading	1	2	3	4	5
d. Collegial atmosphere among faculty/students	1	2	3	4	5
e. Communication between faculty/students	1	2	3	4	5
f. Availability of faculty	1	2	3	4	5
g. Quality of career guidance provided by faculty	1	2	3	4	5
h. Quality of overall faculty/student relations	1	2	3	4	5
i. Quality of guidance provided by faculty	1	2	3	4	5

27.) To what extent have any of the following posed a problem for you? (Circle one number on each line)

1 = Major Problem   2 = Minor Problem   3 = Not a Problem   4 = Don't Know

a. Red tape involved in my graduate program	1	2	3	4
b. Few jobs requiring graduate degrees in my field	1	2	3	4
c. Locating an advisor	1	2	3	4
d. Scheduling appointments with advisor	1	2	3	4
e. Lack of support and encouragement from family, spouse, or signi. other	1	2	3	4
f. Registration difficulties	1	2	3	4
g. Financial difficulties	1	2	3	4
h. Lack of encouragement from faculty	1	2	3	4

28.) How frequently have/had you done each of the following? (Circle one number on each line)

1 = Never   2 = Seldom   3 = Sometimes   4 = Often   5 = Very Often

a. Participated in independent studies	1	2	3	4	5
b. Worked with a faculty member on a research/teaching/committee	1	2	3	4	5
c. Discussed academics outside the classroom with faculty members	1	2	3	4	5
d. Received feedback about your academic progress (not grades)	1	2	3	4	5
e. Called other graduate students in your dept. at their home numbers	1	2	3	4	5
f. Socialized informally with a faculty member	1	2	3	4	5
g. Discussed career plans and ambitions with a faculty member	1	2	3	4	5
h. Discussed personal problems/concerns with a faculty member	1	2	3	4	5
i. Participated in a study group with graduate students	1	2	3	4	5
j. Participated in dept. sponsored social activities	1	2	3	4	5
k. Socialized informally with other graduate students	1	2	3	4	5
l. participated in some campus activity since enrolling in graduate school (sports, interest clubs, concerts, etc.)	1	2	3	4	5
m. Attended dept. parties and gatherings at the home of a faculty member	1	2	3	4	5
n. Participated in group activities with graduate students of color (on campus)	1	2	3	4	5

o. Taken courses from non-white faculty	1	2	3	4	5

29.)   Enter the number that best reflects your agreement or disagreement with the following statements regarding the **social environment** on campus.

1 = Strongly Disagree   2 = Disagree   3 = Neutral   4 = Agree   5 = Strongly Agree

a. It was/is easy to make friends with other students.	1	2	3	4	5
b. Adjusting to the social environment on campus was/is difficult	1	2	3	4	5
c. I am confident that I made the right decision in attending my choice of institution.	1	2	3	4	5
d. There is little or no racial discrimination on campus	1	2	3	4	5
e. Most students at this university hold/held beliefs/attitudes similar to my own	1	2	3	4	5
f. There is/was adequate representation of minorities in my graduate program	1	2	3	4	5
g. There is/was a strong sense of community on this campus	1	2	3	4	5
h. I am satisfied with the types of student organizations offered in my dept.	1	2	3	4	5
i. My social experiences on campus are/were enjoyable for the most part	1	2	3	4	5
j. There is good representation of minorities in my doctoral program	1	2	3	4	5

30.)   Enter the number that best reflects your agreement or disagreement with the following statements regarding the **academic environment** on campus.

1 = Strongly Disagree   2 = Disagree   3 = Neutral   4 = Agree   5 = Strongly Agree

a. At least one faculty member here has had a strong impact on my intellectual development	1	2	3	4	5
b. My courses are/were intellectually stimulating	1	2	3	4	5
c. I have done as well academically as I expected	1	2	3	4	5
d. White faculty have lower expectations of minority students versus white students	1	2	3	4	5
e. At least one faculty member here has had a strong impact on my professional development	1	2	3	4	5
f. I have located a faculty member who I can turn to for support and encouragement	1	2	3	4	5
g. Most faculty here are sensitive to the interests, needs and aspirations of all students	1	2	3	4	5

h. I have met a faculty member who serves/served as my mentor	1	2	3	4	5
i. I am/was satisfied with my academic performance in this graduate program	1	2	3	4	5
j. If a student seems to be doing poorly, this dept. goes out of its way to help the student stay in school	1	2	3	4	5
k. There is a great deal of contact between professors and students outside of the classroom	1	2	3	4	5
l. This institution makes an effort to attract students of diverse ethnic and social backgrounds in the graduate program	1	2	3	4	5

31.)   Below is a list of statements that might describe your **PT faculty advisor**. Enter the number that best characterizes your view of your advisor.

1 = Strongly Disagree   2 = Disagree   3 = Neutral   4 = Agree   5 = Strongly Agree

My PT faculty advisor (not necessarily your mentor):

a. has assisted me in acquiring research skills	1	2	3	4	5
b. has advised me in the selection of beneficial courses	1	2	3	4	5
c. had discussed career opportunities with me	1	2	3	4	5
d. has played a significant role in helping me advance toward degree completion	1	2	3	4	5
e. is/was knowledgeable in his/her field	1	2	3	4	5
f. is/was accessible for consultation	1	2	3	4	5
g. offers/offered useful critiques of my work	1	2	3	4	5
h. has concern for my professional development	1	2	3	4	5
i. demonstrates scholarly or research excellence	1	2	3	4	5
j. is interested in my welfare, including concern for me as an individual	1	2	3	4	5

32.)   Overall, how would you rate your experience as a **MPT/DPT student** at your institution? (Circle one)

1. Excellent   2. Very Good   3. Good   4. Fair   5. Poor

Thank you for taking the time to complete this survey. All information will be kept confidential by the researcher. Please return to the faculty member at your institution who administered this survey and they will return it to me. Phase Two of this research involves interviews. Please see enclosed sheet for more information.

APPENDIX C
LETTER TO POTENTIAL PARTICIPANTS

August   , 2005

Dear physical therapy student:

I would like to invite you to participate in a research study in partial fulfillment of my doctoral work at Old Dominion University. As a physical therapist, an educator, and a doctoral student, I am engaged in a study titled: **Perceptions and Factors Influencing Success in Professional Preparation Physical Therapy Education**. Phase two of this research involves interviews with current physical therapy students.

I will be conducting interviews at your institution in a few weeks. The aim of the interview is to learn more about your experiences during your graduate professional physical therapy education. The interviews will take approximately one hour and will be held at a time and location convenient for you. As an incentive for your participation, you will receive a small token of my appreciation for your participation after completion of the interview. If you would be willing to participate in an interview please complete the following information. (Providing contact information now does not mean that you HAVE to participate in the interviews. It just means that I will contact you to discuss your potential participation in the interviews.) Thank you very much and I look forward to hearing about your journey through physical therapy education!

Sincerely,

Mira Mariano, PT, MS, OCS   Doctoral Candidate in Urban Education
Senior Lecturer - School of Physical Therapy Darden School of Education
Old Dominion University   Old Dominion University
129 William B. Spong Jr. Hall   110 Education Building
Norfolk, VA   23529   Norfolk, VA   23529

Name_____

Institution:_____Email address:_____

Lam a: (circle one)   1st year student   2nd year student   3rd year student

Phone/cell number_____

Ethnicity: (Please circle one)
1.   White or Caucasian
2.   Black or African-American
3.   3a. Mexican   3b. Puerto Rican   3c.other Hispanic
4.   4a. American Indian 4b. Alaskan Native
5.   5a. Asian   5b. Pacific Islander
6.   Other

Gender: (circle)   Male   Female

APPENDIX D
LETTER TO PROGRAM DIRECTORS

July   , 2005

Dear Program Director:

I am currently a physical therapy faculty member pursing my doctorate in Urban Education at Old Dominion University. Having served as my program's PT admission director for the past eight years, I am very interested in student recruitment and retention. The purpose of my doctoral dissertation, titled **"Perceptions and Factors Influencing Success in Professional Preparation Physical Therapy Education"** is to investigate the relationship between academic achievement/retention and student background characteristics, social support and academic supports systems, and self-concept in physical therapy students. The qualitative component of this study seeks to explore students' perspectives on their experiences during physical therapy school. It is my hope that the information from this research will assist in the development of interventions and strategies to increase the number of diverse physical therapy applicants and students and may shed light on retention strategies for all students.

I would like your assistance in this study by requesting that you, or a designated faculty member, distribute a questionnaire and interview request form to your students at the end of a class period. Students are not to identify themselves on the questionnaire. The interview request form will solicit student participation in a one-hour individual interview arranged on your campus at a time that is convenient for the students. Interviews will be audio taped and transcribed and participants will be given the opportunity to review the interview transcripts for accuracy. The data will be presented in aggregate form and will use pseudonyms to protect the confidentiality of the participants and the institutions. The students who participate in the interviews will receive a small token of appreciation for their efforts.

I will be contacting you within the next week to discuss any questions that you may have regarding this study, the total number of questionnaires needed, and the designated contact person at your institution. The Human Subjects Review Committee has approved this study. Dr. **Dana Burnett** (757) 683-3442; dburnett@odu.edu or Dr. **John L. Echternach** (757) 683-4518; jechtern@odu.edu can be contacted should you have further questions. I would be happy to provide you with the results of this study after completion of the research. Thank you very much for your consideration of participation in this research and I look forward to talking with you soon.

Sincerely,

Mira Mariano, PT, MS, OCS
Senior Lecturer - School of Physical Therapy
Old Dominion University
129 William B. Spong Jr. Hall
Norfolk, VA   23529

APPENDIX E

Mariano Interview questions

1. Describe factors that influenced your choice of physical therapy (PT)?

>   Possible probes: How did this experience affect you? How did this person affect you?

2. What are your reasons for choosing this PT school to attend?

3. Describe some positive/negative experiences that you have had during PT school?

>   a. Possible probes: How did this experience affect you?

4. Describe things that you think would make a student successful during PT school?

>   a. Possible probe: Describe what was most important to your success?

5. Describe any barriers to success that you have encountered during your PT education?

>   a. Possible probes: How did this make you feel? How did you overcome that?

6. In what ways do you feel that your ethnicity is related to any of your experiences in PT school?

>   a. Possible probes:
>   Describe the importance of your race/ethnicity to you?
>   Describe the importance of associating with people of your own race/ethnicity? Of people not of your own race/ethnicity?
>   How do you see yourself in comparison to your majority/minority peers?

7. What are your impressions of the PT faculty members in your department?

>   a. Possible probes:
>   In what ways are they helpful/supportive or not so helpful/supportive?
>   In what ways do you perceive any differences between white faculty and faculty of color?
>   Can you describe your comfort level with various faculty in your department?

8. To what degree are you satisfied with your academic achievements at this institution?

>   a. Possible probes:
>   What has helped your success or hindered your academic progress?
>   Tell me what you think would help students be more successful in PT school?

9. Why do you think minority students are underrepresented in the PT profession?

>   a. Any additional comments that you would like to add?

.

APPENDIX F

P & K Williams
<pkwilliams215@comcast.net
>

05/09/2005 02:49 PM

To <mmariano@odu.edu>

cc

bcc

Subject <no subject>

Mira,

Sorry for the delay in responding. You have my permission to use the revised DSS. I contacted Dr. Michael Nettles to ask permission to use a shorter version of his original survey. He may be contacted at www.ets.org. with further questions about permission.

Good luck with your study.

Please contact me if you are unable to open the file and if I may be of further assistance. Take care.

Keith Williams
Assoc. Prof. Psychology
Stockton College of New Jersey

survey

CURRICULUM VITAE

MIRA H. MARIANO, PT, MS, OCS   **March, 2006**

Old Dominion University   *1110 Bedford Avenue*
4700 Hampton Blvd.   *Norfolk, VA 23508*
Technology Building; Rm. 3108   *(757) 440-1530*
Norfolk, VA 23529
Office: (757) 683-3289
Fax: (757) 683-4410
Email: mmariano@odu.edu

EDUCATION:

1990   **University of Pittsburgh**, Main campus, Pittsburgh, Pennsylvania
              Bachelor of Science in Physical Therapy, Cum laude

1997   **Old Dominion University**, Norfolk, Virginia
              Master of Science with a Concentration in Physical Therapy
              Thesis Title, "Reliability of the Modified-modified Schöber
              Method of Measuring Lumbar Range of Motion."

2001-present **Old Dominion University**, Norfolk, Virginia
              Doctoral candidate in the Urban Services PhD Program
              Concentration in Urban Education, Higher Education cognate

ACADEMIC EXPERIENCE:

1990 - 1991	Medical School Guest Lecturer	University of Pittsburgh Pittsburgh, Pennsylvania
1995 - 1996	Physical Therapy Graduate Teaching Assistant	Old Dominion University Norfolk, Virginia
1996 - 1997	Physical Therapy Part-time Lecturer	Old Dominion University Norfolk, Virginia
1997 - 2002	Physical Therapy Lecturer	Old Dominion University Norfolk, Virginia
2002 - present	Physical Therapy Senior Lecturer	Old Dominion University Norfolk, Virginia

CLINICAL EXPERIENCE:

1990 - 1991	Staff physical therapist	Univ. of Pittsburgh Med. Ctr.
1991 - 1993	Home health therapist	Pittsburgh, Pennsylvania

1991 - 1994	Outpatient physical therapy Staff physical therapist Co-coordinator Sports Medicine	Allegheny Valley Hospital Ctr. for Orthopedics & Sports Med Pittsburgh, Pennsylvania
1994- 1995	Private practice/Site Director	P.T. Associates of Williamsburg Williamsburg, Virginia
1995 - 2004	Contract agency Staff physical therapist	Dynamic Therapy, Inc. Virginia Beach, Virginia
1996 - 1997	Home health care Staff physical therapist	Olsten Kimberly Quality Care Virginia Beach, Virginia
1997 - 2001	Home health care Staff physical therapist	Heartland Home Health Virginia Beach, Virginia
1999 - 2000	Contract agency Staff physical therapist	Novacare, Inc. Williamsburg, Virginia
1999 - 2003	Comfort Care Home health physical therapist	Chesapeake General Hospital Chesapeake, Virginia
2002 - present	Medtronic Corporation Technical Service Representative "Focus on Rehab" presenter	Minneapolis, Minnesota
2005 – present	Flexi-pool Physical Therapist	Chesapeake General Hospital Chesapeake, Virginia
2005 – present	Private Practice Contract therapist	North Shore Sport & P.T. Norfolk, Virginia

LICENSURE - PHYSICAL THERAPY:
State of Virginia, #0105005017
State of Pennsylvania, #007108-L

BOARD CERTIFICATION:
1999 - 2009   American Board of Physical Therapy Specialties (ABPTS)
                        Clinical Specialist in Orthopaedic Physical Therapy

INSTRUCTIONAL RESPONSIBILITIES
OLD DOMINION UNIVERSITY:

Fall semester PT 640: Patient Evaluation I (3 cr.)
Interviewing/History, Vital signs, Vascular, Goniometry, Documentation, Cardiac/Respiratory examination, Standardized patient coordinator

PT 842:Patient Evaluation III (3 cr.)
Women's health, Pediatrics, Neurological, Geriatric examination

PT 655:Clinical Problem Solving I (1 cr.)
Emergency procedures, ICU, OSHA/CPR training coordinator, Infection control, Professionalism/Ethics, Standardized patient coordinator

PT 627: Theory & Practice I (4 cr.)
Wound care unit guest lecturer (14-16 hours total)

PT 832: Theory & Practice III (4 cr.)
Pediatric, Spinal Cord Injury, Neurological treatment interventions

Spring semester PT 641: Patient Evaluation II (3 cr.)
Gait & Posture examination, Musculoskeletal examination

PT 827:Theory & Practice IV (4 cr.)
Orthopedic and Manual therapy assessment and interventions

PT 858:Clinical Problem Solving IV (1 cr.)
Orthopedic and Differential diagnosis problem solving

Summer semester PT 621: Introduction to Physical Therapy (2 cr.)
Patient care skills, mobility training including wheelchairs and assistive devices, transfer training, medical terminology

PUBLISHED ABSTRACTS:

1999   Mariano, M: Reliability of the Modified-modified Schöber Method of Measuring Lumbar Range of Motion. Physical Therapy; May 1999, v79, i5, pS29.

1999   Mariano, M, Grisetti, G, Gliva, G: The Use of Standardized Patients to Supplement Clinical Education in a Physical Therapy Educational Program. Physical Therapy; May 1999, v79, i5, pS47.

2000   *Mariano, M, Twardzik, M, Ream CB, Roberts, B, Kitchen, J: The Effects of the Protonics® System on Perceived Pain and Lower Extremity EMG Activity During Functional Activities in Patients with Patellofemoral Pain. JOSPT, Jan 2000, 30(1), p.A28.

2006   Mariano, M., Hoxter, S., Serio, K., Seivers, R., Weatherford, L.:
            Normative Values of Lumbar Range of Motion Using the Modifed-
            modified Schober Method. JOSPT, Jan 2006, 36(1), pA48.

RESEARCH PRESENTATIONS:

1998   Mariano, M: Reliability of the Modified-modified Schöber Method of
            Measuring Lumbar Range of Motion. Presented at the Tidewater District
            Meeting/VPTA, February 23, Norfolk, Virginia

1998   *Mariano, M: Reliability of the Modified-modified Schöber Method of
            Measuring Lumbar Range of Motion. Presented at the Virginia State
            Physical Therapy Conference, April 25, Roanoke, Virginia

1998   *Grisetti, G, Mariano, M, Gliva, G: The Use of Standardized Patients to
            Supplement Clinical Education in a Physical Therapy Educational
            Program. Presented at the Virginia State Physical Therapy Conference,
            April 25, Roanoke, Virginia

1999   *Mariano, M: Reliability of the Modified-modified Schöber Method of
            Measuring Lumbar Range of Motion. Presented as a Poster Presentation
            at APTA Combined Sections Mtg, February 3-7, Seattle, Washington

1999   *Mariano, M: Reliability of the Modified-modified Schöber Method of
            Measuring Lumbar Range of Motion. Presented as a Poster Presentation
            at APTA National Conference, June 5-8, Washington, DC

1999   *Mariano, M, Grisetti, G, Gliva, G: The Use of Standardized Patients to
            Supplement Clinical Education in a Physical Therapy Educational
            Program. Presented as a Platform Presentation at the APTA National
            Conference, June 5-8, Washington, DC

2000   *Mariano, M, Twardzik, M, Ream CB, Roberts, B, Kitchen, J: The
            Effects of the Protonics® System on Perceived Pain and Lower Extremity
            EMG Activity During Functional Activities in Patients with
            Patellofemoral Pain. Presented as a Platform Presentation at APTA
            Combined Sections Mtg, February 3-7, New Orleans, LA

2001   *Mariano, M, Grisetti, G, Gliva-McConvey, G: The Use of Standardized
            Patients in Professional Preparation Physical Therapy Education: A
            Survey. Presented as a Poster Presentation at APTA Combined Sections
            Mtg, February 14-18, San Antonio, TX

2003   *Mariano, M & Hogan, M.: Reliability of Standardized Patient Scoring in
            Physical Therapy Education. Presented as a Platform Presentation at
            APTA Combined Sections Mtg, February 12-16, Tampa, FL

2003	*Mariano, M & Hogan, M.: Reliability of Standardized Patient Scoring in Physical Therapy Education. Presented at College of Health Sciences Research Day, March 26, Norfolk, VA
2004	*Mariano, M., Mears, C., Shukla, S., Winslow, J.: An Update on the Reliability of Standardized Patient Scoring in Physical Therapy. Presented at College of Health Sciences Research Day, March 31, Norfolk, VA
2005	*Mariano, M., Hoxter, S., Serio, K., Seivers, R., Weatherford, L.: Normative Values of Lumbar Range of Motion Using the Modifed-modified Schober Method. Presented as a poster presentation at the Virginia State Physical Therapy Conference, October 22, Portsmouth, VA
2006	*Mariano, M., Hoxter, S., Serio, K., Seivers, R., Weatherford, L.: Normative Values of Lumbar Range of Motion Using the Modifed-modified Schober Method. Presented as a poster presentation at the APTA Combined Sections Mtg, February 4, San Diego, CA

GRANTS AWARDED:

1998	Mariano, M.: The Use of Standardized Patients to Supplement Clinical Education in a Physical Therapy Educational Program. Summer Course Development funding: $1200.00 from the College of Health Sciences.

GRANTS APPLIED FOR:

2004	Mariano, M. (PI); Maihafer, G. and Giles, E. (Co-PIs): Instructional Strategies: The Use of Standardized Patients to Impart Confidence and Competency in Clinical Education. January 2004 – January 2005, Phi Kappa Phi Excellence Grant. $7500.00 (not funded)

RESEARCH & MANUSCRIPTS IN PROGRESS:

Mariano, M., Fulford, M. The Efficacy of the Use of Transcutaneous Electrical Nerve Stimulation (TENS) During the First Stage of Labor

Mariano, M., Hogan, M. The Reliability of Standardized Patient Scoring in Physical Therapy Education

Mariano, M., Hoxter, S., Serio, K., Seivers, R., Weatherford, L Normal Values for Lumbar Range of Motion Using the Modified-modified Schober Method

Mariano, M., Maihafer, G., Giles, E. Instructional Strategies: The Use of Standardized Patients to Impart Confidence and Competency in Clinical Education

HONORS & AWARDS:

2000	College of Health Sciences Excellence in Teaching Award
2003	College of Health Sciences Research Day - Best Faculty Platform
2004	College of Health Sciences Research Day - Best Faculty Platform
2005	Best Research Poster – Virginia Physical Therapy Association

SOCIETY MEMBERSHIPS:

1989 - 1990	American College of Sports Medicine
1989 - present	American Physical Therapy Association
	Section on Orthopedics
1989 - 1994	Pennsylvania Physical Therapy Association (PPTA)
1994 - present	Virginia Physical Therapy Association (VPTA)
1994 – present	Tidewater Physical Therapy Association (TPTA)
1997	Phi Kappa Phi Honor Society
1998 – present	Alpha Eta Honor Society
1997 - present	APTA: Section for Education
1999 - present	Asian Faculty Caucus (ODU)
1999 - 2003	APTA: Section for Women's Health
2003 – present	APTA: Section on Neurology

UNIVERSITY SERVICE:

1997 - present	Faculty Development Committee: University
1997 - 1998	Faculty Diversity Committee: College of Health Sciences
1997 – present	Admissions Director – School of Physical Therapy
1997 - present	Clinical Education Committee
1997 - present	Physical Therapy Curriculum Committee
1998 - present	Guest Lecturer - Exercise Science/PT Recruitment
1998 - 2001	Accreditation Committee
1998 - 2002	Assessment Committee: College of Health Sciences
1999 - 2002	Improvement of Teaching Committee: College of Health Sciences
1999 - 2000	Sexual Harassment Trainer : University
2002 - present	Faculty Committee: College of Health Sciences
2002 - present	Physical Therapy Club Advisor
2003 – present	Mentor – Hugo A. Owens African-American Cultural Center

PROFESSIONAL SERVICE:

1995 - present	Inservices to Dynamic Therapy, Inc.
1996 - present	Advising/recruitment activities for pre-physical therapy students and Guest speaker for Exercise Science club
1997 - present	Organized, coordinated, and facilitated annual School of Physical Therapy Open House/Information session – first Saturday in January each year

1998 - 1999	Fitness clinics - local high school athletes
1999	Echternach, J, Ernst, B, Mariano, M: Introduction to the Guide to Physical Therapist Practice. Presented at the Tidewater District Meeting/VPTA, May 17, Norfolk, Virginia
1999	Ernst, B, Mariano, M: Introduction to the Guide to Physical Therapist Practice. Presented to Riverside Regional Medical Center, October 20, Newport News, Virginia
1999-2000	Tidewater Physical Therapy Association Program Chair
2000	Ernst, B, Jamali, A, Mariano, M: Total Joint Arthroplasty Update. Presented as TPTA Continuing Education Course. January 29, Newport News, Virginia
2000-2002	Virginia Physical Therapy Association - Board of Director (District Director)
2002-present	Tidewater Physical Therapy Association -Student Relations Chair
2002 – present	Tidewater Physical Therapy Association - Nominating Committee Chair
2002 - present	Manuscript reviewer - Journal of Orthopedic & Sports Physical Therapy
2002	VPTA Legislative Day, January 11, Richmond, Virginia
2002	*Echternach, J., Mariano, M., Gliva-McConvey, G.: The Use of Simulated Patients in Physical Therapy Education. A four-hour education session presented at APTA National Conference, June 5-8, Cincinnati, OH
2004	Mariano, M: Spasticity Management. Presented to Virginia Occupational Therapy Association Annual Conference. October 17, Richmond, Virginia
2005	VPTA Legislative Day, January 13, Richmond, Virginia
2005 - present	Virginia Physical Therapy Association - Nominating Committee Chair

COMMUNITY SERVICE:

2002 - 2004	Lambert's Point Community Health Promotion - Aerobics Instructor
2003 - present	Physical Therapy Club activities (ODU 2003 Community Service Award)
2003 & 2004	ODU Buddy Walk for Down's Syndrome Association
2004	Sports Screenings – Franklin High School. May 24, Franklin, Virginia
2004 – 2005	EVMS Explorer's Club presentation
2004 – present	Career Day speaker – Norfolk Public Schools
2005	Sports Screenings – Southampton High School. June 7, Courtland, Virginia