LUNNEN, KAREN YUNDT. Students’ Perceptions of What Employers Consider Desirable Abilities, Attributes and Qualifications for Physical Therapists in Today’s Workforce. (Under the direction of Don C. Locke.)

In today’s workforce, characterized by change and increasing competition for jobs, it is important for educational programs, students and practicing physical therapists to be aware of the qualities that are valued by employers. The primary purpose of this study was to determine the perceptions of physical therapy students about the abilities, attributes and qualifications that are desired by employers of physical therapists in today’s workforce. Further, the study compared the perceptions of students with those of employers based on an earlier study of employers with a similar survey instrument.

The population surveyed was students nearing completion of their second year of study in each of the seven physical therapy programs in North Carolina (NC) and South Carolina (SC). Students were asked to respond to the survey from the perspective of an employer of physical therapists in today’s workforce, and to indicate the relative importance of items (grouped as abilities, attributes and qualifications) on a six-response Likert scale ranging from Not Important (1,2) to Important (3,4) to Essential (5,6). The student survey contained the same core questions as an earlier survey of physical therapy employers from clinical settings in NC and SC, allowing comparison of the two populations.
Analysis of the students’ responses resulted in rankings of abilities, attributes and qualifications. The three most valued abilities were: (1) manage time effectively, (2) problem-solve/think critically, and (3) abide by rules and regulations. The three most valued attributes were: (1) ethical behavior, (2) integrity, and (3) a positive attitude. The three most valued qualifications were: (1) broad-based knowledge and skills, (2) an advanced master’s degree in physical therapy, and (3) membership in the American Physical Therapy Association. Employers had the same top three abilities as students, but flexibility was above a positive attitude in the ranking of attributes, and manual therapy certification was above an advanced master’s degree in the ranking of qualifications. Additional analyses examined the correlation between students’ perceptions about the relative importance of the various abilities, attributes and qualifications and the amount of prior clinical experience (in weeks) that they had.
STUDENTS’ PERCEPTIONS OF WHAT EMPLOYERS CONSIDER DESIRABLE ABILITIES, ATTRIBUTES AND QUALIFICATIONS FOR PHYSICAL THERAPISTS IN TODAY’S WORKFORCE

by

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A dissertation submitted to the Graduate Faculty of North Carolina State University in partial fulfillment of the requirements for the degree of Education Doctorate

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Dedication

This dissertation is dedicated to my parents, John and Madeline Yundt, who, by their example, instilled in me a firm belief in the value of education and the pursuit of lifelong learning. My hope is that in some small way my work may contribute to a similar belief in my sons.

Additional dedication is made in memory of Jeanette Staley, a classmate whose grace and generosity helped all of us immeasurably.
Biography

Karen Yundt Lunnen is Assistant Professor and Acting Department Head for the graduate program in physical therapy at Western Carolina University. She earned a bachelor’s degree from Wittenberg University and a master’s degree in physical therapy from Duke University. She was on the physical therapy faculty at the University of North Carolina in Chapel Hill for four years before moving to Western North Carolina. Her area of clinical specialization is in a transdisciplinary model of service delivery to infants and children with developmental disabilities and their families. She is the proud mother of three sons, who are all enrolled full-time in college.
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Pursuing a doctoral degree would have been an impossible task without the support of family and friends. The cohort of doctoral students meant more to me than they will ever know. I knew that Dr. Locke would clearly delineate my path to successful completion of the dissertation and would not let me falter. I appreciate his guidance throughout our course of study.
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CHAPTER I – Introduction

Background Information

Change characterizes health care today. Health care professionals are confronted with unprecedented challenges as they address the threats and opportunities that a changing world presents. The roles that health care professionals assume and the settings in which they practice are changing. Adaptation is essential, on both an individual and systems level, yet much of the adaptation is reactionary rather than planned. Defining characteristics of the various professions become blurred and in the struggle for redefinition and direction, a dynamic tension is created among practice, research and education sectors within each profession. Claiming the needed perspective, professional organizations are attempting to mediate and to provide leadership and direction.

Somewhere in this complexity, students in professional health education programs are paying their tuition and studying what professors put forth in the hope of being prepared for meaningful employment in an increasingly competitive marketplace.

It is important to understand the challenges that confront health care professionals in the workplace and in institutions of higher education. With that foundation, it is possible to begin framing the answers to questions about what attributes, abilities and qualifications employers desire in the employees they hire; what students in health care professional education programs need to know; and how best to engage students in the learning process for the desired outcomes. The focus of this research is on the profession of physical therapy, but within a larger health care context.
The health care industry has been affected by the knowledge explosion, by rapid advances in technology and by the need to be competitive in a global economy. Much of the change in health care has been driven by third party payers who have structured reimbursement mechanisms to increase effectiveness and efficiency and lower costs. The Balanced Budget Act of 1997 called for $115 billion in Medicare cutbacks over a five year period, which has had a devastating impact on rehabilitation services, especially in home health and skilled nursing settings (Connolly, 1999).

Third party payers and the public are holding health care providers accountable for successful outcomes. For intervention to be reimbursed, it must make a functional improvement for the individual being treated. Prospective payment systems implemented in stages across settings challenge all members of the health care team to focus on effective outcomes and trim costs. Physical therapy practitioners are challenged to accomplish more in shorter time periods. They are required to diagnose problems and establish plans of care with greater accuracy, to delegate treatment responsibilities and master nuances of complex systems of accountability.

The Pew Health Professions Commission, coming from a more philosophical than fiscal perspective, predicted the following health care trends by the year 2005: efficiency and effectiveness through coordinated care, diversity and aging in the population, tensions in the expansion of science and technology, consumer empowerment, and an increasing role of values in shaping health care (Shugars, 1991).

Physical therapists were in short supply, particularly in more traditionally underserved areas, until the mid-1990s. Restrictions on reimbursement (most notably the
Balanced Budget Act of 1997), the increasing share of the market held by managed care organizations and growing emphasis on productivity decreased the demand for physical therapists. Decreased demand for physical therapy services occurred almost simultaneously with an increased supply of physical therapists secondary to the proliferation of new education programs. A workforce study commissioned by the American Physical Therapy Association (Vector Research, 1997) projects a 25 percent oversupply of physical therapists by 2005. An aging population of Baby Boomers and a nationwide focus on fitness, make it difficult to envision a lack of opportunities for physical therapists, but it does represent change. Opportunities abound in underserved areas and in specialty practice niches, like women’s health, aquatic therapy or sports medicine, but taking advantage of the opportunities will require a shift in our thinking and possibly in the preparation of future practitioners. What is needed to be successful in changing markets?

Smaller hospitals and private rehabilitation practices struggle to survive and many have been engulfed by larger corporations. Re-engineering was commonplace in the health care industry with a profound impact on processes and professional roles system-wide. Productivity standards, previously an enigma to professionals, became a common basis for budgeting and performance evaluation (Guccione, 1999).

Shrinking resources and escalating costs have caused institutions of higher education to re-think their approach to management. As in the health care industry, the public and those providing the resources for higher education (whether tuition, federal/state support or private funds) want assurance that they are getting what they pay
for. Traditionally, physical therapy programs attracted large numbers of qualified applicants. In 1994, the average number of applications to entry level education programs was 484 or 10 applicants for every available position (American Physical Therapy Association, 2000A). Many smaller universities developed physical therapy programs for the fiscal benefit realized from the dramatic increase in their undergraduate admissions as students enrolled to meet the prerequisites for physical therapy education. The number of physical therapy programs increased significantly, from approximately 50 in 1970 to 120 in 1990 and 193 in 2000 (APTA, 2000d30.

Concern was raised by leaders in the profession about the quality of the developing physical therapy programs. Most of the new programs were in non-medical institutions of higher education rather than in more traditional medical centers. Qualified faculty and program directors were in short supply, especially those with doctoral degrees. Increased demand for clinical education sites coincided with the increased external pressures on practice settings creating a crisis in the availability of clinical placements for physical therapy students.

The accrediting body, the Commission on Accreditation in Physical Therapy Education (CAPTE), revised the standards, making them more comprehensive and more rigorous. Some clinical practitioners were encouraged not to support developing education programs by refusing to accept their students for clinical education experiences so that the programs would not meet CAPTE standards and be forced to close. Students aspiring to practice physical therapy must graduate from an accredited program, pass a comprehensive written examination and be licensed by the state in which they want to
practice. In an effort to improve accountability and reliability, a national exam was adopted and the difficulty was increased. CAPTE monitored pass rates of new graduates as one means of evaluating educational program effectiveness.

Applications to physical therapy education programs nationwide have steadily decreased since the mid-1990s. This trend is threatening the viability of smaller programs and requiring a new mindset as institutions that had previously discouraged any but the brightest students were now needing to actively market their programs and recruit prospective students.

Population projections (U.S. Census Bureau, 2000) indicate that by 2030 the racial composition of the United States will be only 60.1% non-Hispanic white and the elderly will represent an increasingly large portion of the population seeking health care. It is critical that health care providers are responsive to the needs of an increasingly diverse client base. Access for a culturally diverse population is not optimal in traditional models of health care delivery, raising additional issues. The physical therapy profession has had difficulty recruiting members of minority groups into its ranks, despite considerable effort by physical therapy education programs. Only 10 percent of the APTA membership in 1999 represented minority groups (Campbell, 1999).

Change is forcing a new way of thinking about education and practice. The APTA, under the leadership of President, Dr. Jan Richardson, assumed an aggressive and optimistic stance. In June 2000 the House of Delegates of the APTA endorsed Vision 2020 – a vision statement for the physical therapy profession for the next 20 years. Vision 2020 contains a reference to “doctors of physical therapy… to whom consumers
have direct access” thus reflecting support for the clinical doctorate as the preferred entry level degree and autonomous practice as the preferred delivery model (APTA, 2000b, p. 1). Controversy about the vision statement abounds in the profession and many of the critics are in clinical settings. On a survey of physical therapy employers not one of the 276 respondents indicated a preference for the doctoral degree in making employment decisions (Lunnen, Nguyen, O’Kelley, & Kramer, 2001).

In the midst of this milieu of change and redefinition are the students preparing to enter the profession. Is communication among the various sectors of the profession adequate? Are the professional programs in which the students are enrolled preparing them for the demands of today’s workforce? The marketplace is competitive. Are students aware of the abilities, attributes and qualifications that employers value? The goal of physical therapy education programs is to prepare students to enter the profession as effective practitioners and to meet the demands of today’s workforce. How well education programs achieve that purpose depends on how responsive they are to changes in workforce demands and how well they communicate workforce demands to students. Students in physical therapy programs are shaped significantly by their didactic and clinical experiences in the professional curriculum.

In her presidential address, Richardson made the following statements relating to students and their role in change:

And we need to think about our future professionals and paraprofessionals: our students. They are the future of physical therapy and lifeblood of our profession. We need to recognize that, in virtually any society, schools are the voice of the
establishment, the training grounds for new recruits. So, if we are going to break the grip of our old culture, we need to ‘seize the schools.’ It’s the one basic rule of all revolutionaries.

We need to fortify our educational curriculums by putting them in service of the cultural shift. Enact the vision at the heart of our training! Everything about our education, from scope of practice to research, should reflect a sweeping change in our beliefs, values, and priorities. We must empower our students to know who we are, what we want to be, how we wish to be viewed, and how we plan to get there. (Richardson, 1999a, p. 1073)

A major study in industry was conducted as a partnership between business and industry (Labrecque & Duderstadt, 1996). The report that resulted from the study was titled, Spanning the Chasm: Corporate and Academic Cooperation to Improve Workforce Preparation, reflecting the disparity that was found between workplace needs and the preparation provided by institutions of higher education. Interestingly, despite the obvious need for increased knowledge and skills, business leaders interviewed by the task force of the Business-Higher Education Forum believed that recent graduates are most deficient in: (1) communication skills, (2) ability to work in teams, (3) flexibility, (4) ability to accept ambiguity comfortably, (5) ability to work with people from diverse backgrounds, (6) understanding globalization and its implications, and (7) adequate ethics training. A report by the National Center for Research in Vocational Education (Stasz & Brewer, 1999) supports the shift in focus from technical competencies to “soft” skills
such as responsibility and willingness to learn, and “generic” skills such as problem solving, communication and ability to work in teams.

Chen, Ervin, Kim, & Vonderheid (1999) identified a similar chasm between workplace needs in the health care industry and professional education. “There is discontinuity between the education of health professionals and the evolving needs of the population… and health professions schools must refocus” (p. 358). Relatively little has been done in any of the health care professions to investigate workforce needs. Studies done in medicine (Villanueva, Kaye, Abdelhak, & Morahan, 1995), nutrition (Kirk, Shanklin, & Gorman, 1989), nursing (Lacey, Beck-Warden, Cleary, Sherrod, & Diggs, 1997) and communication disorders (Henri, 1994) all support the value of personal traits over specific knowledge and skills or specialty credentials for prospective employees.

A survey mailed to 703 clinical sites in January 2000 examined the relative value that employers of physical therapists place on various abilities, attributes and qualifications (Lunnen et al., 2001). The survey instrument was designed as a four-page booklet in which the person with primary responsibility for employing physical therapists ranked abilities, attributes, and qualifications as essential, important, or not important on a six-response Likert scale. Results indicated that employers value employees who have the ability to manage time effectively, demonstrate ethical behavior and possess broad-based clinical knowledge and skills.

To summarize, the physical therapy profession is confronted with unprecedented challenges as a result of change in the workplace and in entry level education. Students in physical therapy programs are shaped, to some extent, by both sectors. What are
students’ perceptions of the abilities, attributes and qualifications that are valued in the workplace and how do their perceptions compare with those of employers?

Purpose of Study

The purpose of this research is to determine the perceptions of physical therapy students about the abilities, attributes and qualifications that are desired by employers of physical therapists in today’s workforce. Further, the study compares the perceptions of students with those of employers based on an earlier study of employers with a similar survey instrument.

Research Questions

The data were analyzed to answer the following research questions:

1. How is the list of specific abilities ranked based on physical therapy students’ responses to Likert items measuring relative importance as it relates to employment decisions about physical therapists in today’s workforce? (Abilities listed on the survey are: work effectively in teams, manage time effectively, maintain good record of attendance and punctuality, work sensitively with people from diverse backgrounds, demonstrate basic computer skills, assist with design and implementation of new programs, assist with quality management/outcomes assessment, abide by rules and regulations, communicate effectively through writing, provide effective instruction for diverse groups, provide effective patient/family education, problem-solve/think critically, document patient care
concisely/comprehensively, work independently, recognize limitations/know when to request assistance, demonstrate commitment to lifelong learning, adapt readily to change in the work environment, contribute positively to working relationships, assume leadership role within department/organization, delegate appropriate tasks to support personnel, manage resources efficiently, and establish liaisons with other professionals/departments).

2. How is the list of specific attributes ranked based on physical therapy students’ responses to Likert items measuring relative importance as it relates to employment decisions about physical therapists in today’s workforce? (Attributes listed on the survey are: flexibility, creativity, integrity, intellectual curiosity, strong work ethic, energetic personality, ethical behavior, sense of humor, and positive attitude).

3. How is the list of specific qualifications ranked based on physical therapy students’ responses to Likert items measuring relative importance as it relates to employment decisions about physical therapists in today’s workforce? (Qualifications listed on the survey are: membership in American Physical Therapy Association, advanced master’s degree in physical therapy, advanced master’s degree in related field, research experience, administration experience, broad-based clinical knowledge/skills, manual therapy certification, athletic trainer certification, exercise physiology experience/degree, massage therapy training/certification).
4. Is the number of weeks students have spent in formal full-time clinical education as part of their professional education correlated with their perceptions?

5. Is the number of weeks students have spent in a clinical setting with physical therapists prior to enrollment in a physical therapy education program correlated with their perceptions?

6. How do the perceptions of students compare to the perceptions of employers on the relative importance of the list of abilities?

7. How do the perceptions of students compare to the perceptions of employers on the relative importance of the list of attributes?

8. How do the perceptions of students compare to the perceptions of employers on the relative importance of the list of qualifications?

Significance of Dissertation Findings

These data have important implications for physical therapy education programs and for students in the programs. The findings from this study will help academic programs adapt their curricula to better address the needs of the workforce and prepare students to meet those demands. In a restricted job market, students are concerned about what factors will make them most competitive when they apply for a job. Results of the study will help students focus their energies on the abilities, attributes and qualifications that will best prepare them for a competitive marketplace.
Limitations of Study

1. The sample of physical therapy students surveyed in this study is limited to students enrolled in the seven physical therapy programs in North Carolina and South Carolina and cannot be generalized to the whole population of physical therapy students.

2. The survey of employers that the survey of students is being compared to was limited to clinical sites in North Carolina and South Carolina and cannot be generalized to the whole population of clinical sites.

3. The physical therapy programs represented in the sample include two different levels of entry level professional preparation: 1) doctor of physical therapy (Duke University), and 2) master of physical therapy (Elon College, Medical University of South Carolina, University of North Carolina at Chapel Hill, Western Carolina University, and Winston-Salem State University). Winston-Salem State University transitioned from a bachelor’s level program to a master's level program in 2000.

4. Approximately one year elapsed between the survey of employers and the survey of students. Rapid changes in health care may have affected the perceptions of the students. It is impossible to measure the influence of change during the twelve-month period.

5. The survey was administered by the Academic Coordinator of Clinical Education at each setting. This may have influenced students’ willingness to participate.
6. It is possible, although unlikely, that some of the physical therapy students were aware of the outcomes of the survey of physical therapist employers. That awareness could have skewed their reported perceptions.

7. Students’ prior experience in clinical settings, either as a student (in formal clinical internships) or prior to enrolling in a physical therapy education program, could affect their perceptions and is likely to vary considerably. It is a variable that is addressed in the study, but one that is not easy to quantify.

8. Employers were asked to classify the type of clinical setting they worked in according to ten categories identified by the APTA. Statistically significant differences were found in the employers’ perceptions based on the type of setting in which they worked. Students were not asked to base their responses on a particular type of clinical setting so their perceptions are likely to be more general in nature.

Definition of Concepts and Terms

- **Abilities** – Abilities are talents or general skills that an individual has (e.g., work effectively in teams or communicate effectively)
- **Attributes** – Attributes are personality traits or qualities that an individual has (e.g., flexibility, creativity)
- **Qualifications** – Qualifications are the specific skills, degrees, certifications, or prior experiences that an individual has that are related to their job responsibilities
(e.g., advanced master’s degree in physical therapy, athletic training certification, or research experience).

- **Physical therapy student** – student enrolled full-time in an entry-level physical therapy education program.

- **Entry-level degree** – the minimum degree required for a person to apply for a license to practice physical therapy. An entry-level degree program is typically a lockstep curriculum at the postbaccalaureate level that is a minimum of 24 months in length, and requires full-time enrollment.

- **Rankings** – ordering of data based on computer analysis of students’ or employers’ responses to Likert items on survey. None of the rankings reported were done by survey respondents.
CHAPTER II – Conceptual Model and Review of Literature

Introduction

The purpose of this research is to determine the perceptions of physical therapy students about the abilities, attributes and qualifications that are desired by employers of physical therapists in today’s workforce. Further, the study compares the perceptions of students with those of employers based on an earlier study of employers with a similar survey instrument.

The underlying premise is that change has drastically altered the landscape for institutions of higher education and for healthcare providers. Research supports that communication between institutions of higher education and business is not effective about workplace needs and preparation of students to meet those needs. Specific to the profession of physical therapy, the characteristics that employers value in the physical therapists they hire had not been studied until the survey conducted in 2000 (Lunnen et al., 2001). The responses to the survey with employers provided the framework to investigate whether educational programs were preparing students who accurately perceived the characteristics that employers of physical therapists valued. The outcomes have implications for the future direction of the profession, the content of physical therapy education and the teaching-learning environment.

This chapter will provide the foundations for the research conducted. It will summarize the concepts relevant to the study; pull the concepts together into a framework
for the study; and, finally, review research and literature that are related to the
dissertation and provide support for the conceptual framework.

Concepts Relevant to the Study

Change is the constant in today’s world creating challenges in complex
dimensions. Three forces that have driven change in all areas are the need to be
competitive in a global economy, rapid advances in technology, and a knowledge base
that is expanding exponentially.

Healthcare has been impacted by the forces above, but has also had its own
challenges. Two major forces have been the gradual shift to a managed care environment

Institutions of higher education, too, have been challenged. On one level they
have found themselves expected to be more accountable for outcomes with diminishing
resources and aggressive competition. On another level, they need to be responsive to the
demands that change is placing on the workforce needs of business and industry so that
they can adequately prepare students to meet those needs.

The profession of physical therapy, like many other healthcare professions, must
respond to global change and to the specific challenges that change has brought to
healthcare. The profession depends on institutions of higher education to prepare
physical therapy practitioners that are prepared to meet the needs of today’s workforce.
The APTA has attempted to mediate the forces of change and guide the profession along
an appropriate course. Physical therapy students stand in the midst of these shifting
sands, seeking the knowledge, skills and professional behaviors that will make them successful within the profession they have chosen. Students are, to some extent, a reflection of the priorities of the national organization, the institution of higher education in which they are enrolled, and the physical therapy practice settings where they receive clinical education. Do the perceptions of physical therapy students coincide with the perceptions of employers about the abilities, attributes and qualifications that are desirable in today’s workforce?

Conceptual Framework

A visual representation of the conceptual framework is presented in Figure 1. The triangle, the scientific symbol for change, is in the background, shaping the landscape on which the various sectors of the physical therapy profession (APTA, education and practice) must function. The sectors interact in complex ways, each one influencing the others, either directly or indirectly. Students are represented in the center, influenced by all sectors.

Figure 2 depicts, in graphic form, the major components of the dissertation research. The elements of the survey conducted with physical therapy students are represented in the top half and the survey conducted with physical therapy employers in the bottom half (in italics). The research questions are detailed in the second column of boxes and the comparison between the perceptions of employers and students are represented by the double arrow that connects student and employer rankings.
Figure 1
Conceptual Model: Students' Perceptions Influenced by Sectors of the Profession with Change a Constant Background
Figure 2. Research Framework

What are the characteristics of the students who responded to the survey?

- How much experience have the students had in physical therapy practice settings?
- How much didactic preparation have the students had?
- Weeks of full-time clinical education
- Weeks of volunteer/employment experience
- Semesters of didactic work to date

What are the perceptions of students about characteristics employers value in the physical therapists they hire?

- How do students rank the importance of specific abilities?
- How do students rank the importance of specific attributes?
- How do students rank the importance of specific qualifications?

What are the perceptions of employers about valuable characteristics in the physical therapists they hire?

- *How do employers rank the importance of specific abilities?*
- *How do employers rank the importance of specific attributes?*
- *How do employers rank the importance of specific qualifications?*

*Previous study/same survey

Student Rankings

Employer Rankings
Change in Our World

Change is the constant in our world today. It creates challenges in complex dimensions and it presents both opportunities and threats. Three forces that have driven change in all areas are the need to be competitive in a global economy, rapid advances in technology and the knowledge explosion.

Global Economy. Historically, the United States has had relatively little competition from other countries in marketing its goods. But today, “virtually anything can be made anywhere and sold everywhere” (Labreque & Duderstadt, 1996, p. 11). The need to be competitive has driven unprecedented change in the structures and processes of American business. One of the most dramatic outcomes has been attention to, and empowerment of, the customer or consumer. The customer is the central focus of total quality management (TQM), a model for organizational quality adapted from Japanese management principles and popularized by Deming (1986) and Juran (1995). Other guiding principles in the TQM approach include focus on continuous improvement in processes; empowerment of employees; use of self-directed work teams; culture/organizational change; and a scientific approach to solving chronic problems (Dahlgaard, 1999).

Recognition of a global economy has also raised heightened awareness and sensitivity to increasing diversity in the population. The U.S. Census Bureau population projections (U.S. Census Bureau, 2000) indicate that by 2030 the racial composition of the United States will be 60.1% non-Hispanic white; 13.0% non-Hispanic black; 6.7%
non-Hispanic Asian; and 19.4% Hispanic (of any race). As the baby boomers approach retirement age, the elderly will represent an increasingly large portion of the population seeking health care. The geriatric population is currently reported at 13% nationwide and is projected to increase to 20% by 2030. This trend towards increasing diversity among the population emphasizes the importance of health care providers being responsive to the needs of an increasingly diverse client base. It also raises issues about access in traditional models of health care delivery. The results of a study published in the *Journal of the American Medical Association* (Cooper-Patrick, Gallo, & Gonzales, 1999) indicated that patients feel more involved in their care when their health care provider is of the same race; and when patients feel more involved, the outcomes of intervention are improved. The study also supported the assumption that minority health professionals are more likely to practice in areas with a high concentration of poor and minority patients, thereby increasing access of these groups.

In a recent survey conducted by the Business-Higher Education Forum and the National Alliance of Business, “an overwhelming majority of Americans believe that diversity in the nation’s businesses and higher education institutions is important, and favor taking actions to ensure that student populations and workforces are diverse” (American Council on Education, 2000). Health care needs more practitioners from culturally diverse backgrounds. As an example, only 10% of the American Physical Therapy Association (APTA) membership in 1999 represented ethnic diversity (Campbell, 1999). There has been a slight increase in the ethnicity of students (from all minority categories) enrolled in professional physical therapy education programs from
1995-2000 (APTA, 2000d), but this is still a gross under-representation of the overall diversity in our nation.

Taking action to ensure diversity at all levels is only the first step. Collectively and individually there must be a commitment to gain the knowledge, skills and awareness to recognize and appreciate the influences of cultural group membership (Locke, 1998). Organizations have three choices as they move towards the management of diversity: (1) quality and fairness paradigm, (2) access and legitimacy paradigm; and (3) learning and effectiveness paradigm (Nosse, Friberg, & Kovacek, 1999; Thomas, 1991). The quality and fairness paradigm places emphasis on equal treatment or fairness across groups, minimizing differences, including those that are culturally-based. Members of the minority group are encouraged and expected to blend in with the majority group. The access and legitimacy paradigm not only increases representation through numbers, but openly acknowledges the need for that diversity in a multicultural world and the value of diversity for improved business performance, relationships and practices. Elements of both of the other paradigms are incorporated into the learning and effectiveness paradigm, but this paradigm goes further. It recognizes that employees make choices based on their cultural background and analyzes how these perspectives can be incorporated most effectively into the primary work of the organization. “It means that these companies adopt a diverse perspective of their primary tasks, market definition, strategies, products, mission, long-term vision, business practices, and organizational culture” (Nosse, et al., 1999, p. 81). The learning and effectiveness paradigm is the most
appropriate for long term success in education, research and practice sectors of the health care system.

*Technologic Advancement.* Phenomenal developments in technology have resulted in change that was unimaginable decades ago, and advances continue at an amazing pace. Information technology places vast resources within easy access; virtual reality simulations pose incredible opportunities for education and skills training; data management systems provide almost unlimited potential for monitoring processes and outcomes; and knowledge of robotics may soon be as basic as that of computers. These are only a few examples of how technology has changed our world.

*Knowledge Explosion.* The amount of knowledge available to us is expanding exponentially, and as information technology improves, knowledge is increasingly more available to us. As an example, one of the most significant developments in the past decade is mapping of the human genome. It will be possible in the near future to identify the genetic components of virtually all disease and disability (except trauma); predict the risk factors for individuals; and provide interventions that will revolutionize medical practice (Lapham, Long, & Kozma, 1999). Recent advances in genetics represent a whole new frontier of knowledge available to health care professionals that must be studied, taught, and incorporated into practice. It is also an example of the increasing complexity of issues confronting the health care practitioner. The new field of genetics raises significant ethical, legal, and social issues, to the extent that in the initial funding for the Human Genome Project, the U.S. Congress designated 3 to 5% of the budget for studying the issues. “Most health care professionals… have had little time to understand
and prepare for the implications of the new genetics to their practice” (Lapham, et al., 1999, p. 82).

It is increasingly difficult to “keep up” even in relatively specialized areas. Yet, particularly in a service industry, where peoples’ lives, or the quality of their lives, may depend on a practitioner’s knowledge, it is critical that practitioners continually pursue venues for learning. Currency is essential in healthcare education and clinical practice. The Pew Health Professions Commission, established in 1989 by Pew Charitable Trusts, has as its mission, “to assist educational institutions and workforce policy makers produce health care workers who meet the changing needs of the American health care system” (http://futurehealth.ucsf.edu/pewcomm.html). Concern about the need for health professionals to remain current in their knowledge prompted a study by the Pew Health Professions Commission and the subsequent recommendation that a regulatory system be created to ensure practitioners’ initial and continuing competence (Finnocchio, Dower, McMahon, & Gragnola, 1995). In the context of continuous change it is imperative that higher education recognize and convey to students the necessity for lifelong learning (King, 1999).

Change in Health care

The health care industry has been affected by the major forces driving change, but it has had additional challenges. The 1990s have been referred to as “the most dynamic decade ever faced by the nation’s health professionals” (O’Neil, 1998, p. 1). In a special issue of the American Speech-Language-Hearing Association’s professional journal
devoted to change, Gottfred (1994) compares change to a river – “sometimes coming in a slow meandering flow, then happening in spurts like a series of small rapids. And sometimes, without warning, we tumble over a high falls, and our lives are forever altered” (p. 38). The last decade marked that kind of precipitous change for health care professions. Kongstvedt (2001) states that “turbulence remains a prominent dynamic” (p. xxi).

Change in health care was prompted by growing public disenfranchisement with the American health care system. The total and per person cost of health care was far more than any other nation, yet, many people were poorly served, because of their geographic location, lack of health insurance or the cost of expensive, uncovered services (O’Neil, 1993). The result was a social, economic and political demand for reform that focused on cost, quality and access. “These seemingly simple concepts become complicated when they are enmeshed in the complex array of financing arrangements, delivery mechanisms, human resource policies, market forces, professional interests, governance structures, and political realities” (O’Neil, 1993, p. 5). The proposals for change all focused on restructuring the health care system through fundamental alterations in financing and delivery systems.

In the absence of comprehensive health care reform, much of the change in health care has been driven by management systems and third party payers who have structured reimbursement mechanisms to increase effectiveness and efficiency and lower costs. Two developments in particular have altered the delivery of modern health care in America: (1) managed care, and (2) the Balanced Budget Act of 1997.
Managed Care. Referring to managed care, the Pew Health Professions Commission report, Critical Challenges: Revitalizing the Health Professions for the Twenty-first Century stated, “In five brief years the organizational, financial and legal frameworks of much of the U.S. health care industry have been transformed to emerging systems of integrated care that combine primary, specialty and hospital services. These systems attempt to manage the care delivered to enrolled populations in such a manner as to achieve some combination of cost reduction, enhanced patient and consumer satisfaction, and improvement of health care outcomes” (Pew Health Professions Commission, 1995, p. 1). The Pew Commission predicted that by the end of the century the American health care system would be:

- More managed with better integration of services and financing
- More accountable to those who purchase and use health services
- More aware of and responsive to the needs of enrolled populations
- Able to use fewer resources more effectively
- More innovative and diverse in how it provides for health
- More inclusive in how it defines health
- More concerned with education, prevention and care management and less focused on treatment
- More oriented to improving the health of the entire population
Many would disagree that the outcomes of managed care have been as positive as the Pew Commission predicted. The American Medical Association took a strong stance against managed care, as manifested by health maintenance organizations (HMO’s) as early as 1932, but managed care systems have continued to grow in popularity with rapid expansion in the 1990s (Kongstvedt, 2001). A panel of physical therapists summarized the impact of managed care on practice, education and research sectors of the profession (Wynn, 1999). “Managed care has presented an immense conflict in health care between the medical ethics of managing a patient and the business ethics of managing a system” (Wynn, 1999, p. 36). It has demanded accountability for patient outcomes and overall effectiveness and efficiency. This in turn has added urgency to the need for research that supports interventions with patients; termed evidence-based practice. Students must be prepared with exceptional problem-solving abilities and the flexibility to adapt to a changing environment. Managed care has also demanded that students understand issues of health policy, fiscal responsibility, cost containment, and supervision of personnel to survive.

**Balanced Budget Act of 1997.** The Balanced Budget Act of 1997 (Act) was enacted to maintain the long-term viability of the Medicare program and enabled the first balanced federal budget in more than 30 years (Connolly, 1999). A major portion of the Act was $115 billion in Medicare cutbacks over a five-year period, which had a dramatic impact on every aspect of health care for the Medicare-recipient population. The impact has been devastating for rehabilitation services with provisions in the Act that could result in a $1.7 billion cut in reimbursements (Connolly, 1999; Richardson, 1999b).
Physical therapists reported being unemployed or having involuntary cutbacks in their hours, particularly in home health and skilled nursing settings where prospective payment systems were first implemented (Goldstein, 2000). Fortunately, the employment picture for physical therapists seems to be improving, at least in part as a result of amendments to the Balanced Budget Act implemented in 2000 (Goldstein, 2001). But, experts (The Lewin Group, 2000) now believe that Medicare payment reductions to hospitals may actually be one-third more than projected when the law was enacted. As aptly stated by the editor of physical therapy’s professional journal, “…on the bad days, health care professionals look like hyenas fighting over who gets first pick of the remnant offered up by profit-driven valueless systems that seek primarily to control expenditures” (Rothstein, 2000, p. 1074).

Smaller hospitals and private rehabilitation practices struggle to survive and many have been engulfed by larger corporations. Productivity standards, previously an enigma to professionals, have become a common basis for budgeting and performance evaluation (Guccione, 1999). In all areas of health care, professionals have been asked to do more with less. One of the ways this has impacted educational programs is increasing pressure to produce graduates that are cost-effective clinicians at the time of graduation (Delitto, 2000).

**Change in Physical Therapy Profession**

Until the mid-1990s, physical therapists vied with computer specialists in the lay press for having the greatest prospects for employment. But a workforce study
commissioned by the APTA (Vector Research, 1997) projects a 25 percent oversupply of physical therapists by 2005. “More aggressive penetration of managed care organizations and certain aspects of the Balanced Budget Act have contributed to a decrease in demand for physical therapy services” (Goldstein, 1999, p. 20). Optimists view this as a challenge to open new doors of opportunity and to create specialized practice niches (Woods, 1999; Barber, 2000; Fasnaught, 2000; McManus, 2000; Smith, 2000; Woods, 2000; Smith, 2001). Regardless of the viewpoint, there are limited practice opportunities in traditional settings and that represents change that must be acknowledged. “Today’s educators must become far less concerned with preparing students to fit into preexisting niches and far more concerned with empowering them to invent their own futures…” (Wood, et al., 2000, p. 594).

One of the greatest challenges for all of the health care professions in this period of rapid change is redefinition of professional roles and boundaries. Reform will create new opportunities for some professions and impose limitations on others. The outcomes of reform and redefinition will depend in large measure on whether change is perceived as an opportunity or threat.

Change in Institutions of Higher Education

Institutions of higher education are experiencing their own stresses in response to change. Faced with diminishing resources and escalating costs, college and university administrators are re-thinking their approach to management. As in the health care industry, the public and those providing the resources for higher education (whether
tuition, federal/state support or private funds) want assurance that they are getting what they pay for. The U.S. Congress established the National Commission on the Cost of Higher Education to make recommendations related to college costs as part of the political response to escalating demands for accountability. The final report of the Commission (1998), *Straight Talk About College Costs and Prices*, is an excellent review.

The Pew Health Professions Commission (O’Neill, 1993) contends that the focus of health care reform almost exclusively on restructuring the systems of reimbursement and delivery omits a critical element – the education and reeducation of health care professionals.

The skills, attitudes, and values of the nation’s 10 million health care workers have a fundamental impact on health care. The kind of care these individuals provide, how they provide it, what they value, how they interact with patients, how they define quality, and how efficiently they work determines, to a great extent, the quality, cost, and availability of health care. Reforming the education health professionals receive combined with policies that address their availability, distribution, and utilization is one of the foundations of long-term reform in health care” (O’Neil, 1993, p. 5).

*Change in Physical Therapy Education*

In the field of physical therapy, the average number of applications to entry-level education programs in 1994 was 484, or 10 applicants for every available position
(APTA, 2000a). Many smaller universities realized that establishing a physical therapy program at the graduate level would result in a dramatic increase in their undergraduate enrollment. That, coupled with the shortage of physical therapists, particularly in underserved areas, resulted in a significant increase in the number of physical therapy education programs, from approximately 50 in 1970 to 120 in 1990 and 193 in 2000 (APTA, 2000d). Existing programs increased their enrollment to address shortages in the workforce. The net result was a 62.7 percent increase in the number of entry level physical therapy graduates in the ten year period from 1987-1997 (Collier, 2000). As a comparison, speech and language pathology saw a 91.4 percent increase, and occupational therapy an 87.9 percent increase, in entry level graduates over the same ten-year span.

Historically, physical therapy education programs were based in large medical universities (Nosse, et al., 1999). Most of the new programs were in non-medical institutions of higher education. Qualified faculty and program directors were in short supply, especially those with doctoral degrees. Typically, about one third of an entry-level physical therapy program is devoted to clinical education experiences, where students are placed full-time in clinical sites under the supervision of licensed physical therapists (APTA, 2000d). Faced with internal pressures for accountability and escalating numbers of students needing placements, clinical sites were unable to accommodate the demand. The decreased availability of clinical sites able to provide a quality experience for students has reached crisis proportions and has forced educators and practitioners to rethink traditional models (APTA Education Division, 1998).
Leaders in the profession became concerned about the proliferation of programs and the quality of many of the developing programs. Rothstein (1999), vocal editor of the physical therapy professional journal, compared the expansion of physical therapy education programs to metastases.

Like any metastatic mass, they were undifferentiated and drained the vitality of the host….We produced therapists because clinical directors asked for them, because schools liked the money they could bring in, because legislators wanted happy applicants – because of a dozen other reasons that had little to do with health care or creating a permanent niche for the good work that therapists do. (p. 544).

The House of Delegates of the APTA in 1999 adopted a policy, RC-47-99, recommending a voluntary moratorium on the creation of new physical therapy and physical therapist assistant programs until June, 2002. The accrediting body, CAPTE, made standards more rigorous.

To practice physical therapy, practitioners must graduate from a CAPTE-accredited program, pass a comprehensive written examination, and be licensed by the state board of physical therapy examiners where they wish to practice. In an effort to improve accountability and reliability, a National Physical Therapy Examination administered by the Federation of State Boards of Physical Therapy (FSBPT) was adopted. Effective July 1996, all state licensing authorities adopted the FSBPT criterion-referenced passing score of 600 (North Carolina Board of Physical Therapy Examiners, 2000). CAPTE monitors passing rates of new graduates as one means of evaluating
educational program effectiveness. Each state regulates physical therapy practice through a practice act. Physical therapists are continuing to fight state by state to amend the practice acts to allow independent practice (i.e., without physician referral). This significantly broadens the potential scope of practice.

With the trend towards a shrinking job market, the number of applicants to physical therapy education programs has also decreased. In the five-year span from 1994-1999, the average number of applications per program decreased from 484 to 178 (APTA, 2000a). This downward trend threatens the viability of smaller programs and challenges all programs to recruit prospective students, market their programs and establish themselves positively on numerous benchmarking criteria.

One of the greatest challenges and most important responsibilities for a leader is leading change. Resistance to change is common, in both individuals and organizations, and many reasons exist for resistance (Yukl, 1998). These include: lack of trust, belief that change is not necessary, belief that change is not feasible, fear of personal failure, threat to values, and resentment of interference. From beginning to end of major change, there is a typical pattern of events described by change process theories. Lewin (1951) developed a force-field model that had three phases: unfreezing (where people recognize the need for change); changing (where people look for a strategy for adapting and try it); and refreezing (where the adaptation strategy to change becomes established). Kovacek (1995) describes four stages that individuals go through towards acceptance of change: (1) denial, (2) resistance, (3) new awareness, and (4) commitment.
The Pew Health Professions Commission (O’Neil, 1993) asserts that the biggest barrier to change in health care education is mindset. Today’s educational leaders matured in a resource-rich environment with a growth mentality, but growth and expansion are not the answers to today’s challenges. Effective responses will involve substantive redirection and strategic focus.

Baker (1998) proposed a model for change, the Core Values Model. The model was designed to assist community college leaders influence and manage systematic change, but can be applied to other types of organizations as well. The drivers for the model are the external environment (extremely influential and complex in health care) and the leadership. The next aspect of the Core Values Model is the systems and processes of the organization. The final aspect of the model is outcomes, accountability and the response of individual/group. Each aspect of the model is linked to the other in a series of feedback loops.

Transformational leadership is often required if an organization is to respond positively to change (Roueche, Baker, & Rose, 1989). The leader must motivate people in the organization to do more than they expected by increasing their awareness of task outcomes; guiding them to see beyond their own self-interests toward the good of the organization; and activating their higher-order needs (Bass, 1990). In contrast to a charismatic leader, a transformational leader seeks to empower and elevate followers (Yukl, 1998). Key behaviors of a transformational leader are idealized influence, individualized consideration, inspirational motivation, and intellectual stimulation. A major role of the leader is to persuade other key people of the seriousness of the threat
and the need for major changes rather than incremental adjustments. Establishing a clear vision that is a source of self-esteem and common purpose is an important component of moving an organization through change.

In physical therapy, the national professional organization, the APTA, has been an aggressive change agent under the leadership of Jan Richardson. In her 1999 presidential address to the profession, entitled “Leaders Who Inspire Change,” Dr. Richardson stated,

Some may be worried about the present and the change we have seen, reminiscing about the better times that have passed. …Our current culture simply won’t work for us anymore with the new reimbursement system. … We need a radical culture change with focus on the future… (Richardson, 1999a, p. 1070).

In June 2000 the House of Delegates of the APTA endorsed A Vision for Physical Therapy 2020 – A Vision Statement (and a condensed version, termed the Vision Sentence) for the physical therapy profession for the next 20 years.

Physical therapy, by 2020, will be provided by physical therapists who are doctors of physical therapy and who may be board-certified specialists. Consumers will have direct access to physical therapists in all environments for patient/client management, prevention, and wellness services. Physical therapists will be practitioners of choice in clients’ health networks and will hold all privileges of autonomous practice. Physical therapists may be assisted by physical therapist assistants who are educated and licensed to provide physical therapist-directed and -supervised components of interventions.
Guided by integrity, life-long learning, and a commitment to comprehensive and accessible health programs for all people, physical therapists and physical therapist assistants will render evidence-based service throughout the continuum of care and improve quality of life for society. They will provide culturally sensitive care distinguished by trust, respect, and appreciation for individual differences.

While fully availing themselves of new technologies as well as basic and clinical research, physical therapists will continue to provide direct patient/client care. They will maintain active responsibility for the growth of the physical therapy professional and health of the people it serves. (APTA, 2000b, p. 1).

The statement reflects support for the clinical doctorate as the preferred entry-level degree and autonomous practice as the preferred delivery model. In her presidential address, Richardson encouraged the membership to “look to the Vision Statement without hesitation or doubt, and believe that it is entwined with our basic fabric, our purpose, and our scope of practice” (Richardson, 1999a, p. 1070). Her behaviors are those of a transformational leader. The future holds the answer as to whether her efforts to lead transformation in the face of today’s challenges will be successful.

Future

The Pew Health Professions Commission (O’Neil, 1993) identified characteristics of the emerging health care system as they perceived it in 1993. These included: orientation toward health, population perspective, intensive use of information, focus on
the consumer, knowledge of treatment outcomes, constrained resources, coordination of services, reconsideration of human values, expectations of accountability, and growing interdependence (O’Neil, 1993).

In looking to the future for the allied health disciplines, the Pew Commission notes the diversity of allied health fields and the reflection of that diversity in education and research. The major recommendation for the future is to develop strategies for collaboration and integration among the many allied health disciplines, including identification of common core areas from which they may evolve. “Such an integrating strategy would enhance activities among diverse educational institutions, facilitate movement of allied health care workers within their disciplines, provide flexibility in meeting responsibilities in the work care setting, and ultimately better serve the health care needs of the public” (O’Neil, 1993, p. 27). With change occurring so rapidly, it is difficult to predict the future beyond general predictions like those enumerated by the Pew Commission.

Leaders in the physical therapy profession, recognized by the APTA as Catherine Worthingham Fellows because their work has resulted in lasting and significant advances in the science, education, and practice of the profession of physical therapy, were asked to comment on what the profession of physical therapy needs to do to thrive in the new millennium. Their responses were published in a monthly series of articles in PT-Magazine of Physical Therapy, entitled “Forecast 2000.” These are excellent sources of information about change required by the physical therapy profession. A few excerpts from the series follow as examples:
- Blood, H.: “… build alliances with other professional groups to determine and expand meaningful roles in the health care industry” (“Forecast 2000,” January, 2000, p. 39)

- Campbell, S. K.: “…further develop its evidence base; design innovative educational programs at professional, postprofessional, continuing education, and advanced graduate levels; advance practice through continued specialization and development of new practice arenas, while establishing a solid reputation as experts in diagnosing movement dysfunction caused by neural or musculoskeletal impairments; clearly define its body of knowledge; establish standardized, validated measures…; increase the level productivity of clinical researchers…” (“Forecast 2000,” February, 2000, p. 32)

- Hislop, H. J.: “To have foundation sciences as the curricular core, along with science-based clinical teaching, is to enable physical therapists to communicate fully with colleagues in medicine and the basic sciences at a commensurate level of knowledge and thought” (“Forecast 2000,” January, 2000, p. 39).

- Close, J.: “…ultimately, the patients we serve will become prudent buyers of rehabilitation services and will demand a higher quality of service from their clinicians” (“Forecast 2000,” February, 2000, p. 33)

- Soderberg, G.: “…must produce practitioners of the highest quality” (“Forecast 2000,” February, 2000, p. 33). The effort must include practitioners, educators and students and must include adoption of the highest of standards and attitudes.
Nelson, R. M.: “It is critical that we remain focused on patient care centered on the precepts of prevention and wellness and guided by the principles of quality and effectiveness that is evidenced-based” (“Forecast 2000,” February, 2000, p. 33)

**Effect of Change on Health Care Practitioner**

The health care practitioner has had to make significant adaptation to keep up with the changes in health care. According to Nosse, et al. (1999), health care providers will be challenged to produce the same or better patient outcomes with fewer resources. Those providing direct care must gain an entirely new set of care management skills in addition to clinical practice skills. Managers are expected to have leadership abilities once expected only from higher level administrators. Not only are practitioners required to meet productivity standards, but there are steadily increasing demands for performance outcomes with patients. Computerized documentation and expansive databases now allow clinicians to be compared with other clinicians and facilities with one another based on patient outcomes.

Changes are also occurring in the use of generalists, specialists and professional extenders. The current trend is towards better reimbursement for generalist practitioners than for specialists (Nosse, et al., 1999). Generally, no compensation is awarded for advanced degrees or clinical specialization. Professional extenders are more and more commonly used to bring down the cost of care delivery by increasing the productivity of the higher paid professional. In physical therapy, the extenders have traditionally been
physical therapist assistants, but athletic trainers, exercise physiologists and massage therapists are now functioning as extenders in some physical therapy practice settings.

Gottfred (1994) reflects on change in the speech-language-hearing profession over the past 20 years, noting that it has become multicultural and multilingual; broadened to include the study of language; accepted private practice; and allowed women into the higher echelons. In her view, the significant challenges facing the profession are the growing multicultural and multilingual nature of our society, increased specialization, doctoral level entry, and a bottom line mentality in the health care system.

Physical therapy practitioners are challenged in the changing health care landscape to accomplish more in shorter time periods. They are required to diagnose problems and establish plans of care with greater accuracy, to delegate treatment responsibilities and master nuances of complex systems of accountability.

Preparation of Today's Graduates for Workforce Demands

The principles of total quality management, introduced initially to American industry, have also been applied with some success to institutions of higher education (Mergen, Grant, & Widrick, 2000). Some of the most important customers of higher education institutions are the employers that hire their graduates (Willis & Taylor, 1999). Workforce needs must drive higher education, especially professional education.

In 1994, Poling, retired chief executive officer of Ford Motor Company and Chairman of the Business-Higher Education Forum, established a task force on high performance work and workers. The goal of the task force was to examine “how well
today’s college graduates are prepared to meet the demands of the modern work place” (Labreque & Duderstadt, 1996, p. 1). Task force members went in teams to conduct intensive interviews at 10 corporations and 12 institutions of higher education that were selected to represent a diverse spectrum. The consistent finding was that students’ transition from campus to work can be improved; that “a chasm separates the academic and corporate worlds” (Labreque & Duderstadt, 1999, p. 3). The problem is not that students are less prepared, but that demands have changed and the expectations for performance are higher.

Changes in the health care system call for expanded abilities and new attitudes for future health care professionals (Shugars, 1991). Chen, Ervin, Kim and Vonderheid (1999) referred to the “discontinuity between the education of health professionals and the evolving needs of the population” and proclaimed that “health professions schools must refocus” (p. 358). A report from the Pew Health Professions Commission states that “health care is likely to change even more in the next century than it did in the twentieth, so it seems self-evident that the medical profession and the infrastructure that trains medical professionals will have to constantly reassess their relevance to that system and reinvent themselves as needed” (O’Neil, 1998, p. 29).

Desirable Abilities, Attributes and Qualifications

Business leaders interviewed by the task force of the Business-Higher Education Forum believed that recent graduates are most deficient in: (1) communication skills, (2) ability to work in teams, (3) flexibility, (4) ability to accept ambiguity comfortably, (5),
ability to work with people from diverse backgrounds, (6) understanding globalization and its implications, and (7) adequate ethics training (Labrecque & Duderstadt, 1996). Willis and Taylor (1999) asked employers from business organizations to identify the major strengths and weaknesses of today’s college graduate. Computer skill was the greatest strength and communication skill was the most frequently listed weakness, followed closely by a lack of work ethic. When asked what colleges and universities could do to produce better quality students, employers recommended providing more internship opportunities and teaching better communication and teamwork skills.

A report by the National Center for Research in Vocational Education (Stasz & Brewer, 1999) supports the shift in focus from technical competencies to “soft” skills such as responsibility and willingness to learn, and “generic” skills such as problem solving, communication and ability to work in teams. Carnevale and Desrochers (1999) see less need in today’s workforce for specific technical skills than for general cognitive skills, which they describe as “mathematical and verbal reasoning ability as well as a new set of general behavior skills” (p. 32). Even in the highly technical world of e-commerce, the desirable attributes for professionals include “good communication and project-management skills, energy, enthusiasm, creativity, flexibility, business savvy, and a team spirit” (Fisher, 2000, p. 66). What you know changes, but who you are does not.

Relatively little has been done in the healthcare industry to examine how well today’s graduates are prepared to meet the demands of the modern work place. Kirk, Shanklin and Gorman (1989) conducted a survey of employers and dieticians to assess the employment trends of dieticians in business and industry and to identify the attributes
and qualifications essential to succeed in that segment of the industry. The authors defined a qualification as “a measured state, a degree achieved, or type of experience,” and an attribute as “a type of skill or personality trait” (p. 495). Both employers and dieticians identified communication skills as the most influential attribute affecting the employment of dieticians in business and industry.

A study by Ottensmeyer and Key (1991) surveyed 30 experts who were asked to rate the attributes they would look for in a prospective hire for the position of medical director in a health maintenance organization (HMO). The authors defined “qualifications” as those items looked for before the hire; “characteristics” as traits describing performance on the job, and “attributes” as generic personality traits. Respondents were asked to indicate the amount of agreement or disagreement with statements about the qualifications and characteristics of a hypothetical employee on a six-point Likert scale. Attributes were paired as bipolar opposites (e.g., persuasive vs. unconvincing, or confident vs. hesitant). Results were analyzed in groupings. The factors that emerged as significant were personal traits rather than formal credentials: communication and interpersonal skills, clinical credibility, ego strength, concern about quality, motivation, data orientation, and leadership qualities along with organization/systemic variables.

The purpose of a study by Villanueva, Kaye, Abdelhak and Morahan (1995) was to obtain information from external sources that would help the faculty of a medical college plan how the curriculum and advising system could better prepare students and residents for the demands of twenty-first century medicine. The study involved surveys
of three groups: (1) graduating seniors (perceptions of their medical education and their specialty and residency choices); (2) 40 medical residency program directors (to identify the characteristics of applicants they valued); (3) 30 employers of physicians from four practice environments (hiring and recruitment practices and skills, competencies and attitudes most valued). The results suggested that medical educators have not adapted as rapidly as employers have to changes in the health care environment. They identified a need for better balance between scientific and technical competency and essential personality characteristics. Themes that cut across all practice settings were communication and interpersonal skills and being a team player (except in surgical settings). The authors suggest that students need to clarify the meaning of these descriptors and engage in greater self reflection about whether they possess or wish to develop “what it takes.” “Four of the five selection criteria chosen by the students concern the development of students’ non-cognitive (i.e., affective) skills and attributes, which are traditionally not fully addressed or assessed in either undergraduate or graduate medical education” (p. 265). The authors state that affective qualities tend to be enhanced through dialog and interactions with external and internal publics, suggesting the usefulness of increased multidisciplinary and interdisciplinary exposure as well as opportunities for interactions with a variety of patient populations (i.e., differing ethnic/cultural mix; varied socio-economic and demographic strata, etc.). The authors state the need to develop assessment methods to measure non-cognitive competencies.

The North Carolina Center for Nursing (Lacey, Beck-Warden, Cleary, Sherrod, & Diggs, 1997) conducted a study to respond to the rampant change in the health care
industry and the need to “produce the right number and kinds of nurses with the right competencies for changing health care systems” (p. 1). The sample for the research was a geographically stratified random sample of organizations in North Carolina that employed three or more nurses in 1994. The researchers also included all 127 hospital listed by the North Carolina Division of Facility Services in 1995, all four Veteran’s Administration hospitals and four state-operated in-patient mental health hospitals. Information was obtained through a structured 10-minute interview with the person most responsible for planning for nursing personnel. The results indicated an increasing demand for nurses prepared at the baccalaureate (vs. associate) level and for nurses with master’s degrees. Their findings do not indicate a trend towards substituting non-licensed personnel for licensed personnel. Employers were asked, “Are there certain abilities or attributes you will be looking for when you hire nurses in the future?” Respondents working in hospitals named critical thinking and problem solving skills, good resource management, and flexibility as their top three choices and community employers named a specific type of clinical experience, good assessment skills, and good technical skills as their top three choices (Lacey, et al., 1997)

In the field of communication disorders, Henri (1994) examined graduate student preparedness for work in several types of clinical settings. Executive directors or supervisors from community speech and hearing centers around the United States were asked to respond to a four-point Likert scale on factors they considered most important when hiring individuals. The results indicated that the most important factors were:
willingness to work and learn, conduct during the interview, and oral and written communication skills.

A survey conducted by Lunnen, et al. (2001) was sent to 703 clinical sites in North Carolina and South Carolina. The person with primary responsibility for hiring physical therapists at each site was asked to rate abilities, attributes and qualifications of physical therapists on a six-response Likert scale that ranged from one (not important) to six (essential). Employers placed highest value on the ability to manage time effectively, abide by rules, problem-solve, and communicate through listening/speaking. Ethical behavior, integrity, flexibility, and work ethic were the four attributes rated most important. Broad-based knowledge was the only qualification rated as essential by at least 75 percent of the respondents, but other valued qualifications were membership in the APTA and manual therapy certification. When asked which degree they preferred, not one of the 274 employers who returned the survey preferred the entry level doctoral degree for their employees.

Response of Higher Education Institutions to Change

In the study by the Business and Higher Education Forum, major criticisms of higher education from those in the business sector were that they: (1) are unwilling to change in any time frame; (2) have narrow views of disciplines; (3) fail to consider career needs; (4) expect support without accountability; and (5) are inefficient in their operations (Labreque & Duderstadt, 1996, p. 4). Those in higher education complained that business leaders: (1) propose major changes in short time frames; (2) provide vague
descriptions of the skills and knowledge they seek in new employees; (3) send inconsistent messages from different parts of the organization; (4) fail to understand the difference between education and training; and (5) focus too much on profit (Labreque & Duderstadt, 1996, p. 5).

“Whenever an economic shadow befalls the health care industry, professional identity and scope of practice can be blurred in the eyes of administrators and financial managers and obscured in the sight of clinicians” (Guccione, 1999, p. 28). “To succeed in this new world the professions and their leadership must learn to balance individual needs with system and population constraints” (O’Neil, 1998, p. 1). Professional education programs must revamp regulatory systems to ensure the highest level of practice; learn new skills, practice in new ways, give up some of what has been valued in the past, and align the size of the professions to meet public purposes. Among the challenges stimulated by managed care is a “fundamental alteration of the health professions schools and the ways in which they organize, structure and frame their programs of education, research and patient care (Pew Health Professions Commission, 1995). The Commission predicted that this would necessitate reducing the size of the professions and programs, and restructuring education to make efficient use of allocated resources. Recommendations of the Pew Commission for health profession education programs include:

a. Expand the scientific bases of their educational programs to include the psycho-social-behavioral sciences and population and health management sciences in an evidence-based approach to clinical work.
b. Integrate key areas of pre-clinical and clinical training as a whole, across professional communities, through increased sharing of clinical training resources, more cross-teaching, more exploration of the various roles played by professionals and the active modeling of effective team integration in the delivery of efficient, high-quality care.

c. Prepare the next generation of professionals to practice in more intensively managed and integrated systems.

The fourth and final major report of the Pew Health Professions Commission urges professional schools to lead the effort to realign training and education to be more consistent with the changing needs of the health care delivery system. The Commission puts forth a new set of competencies for the 21st Century. In general, the recommendations encourage enlargement of the health professional’s education to include a broader set of system, organizational and population skills.

The APTA has assumed a leadership role in helping to align the practice, education and research sectors of the profession. A number of documents published within the past five years are indicative of attempts to more clearly define the profession and set standards in place:

- A Normative Model of Physical Therapist Professional Education (APTA, 1997a) – The normative model is a comprehensive guide to the body of knowledge, skills and behaviors essential to the practice of physical therapy. It was developed through a consensus process under the leadership of the APTA Education Division.
Guide to Physical Therapy Practice (APTA, 1997b) – The Guide was developed over a two-year period as a collaborative effort involving more than 600 clinicians, educators and researchers. The Guide provides a comprehensive overview of physical therapy practice, designed to help health care policymakers, managed care providers, and insurers make better-informed decisions; assist other health care disciplines coordinate care with physical therapists; provide a framework for outcomes data collection and analysis; and assist physical therapy educators prepare students for the practice environment. A second edition of the Guide was released in 2001 (APTA, 2001b).

Agenda for Clinical Research (APTA, 2000c) – The research agenda is comprised of 72 clinical questions developed in a consensus process by an Editorial Advisory Panel of clinicians, educators and researchers, intended to serve as the foundation of physical therapy research over the next decade.

The majority of these documents were developed by a task force composed of leaders from all sectors of the profession and typically involved consumers and other health professions, as well. Input was sought from a broad constituency of physical therapists.

Response of Physical Therapy Education to Change

In her presidential address to the APTA Section for Education, Hayes (2000) used a quote by Henry David Thoreau to illustrate the dilemma that faces many of the allied health professions. “If you have built castles in the air, your work need not be lost; that is where they should be. Now put the foundations under them” (Thoreau, as cited in Hayes,
2000, p. 4). The APTA Vision Statement for Physical Therapy 2020 (APTA, 2000b) is the “castle in the air.” The work is to lay the educational foundation that will support that vision, while continuing to test the appropriateness of the vision and make adjustments as necessary.

The existing professional documents (e.g., CAPTE standards, Guide to Physical Therapist Practice and A Normative Model for Physical Therapist Professional Education), designed to guide content and provide quality standards, are important components of the foundation. Challenges remain to assure that graduates are able to:

- Access and critically review information from diverse sources.
- Function in an autonomous practice model.
- Recognize physical therapy’s interdependence within a complex health care delivery system.
- Advocate powerfully for accessible, quality care for patients.
- Delegate care responsibly to professional extenders.
- Appreciate and respond sensitively to an increasingly diverse population.
- Function effectively as an interdisciplinary team member.
- Be accountable for effective, efficient intervention with clients.
- Demonstrate effective problem solving behaviors.
- Exhibit ethical behavior, flexibility, and integrity.
- Promote health prevention/wellness.
- Function effectively within a primary care model.
Practice with relative independence in diverse settings at time of entry into profession.

Possible responses to change that physical therapy education programs could make include:

1. **Expand the length of entry level programs** (regardless of degree)

   A typical response to the exponential increase in knowledge and increasing demands for competency in health care practitioners is to expand the length of the academic program and increase the pre-requisite requirements. This allows time to cover more content in a more comprehensive manner and creates the opportunity to expand time that students spend in the clinical environment (clinical education experiences). Galambos (1979), reporting for the Southeast Regional Education Board, asserts that the most important justification for lengthening the formal education of health care workers is to insure the quality of care. Evidence at the time of Galambos report indicated that allied health workers were overtrained for many of the tasks that they performed. Lengthening the curricula does not necessarily equate with better outcomes and may contribute to the overall cost of health care.

   Another disadvantage of lengthening the professional program is the additional expense to students in terms of both money and time; a factor that could discourage individuals from entering a particular health care profession. Currently, the average total cost (tuition and fees) of an entry level degree program in physical therapy is $18,013 at a public institution and $50,556 at a
private institution and the average length is 107.4 weeks (APTA, 2000d). The additional cost would be considered a worthwhile investment if it resulted in more job security, higher pay and increased job satisfaction, but it would be difficult to predict those outcomes with confidence based on information currently available.

2. Transition entry level education to the doctoral level

The rationale for deciding to advance the level of degree offered for health profession education in any given field is similar to that of expanding the length of the curriculum, but is associated with additional challenges and constraints. Many of the allied health disciplines have struggled with this issue. In the 1970’s, the House of Delegates of the physical therapy profession, amidst considerable controversy, stated the intent of the professional organization to move all entry level education to the postbaccalaureate (graduate) level. It took longer than anticipated, but CAPTE will not accredit programs at the baccalaureate level after 2000. A similar trend occurred in the occupational therapy profession. Occupational therapy education programs at the baccalaureate level will not be accredited after 2007 (D. Gordon, Director of Academic Affairs, American Occupational Therapy Association, personal communication, January 2, 2001). All speech-language-hearing programs are currently at the master’s level.

Movement to a higher degree in pharmacy developed because of the perception within the field that pharmacists’ skills and abilities were underutilized
when they only dispensed medication. The pharmacy profession sought a
broadened clinical role as part of the interdisciplinary team and instituted the
Pharm. D. as an option to a baccalaureate degree in promoting that expanded role
(Galambos, 1979). Indicative of the profession’s seeking justification for raising
the level of their entry level professional degree is an older study by Shepherd
and Pink (1982). They analyzed advertisements for pharmacy management
positions looking specifically for advanced degree and experience requirements.
Sources of their data were three professional journals from 1971-1981. A
motivating factor for conducting the study was to look at the impact of the
pharmacy doctorate on eligibility for managerial positions. The authors
concluded that upward mobility within hospital environments would be
progressively difficult for pharmacists without advanced degrees.

In 1978, the American Nurses’ Association resolved that by 1985 the
baccalaureate degree would become the minimum for entry into “professional”
registered nursing, and preparation at the associate degree level would be retained
for “technical” nursing (Galambos, 1979). This distinction was never accepted.
One of the specific recommendations of the Pew Health Professions Commission
in relation to nursing was that the profession “delineate the knowledge and
outcome competencies appropriate for each level of nursing education in order to
maximize efficiency, improve coordination and articulation of programs, and
reduce professional conflict and public confusion” (O’Neil, 1998, p. xii). The
recommendation addresses some of the difficulties of having variable levels of
entry level professional education. Aiken and Salmon (1994) investigated the appropriateness of the number and educational mix of nurses to meet the demands of a changing health care system. They concluded that nurses of the future would need to exercise more professional judgment and clinical autonomy in more diverse settings and thus needed stronger educational preparation (both depth and breadth).

Just as allied health programs are coming into compliance with postbaccalaureate entry level education, the debate is heating up about the transition to entry level doctoral education. Occupational therapy has two entry level programs at the doctoral level and the American Speech-Language-Hearing Association includes the decision about whether to transition to entry level education at the doctoral level as one of the largest challenges facing their profession (Gottfred, 1994). The vision statement for the profession of physical (APTA, 2000b) includes clear reference to the clinical doctorate (DPT) as the preferred entry level degree. Twenty-two professional DPT programs and 168 masters degree programs are accredited (Simmons, 2001). As stated on the APTA web page (APTA, 2001a), most programs that have transitioned to the DPT have extended the overall length of the program; increased the length of the final clinical education experience from the average of 15 weeks to as much as a full year; and expanded the breadth and depth of content in the didactic portion. Specific augmented content areas include: differential diagnosis, pharmacology,
radiology/imaging, health care management, prevention/wellness/health promotion, histology, and pathology.

A survey of program directors at 178 accredited programs, conducted by Domholdt, Stewart, Barr, and Melzer (2000) and funded by the Education Section, APTA, indicated that, of the 143 respondents, 41% (59 programs) had not formally discussed the entry-level doctoral degree, 36% (52 programs) had made a decision, and 22% (32 programs) had a decision pending. Of the 52 programs that had made a decision, 36 decided in favor of the degree and 16 decided against. The rationale given for the decision was: (1) competition (50% of respondents); (2) to match practice needs (42%); (3) an existing long master’s degree (27%); and (4) institutional factors (15%) as a factor against transitioning to the DPT. For the 36 programs with a degree change completed or in process, facilitating factors were listed as competition for students (56%), faculty support and qualifications (50%), institutional support (36%) and curricular factors (33%). Inhibiting factors were listed as inadequate faculty resources (33%), lack of support from clinical community (31%) and institutional approval process and politics (28%). Institutional type (Carnegie Classification), accreditation region, and characteristics of the program director were unrelated to doctoral decision.

The APTA web page, in a fact sheet about the DPT (APTA, 2001a), describes benefits and liabilities identified by members of academic and clinical communities regarding the “appropriateness” of the DPT degree for physical therapy practice and the profession. Perceived benefits included:
a. Reflect more accurately the scope, depth, breadth, and rigor of the education preparation needed for current and future practice.

b. Equip the graduate better to enter clinical practice able to function with relative independence.

c. Facilitate the consumer’s recognition of the physical therapist as a fully autonomous health care practitioner who is a point of entry into the health care system.

d. Facilitate interactions with colleagues in the health care professions.

e. Expand the knowledge base related to administration and business aspects of physical therapy practice.

f. Position the profession more favorably to advocate and negotiate for high-quality health care, the consumer, and the profession.

Perceived liabilities included:

a. Unwarranted inflation of professional education

b. No justification base on body of professional knowledge

c. Anticipate negative response from other health care disciplines

d. Confusion for consumers

e. Inadequate human and financial resources

3. Recruit a different kind of student

Possibilities might include: (1) providing incentives for increasing diversity among the student population; (2) broadening the prerequisite requirements so that students would come into entry level education with a
broader foundation of knowledge; (3) requiring a specified period of work or “life experience” before considering a student’s application; or (4) providing incentives for students to practice with underserved populations either as part of their academic preparation or after graduation. As an example, during a major redesign of the entry-level occupational therapy curriculum at the University of North Carolina-Chapel Hill, the faculty decided to create a selection process that favored applicants who showed courage and leadership (Wood, et al., 2000). Their rationale was that to be catalytic in directing change within the profession, graduate education had to affect students’ emotions just as deeply as it did their intellects, and had to deal with issues of personal character.

4. **Examine the underlying philosophy of professional education**

   Metcalfe (1998) stated that for the past century behaviorism has been the dominant philosophy in professional healthcare education because it met the demands of the biomedical model. CAPTE standards, the *Normative Model for Physical Therapist Professional Education* (APTA, 1997a), and the requirement that students pass a national licensing examination before they can practice all guide entry level physical therapy education towards an outcomes-based model. Behaviorist theory is grounded in an outcomes-based model. A common approach is to design a curriculum that addresses the desired outcomes in a logical sequence that builds from simple to complex; to establish clearly defined, behaviorally-stated objectives for each course; to develop learning activities to
meet those objectives; and to assure learning by measuring students’ ability to
demonstrate the stated objectives.

Metcalfe (1998) believes that evolving patterns of health care delivery
demand a philosophical transformation in the way education is provided for
health care professionals. The philosophy that seems to be a good fit for the
changes that are needed is the humanistic philosophy. Humanistic philosophy
emphasizes the innate goodness of mankind; freedom and autonomy of the
individual; individuality and potentiality; the importance of self-concept and
perception as determinants of behavior; the innate drive towards self-
actualization; and a strong sense of an individual’s responsibility to self and
others (Elias & Merriam, 1980; Merriam & Brockett, 1997). Humanistic
education philosophy is particularly applicable to adult education and forms the
basis for much of contemporary adult education practice. It is student-centered
with the teacher functioning as facilitator and focuses on development of all
aspects of the individual in a cooperative (vs. competitive) environment.

5. **Incorporate teaching-learning strategies that foster desired behaviors**

One of the findings from the Business and Higher Education study
(Labreque & Duderstadt, 1996) was that, although academic and corporate
leaders must make the case for change, the “true instruments of change” are the
“creative faculty members who incorporate real-world educational experiences
into their courses” (p. 7).
a. **Interdisciplinary education**

Employers value the ability to work in teams and the interdisciplinary model of health care is increasingly important (Browne, et al., 1995). It makes sense to educate students in an interdisciplinary model. Buck, Tilson, and Anderson (1999) report on a survey of 167 students and 24 faculty who participated in a comprehensive interdisciplinary health professions core curriculum at Armstrong State University. Both groups agreed that the courses had a positive impact on students. Stumpf and Clark (1999) identify barriers to interdisciplinary teamwork in allied health education as loss of revenue, schedule conflicts, differences in degree level, identity and status protection, and content control issues. They indicate that interdisciplinary teamwork can be fostered by all-inclusive cross-enrollment, web-based curricula, and hiring of faculty across disciplinary lines. An option to an interdisciplinary core curriculum is to design elective courses, clinical experiences, or community-based projects around an interdisciplinary model (Browne, et al., 1995; Lowry, Burns, Smith, & Jacobson, 2000)

b. **Generic abilities**

The behaviorist approach to education is typically divided into three domains of learning: (1) knowledge, (2) psychomotor skills, and (3) professional behaviors. The tendency of educators is to focus on the first two domains, because they are more conducive to traditional methods of
teaching and of assessing student learning. Research supports that employers place high value on abilities and attributes in the third domain, professional behaviors. May, Morgan, Lemke, Karst, and Stone (1995) developed a model for ability-based assessment in physical therapy education that incorporated ten professional behaviors termed generic abilities. These include: (1) commitment to learning, (2) interpersonal skills, (3) communication skills, (4) effective use of time and resources, (5) use of constructive feedback, (6) problem-solving, (7) professionalism, (8) responsibility, (9) critical thinking, and (10) stress management.

Fundamental to including generic abilities in the curriculum is the belief that professional behaviors can be developed or “taught” and that demonstration of appropriate professional behaviors should be as much an expectation as knowledge of anatomy or performing manual therapy skills.

c. Cooperative learning

Cooperative learning is “the instructional use of small groups so that students work together to maximize their own and each other’s learning” (Johnson, Johnson, & Smith, 1991, p. iii). One of the most comprehensive summaries of the research comparing the relative effects of cooperative, competitive, and individualistic efforts on instructional outcomes was done by Johnson, Johnson, and Maruyama (1983) in a meta-analysis of over 575 experimental and 100 correlational studies. Among the outcomes are higher achievement and increased retention,
more frequent higher-level reasoning, deeper-level understanding, and critical thinking, and greater ability to view situations from others’ perspectives. Cooper (1996) found that students exposed to cooperative learning outperformed individuals exposed to competitive motivational systems on problem solving abilities in 55 of 63 comparisons of the two approaches. These findings were consistent whether subjects were K-12 or college and adult populations. The benefits of cooperative learning reported in the literature do not automatically occur when students are placed in groups. True cooperative learning requires carefully structured learning activities and attention to team process. Johnson, et al. (1991) believe that there are five essential elements for a cooperative lesson: (1) positive interdependence, (2) face-to-face promotive interaction, (3) individual accountability, (4) interpersonal and small group skills, and (5) group processing.

d. **Service learning**

Service-learning is one approach to encouraging public service and facilitating experiential learning experiences for students. The core premise of experiential learning is that knowledge is developed and tested in the experiences of the learner (Kolb, 1984). Educators are challenging the assumption that students somehow imbibe a predisposition for service as result of their college experience and are realizing that “service demands a set of skills and an approach to social issues that must be
intentionally instilled” as part of the higher education experience (Wutzdorff & Giles, 1997, p. 105).

Many different models for service learning exist, but in its most elemental state, service learning incorporates “the performance of a useful service for society and the disciplined interpretation of that experience for an increase in knowledge and in understanding one’s self” (Wutzdorff & Giles, 1997, p. 107). Service learning exposes students to what is going on in their communities and challenges them to find solutions to the problems they find (Harkavy & Romer, 1999). In this respect, service learning helps develop problem solving and leadership skills as well as encourage social responsibility (McCarthy & Tucker, 1999). Typically, a service learning model includes four components: (1) preparation (identifying the needs of the community and linking those needs with experiences that will enhance the didactic curriculum for the student); (2) service (challenging students to utilize new skills in a way that directly impacts both the students and the organization being served); (3) reflection (careful analyzing achievements made during the project and their impact both on the organization and on the student); and (4) celebration/recognition (acknowledging the influence that the students have made both on the organization and the community as a whole) (Burns, 1998; Easterling & Rudell, 1997).
Transition to Adult Roles and Behaviors

Merriam and Brockett (1997) comment that “defining adult education is akin to the proverbial elephant being described by five blind men: it depends on where you are standing and how you experience the phenomenon” (p. 3). The concept of an adult is equally hard to define with assurance. At the most simplistic level, an adult is older than a child and expected to act older than a child. Is the transition from childhood to adulthood marked by reaching puberty, getting a driver’s license, voting in the presidential election, or being able to drink alcohol? Perhaps these are markers. But most people recognize “real” adulthood as reflected in social roles and psychological maturity. Knowles (1980) states that individuals should be treated as adults educationally if they behave as adults by accepting adult roles or perceive themselves to be essentially responsible for their own lives. Wlodkowski (1993) generalizes that “adults by definition, learning theory, and social research are responsible people who seek to build their self-esteem through pragmatic learning activities in which their competence is enhanced” (p. 6). Adults want to be successful learners and will strive for understanding and mastery when they are motivated by effectively learning something they value.

Many students who apply to a graduate program in physical therapy are older students, sometimes seeking a second career. But there are also many who enroll immediately after undergraduate education, are still supported by their parents, and have not yet assumed adult roles. Yet, the decision to pursue education towards a professional identity is also a decision to assume a responsible role as a service provider. To be
successful in the rigorous academic program also requires maturity. So, whether a student enters as an “adult” or not, a transition to adult roles and behaviors is an expectation before graduation. Employers expect graduates to have made that transition; to have developed the range of professional behaviors that will make them effective in their professional roles.

The educational experience must be adult in nature. Darkenwald and Mirriam (1982) defined adult education as...”a process whereby persons whose major social roles are characteristic of adult status undertake systematic and sustained learning activities for the purpose of bringing about changes in knowledge, attitudes, values, or skills” (p. 9). This fits with the expectations for physical therapy education. Students have chosen the career path and should be motivated to learn because it is knowledge that they value for their future success in the profession.

From that perspective, the faculty assumes responsibility for guiding a student’s self-discovery and their readiness to accept adult roles. This adds strength to the argument that health care professional education philosophy needs to shift from a behaviorist to humanistic perspective. It supports the essential nature of addressing professional behaviors and giving them equal status with the acquisition of knowledge and psychomotor skills. It makes sense to make professional education learner-centered; to engage students in an active learning process; to expect them to work cooperatively; and to offer their emerging abilities and attributes in service to the larger community.

Wlodkowski (1993) identifies four basic characteristics of a motivating instructor for the adult learner: expertise (knowledge and preparation), empathy (understanding and
consideration), enthusiasm (commitment and animation), and clarity (language and organization). Wlodkowski (1993) developed a Time Continuum Model of Motivation that divides a learning process into three critical periods (beginning, during, and end) in which certain factors are particularly important in enhancing adult motivation to learn. In the beginning phase, the key factors are attitudes (towards the general learning environment, instructor, subject matter, and self) and needs (within the learner). Key factors during learning are stimulation (any change in students’ perceptions or experiences with the environment that make them active) and affect (the emotional experience of the learner or group). During the end phase, the key factors are competence (competence value that is a result of the learning behavior) and reinforcement (reinforcement value attached to the learning experience). Since physical therapy students progress through the curriculum as a cohort in a lock-step manner, the faculty can apply Wlodkowski’s model at various levels (e.g., the full curriculum, a particular course, or a unit of instruction).

This model of motivational learning supports research by Metcalfe (1998) that differences in the preferences students hold for particular types of instruction are not related to the age of the student but to the year and status within the program. Students in the later stages for meeting degree requirements prefer independent study, self-directed learning activities, and group collaborative learning activities compared to more traditional methods (e.g., predominantly lecture).

A major recommendation for health profession education is to instill in the learner a commitment to lifelong learning. Wlodkowski (1993) explores this concept as intrinsic
motivation for learning. He applies cognitive evaluation theory and other research in adult education to conclude that “learning situations that develop intrinsic motivation are ones that provide positive feedback to people who are engaged in an optimally challenging, self-determined activity” (p. 286).
Chapter III – Research Methodology

Introduction

Physical therapy students’ perceptions of the abilities, attributes and qualifications that are desirable to employers of physical therapists were ascertained by having students complete a survey instrument. Students were asked to rate the importance of abilities, attributes and qualifications as not important (1,2), important (3,4) or essential (5,6) on a six-response Likert scale. Non-parametric tests were used to describe the data and to report the degree of association between various demographic variables and responses to the Likert scale items. Students’ perceptions obtained from the Likert scale items of the survey instrument were compared with previously determined employers’ perceptions obtained on the same set of items from a survey mailed in January 2000.

Research Design

This study used a descriptive research design, with a written survey to gather descriptive data about the perceptions of physical therapy students.

Population

The population for this study was all students in their second year of study at the seven physical therapy education programs in North Carolina and South Carolina (members of the Carolina Clinical Education Consortium). A faculty member at each institution was requested to administer the survey to the whole class of students. Those
who responded from each institution were those who were present on the date and time specified for administration of the survey (determined by the faculty member) and those who were willing to participate.

The analyses compared the perceptions of students with those of employers from a previous survey (Lunnen, et al., 2001). The population of employers included all of the clinical education sites in North Carolina and South Carolina that were used by the seven participating academic institutions for the clinical education of their students. The person at each clinical setting with the primary responsibility for making decisions relative to the employment of physical therapists was asked to complete the survey.

Instrumentation

In January 2000, employers of physical therapists in diverse clinical settings were surveyed to determine the abilities, attributes and qualifications that they considered most valuable in the therapists they hired (Lunnen, et al., 2001). The survey instrument for the employer study was designed based on a review of the literature and input from content experts. It was pilot tested with employers from diverse clinical settings and revised considerably based on input from the pilot testing. For the current study, the survey instrument was revised to make the demographic questions applicable to the student population. The lists of abilities, attributes and qualifications and the response format were the same in both surveys. The demographic information is different and the students were not asked questions related to market trends that were asked of employers.
Students were asked to complete the survey based on the perspective that they are an employer of physical therapists in a clinical setting with which they are familiar. Students were asked to identify how far they have progressed in their professional curriculum as part of the demographic data. It is estimated that the survey took approximately 15 minutes to complete.

Collection of Data

Program directors of the seven physical therapy programs were asked if the survey could be administered to their students. The Academic Coordinator of Clinical Education (ACCE) in each program was requested to introduce the survey in a standard manner and administer it to the second-year class of students. Survey instruments were collected and mailed to the researcher by the respective ACCE’s in self-addressed stamped envelopes provided. Data from the returned surveys were entered into Statistical Program for the Social Sciences (SPSS Base 10.0) by two graduate research assistants in the physical therapy department at WCU. The researcher checked the accuracy of data entry.

Analysis of Data

Responses to the Likert scale questions produced ordinal data, and were analyzed using non-parametric tests. Spearman’s rho was used to examine the association or lack of association between students’ perceived value of each of the items and the number of weeks of clinical experience they had in a physical therapy setting. Clinical experience
was divided into two types: (1) fulltime clinical education experience as a formal part of their professional education curriculum, and (2) volunteer or work experience prior to enrollment in a physical therapy program. Mann-Whitney U was used to compare the rankings of students with those of employers from the earlier study. The results complement the earlier study with employers and provide a valuable perspective on how realistic students are about the abilities, attributes, and qualifications that employers value for today’s workforce.
Chapter IV – Results

Introduction

The purpose of the study is to determine the perceptions of students about the abilities, attributes and qualifications that employers value in the physical therapists they hire; to examine experiences of the students that might have influenced their perceptions; and to compare the perceptions of students with those of employers. Characteristics of the student population that responded to the survey will be described and then each of the research questions will be addressed, describing the statistical procedure used, the results obtained (presented in table and narrative format) and discussion.

Profile of Respondents

The respondents to the student survey were all physical therapy students who were nearing completion of their second year of study in one of the seven entry-level physical therapy education programs in North Carolina or South Carolina. The educational programs are Duke University (Duke), East Carolina University (ECU), Elon University (Elon), Medical University of South Carolina (MUSC), University of North Carolina at Chapel Hill (UNC), Western Carolina University (WCU) and Winston Salem State University (WSSU). Duke is unique among the programs in that it offers a three-year program of study leading to a clinical doctorate degree (DPT). MUSC is also a three-year program, but awards a master’s degree. The remaining programs are all approximately two years in length and award a master’s degree.
Students in all of these programs progress as a cohort through a prescribed sequence of courses. Yet, students’ responses about how many semesters of didactic work and how many weeks of clinical education varied somewhat within any given program. After confirming with the ACCE that the curriculum is standardized, the researcher adjusted the number of semesters and number of weeks of clinical education to reflect the standard for each academic institution. Fulltime courses in the summer were considered to represent one semester.

All second year students were asked to complete the survey, but not all were present during the administration or willing to participate.

Table 1
Composite Profile of Respondents from All Programs

<table>
<thead>
<tr>
<th>Educational Program Attending</th>
<th>Degree Seeking</th>
<th>Total Students Enrolled</th>
<th>Total Students Who Responded</th>
<th>Semesters of Didactic Work Completed (# semesters)</th>
<th>Weeks of Full-time Clinical Education Completed (# weeks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duke</td>
<td>DPT</td>
<td>35</td>
<td>35 (100%)</td>
<td>5</td>
<td>24</td>
</tr>
<tr>
<td>ECU</td>
<td>MPT</td>
<td>42</td>
<td>26 (62%)</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Elon</td>
<td>MPT</td>
<td>46</td>
<td>10 (22%)</td>
<td>-</td>
<td>16</td>
</tr>
<tr>
<td>MUSC</td>
<td>MPT</td>
<td>70</td>
<td>46 (66%)</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>UNC</td>
<td>MPT</td>
<td>38</td>
<td>31 (82%)</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>WCU</td>
<td>MPT</td>
<td>21</td>
<td>18 (86%)</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>WSSU</td>
<td>MPT</td>
<td>27</td>
<td>22 (81%)</td>
<td>6</td>
<td>26</td>
</tr>
<tr>
<td><strong>All Programs</strong></td>
<td>1 DPT, 6 MPT</td>
<td>279</td>
<td>188 (67%)</td>
<td>Average=5 semesters</td>
<td>Average=15 weeks</td>
</tr>
</tbody>
</table>
Table 1 provides a composite profile of the students who responded from each academic program and a summary of the total pool of respondents, including the average number of didactic semesters completed (5) and average number of weeks of fulltime clinical education (15).

- Duke had 35 students respond out of a class of 35 (100%). These students had completed five didactic semesters in the program and 24 weeks of fulltime clinical education.
- ECU had 26 students respond out of a class of 42 (62%). These students had completed five semesters in the program and eight weeks of fulltime clinical education.
- Elon had 10 students respond out of a class of 46 (22%). Elon uses a series of modules rather than semesters, but these students had completed approximately two years including 16 weeks of fulltime clinical education.
- MUSC had 46 students respond out of a class of 70 (66%). These students had completed five semesters in the program and eight weeks of fulltime clinical education.
- UNC had 31 students respond out of a class of 38 (82%). These students had completed four semesters in the program and 12 weeks of fulltime clinical education.
- WCU had 18 students respond out of a class of 21 (86%). These students had completed four semesters in the program and 12 weeks of fulltime clinical education.
WSSU had 22 students respond out of a class of 27 (81%). These students had completed six semesters in the program including 26 weeks of fulltime clinical education.

Degree Preference

APTA’s vision statement establishes the premise that “physical therapy, by 2020, will be provided by physical therapists who are doctors of physical therapy” (APTA, 2000b, p. 1). It is a controversial position that some believe was instigated by academicians and is poorly understood and supported by clinical practitioners. Interestingly, in the survey of employers (Lunnen, et al., 2001), not one of the 276 physical therapy employers who responded indicated a preference for the doctoral degree.

Although it was not a specific research question, students were asked, “Which degree do you think employers prefer?” Students were given the same choices that employers were given in the previous survey: (1) Entry level master’s, (2) Entry level doctorate, (3) No preference, and (4) Unsure. Table 2 summarizes the students’ responses to the question.
<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Entry Level Masters</th>
<th>Entry level Doctorate</th>
<th>No Preference</th>
<th>Unsure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duke (DPT)</td>
<td>35</td>
<td>4 (11%)</td>
<td>11 (31%)</td>
<td>8 (23%)</td>
<td>12 (34%)</td>
</tr>
<tr>
<td>ECU</td>
<td>26</td>
<td>12 (46%)</td>
<td>0</td>
<td>10 (39%)</td>
<td>4 (15%)</td>
</tr>
<tr>
<td>Elon</td>
<td>10</td>
<td>3 (30%)</td>
<td>0</td>
<td>4 (40%)</td>
<td>3 (30%)</td>
</tr>
<tr>
<td>MUSC</td>
<td>46</td>
<td>19 (42%)</td>
<td>0</td>
<td>11 (24%)</td>
<td>15 (33%)</td>
</tr>
<tr>
<td>UNC</td>
<td>31</td>
<td>11 (36%)</td>
<td>0</td>
<td>12 (39%)</td>
<td>8 (26%)</td>
</tr>
<tr>
<td>WCU</td>
<td>18</td>
<td>5 (28%)</td>
<td>1 (5%)</td>
<td>9 (50%)</td>
<td>3 (17%)</td>
</tr>
<tr>
<td>WSSU</td>
<td>22</td>
<td>14 (64%)</td>
<td>1 (5%)</td>
<td>4 (18%)</td>
<td>3 (14%)</td>
</tr>
<tr>
<td><strong>All MPT Programs</strong></td>
<td><strong>152</strong></td>
<td><strong>64 (42%)</strong></td>
<td><strong>2 (1%)</strong></td>
<td><strong>50 (33%)</strong></td>
<td><strong>36 (24%)</strong></td>
</tr>
<tr>
<td><strong>All Programs</strong></td>
<td><strong>188</strong></td>
<td><strong>68 (37%)</strong></td>
<td><strong>13 (7%)</strong></td>
<td><strong>57 (30%)</strong></td>
<td><strong>48 (26%)</strong></td>
</tr>
</tbody>
</table>

Table 2 summarizes the students’ perceptions of the degree preferred by employers. Data are given for students from each institution; for students from all of the entry level master’s programs; and from all programs. Considering all of the students’ responses combined, 37% thought employers preferred an entry level master’s degree; 7% thought employers preferred an entry level doctorate; 30% thought employers had no preference; and approximately one quarter (26%) were unsure. Duke students, who are enrolled in the only doctorate program among the programs surveyed, accounted for all but two of the students who thought that employers preferred the entry level doctorate.
The students relative uncertainty is probably a reflection of the controversy in the profession surrounding this issue.

Research Questions

The first three research questions asked how the lists of specific abilities, attributes, and qualifications were ranked based on students’ responses to Likert items measuring relative importance as it relates to employment decisions about physical therapists in today’s workforce. The students were asked to indicate the relative importance of each item as it relates to employment decisions for physical therapists by circling the appropriate number on the continuum from not important to essential. Numbers were paired under the headings, Not Important (1,2), Important (3,4) and Essential (5,6).

To address the first three research questions the sum of the students’ responses for each item was calculated yielding a total score for each item that reflected its relative value. These scores were ranked within each category (i.e, abilities, attributes and qualifications). The highest possible sum (1128) would result if every student (N=188) perceived an item to be essential and gave it a score of six. The minimum and maximum values assigned to each item were also calculated to provide a perspective on the range in value that students assigned for each item.

Research Question 1: How is the list of specific abilities ranked based on physical therapy students’ responses to Likert items measuring relative importance as it relates to employment decisions about physical therapists in today’s workforce?
Table 3 presents the ranking of the list of 23 abilities based on students’ responses to Likert items on the survey instrument.

Table 3
*Ranking of Abilities Based on Students’ Responses About Importance*

<table>
<thead>
<tr>
<th>Rank</th>
<th>Abilities</th>
<th>Sum*</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Manage time effectively</td>
<td>1055</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>Problem-solve/think critically</td>
<td>1052</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>Abide by rules and regulations</td>
<td>1052</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>4</td>
<td>Communicate effectively through listening/speaking</td>
<td>1048</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>Provide effective patient/family education</td>
<td>1031</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>Document patient care concisely/comprehensively</td>
<td>1029</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>Work effectively in teams</td>
<td>1012</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>Recognize limitations/know when to request assistance</td>
<td>1012</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>9</td>
<td>Communicate effectively through writing</td>
<td>990</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>10</td>
<td>Maintain good record of attendance/ punctuality</td>
<td>972</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>11</td>
<td>Work sensitively with people from diverse backgrounds</td>
<td>963</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>12</td>
<td>Work independently</td>
<td>944</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>13</td>
<td>Adapt readily to change in work environment</td>
<td>928</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>14</td>
<td>Contribute positively to working relationships</td>
<td>926</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>15</td>
<td>Manage resources efficiently</td>
<td>920</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>16</td>
<td>Demonstrate commitment to lifelong learning</td>
<td>917</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>17</td>
<td>Provide effective instruction for diverse groups</td>
<td>915</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>18</td>
<td>Delegate appropriate tasks to support personnel</td>
<td>874</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>19</td>
<td>Establish liaisons with other professionals, departments</td>
<td>865</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>20</td>
<td>Assist with quality management/outcomes assessment</td>
<td>783</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>21</td>
<td>Assist with design and implementation of new programs</td>
<td>738</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>22</td>
<td>Assume leadership role within department/ organization</td>
<td>735</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>23</td>
<td>Demonstrate basic computer skills</td>
<td>730</td>
<td>2</td>
<td>6</td>
</tr>
</tbody>
</table>

*maximum possible sum = 1128
Table 3 illustrates students’ perceptions of the relative importance of the abilities listed on the survey. The sum of the responses is indicated in the third column and the minimum and maximum values given are in the fourth and fifth column: Not Important (1,2), Important (3,4) and Essential (5,6). Only seven points separated the top four abilities: (1) manage time effectively; (2) problem-solve/think critically; (3) abide by rules and regulations; and (4) communicate effectively through listening/speaking. “Assist with design and implementation of new programs,” “assume leadership role within department/organization,” and “demonstrate basic computer skills” were perceived by students to be least important relative to the list of abilities and were within eight points of each other. Not one student considered the top 11 abilities to be “Not Important” (1,2). The ability related to leadership (ranked number 22 out of 23) was the only ability given the lowest possible score (1).

**Research Question 2:** *How is the list of specific attributes ranked based on physical therapy students’ responses to Likert items measuring relative importance as it relates to employment decisions about physical therapists in today’s workforce?*

Table 3 summarizes data on the ranking of the list of nine attributes displayed in the same manner as for the first research question.
Table 4

*maximum possible sum = 1128

As summarized in Table 4, ethical behavior is clearly perceived by students to be an attribute valued by employers, followed by integrity, a positive attitude and a strong work ethic. At least some students perceived a positive attitude, intellectual curiosity, an energetic personality, creativity, and a sense of humor as “Not Important” (1,2). Sense of humor was ranked lowest, more than 50 points below the other attributes in the list.

**Research Question 3:** How is the list of specific qualifications ranked based on physical therapy students’ responses to Likert items measuring relative importance as it relates to employment decisions about physical therapists in today’s workforce?
Table 5 summarizes data about the ranking of the ten qualifications, displayed in the same manner as for the first two research questions.

Table 5

<table>
<thead>
<tr>
<th>Rank</th>
<th>Qualifications</th>
<th>Sum*</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Broad-based clinical knowledge/skills</td>
<td>941</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>Advanced master’s degree in physical therapy</td>
<td>703</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>Membership in APTA</td>
<td>665</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>4</td>
<td>Manual therapy certification</td>
<td>549</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>Administration experience</td>
<td>544</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>Research experience</td>
<td>525</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>Advanced master’s degree in related field</td>
<td>485</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>8</td>
<td>Exercise physiology experience/degree</td>
<td>457</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>9</td>
<td>Massage therapy training/certification</td>
<td>428</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>10</td>
<td>Athletic trainer certification</td>
<td>419</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

*maximum possible sum = 1128

Table 5 summarizes students’ perceptions of the qualifications valued by employers. Broad-based clinical knowledge and skills is clearly perceived as the most important qualification, with a sum more than 200 hundred points above the qualification ranked second (an advanced master’s degree in physical therapy). At least one student perceived broad-based clinical knowledge and skills as “Not Important” (minimum score of 2), which is difficult to explain. Students perceived specialized degrees, experience or certification (exercise physiology, massage therapy and athletic training) as least valued
by employers with the exception of manual therapy certification which was ranked fourth of ten.

**Research Question 4:** *Is the number of weeks students have spent in formal full-time clinical education as part of their professional education correlated with their perceptions?*

Research questions four and five each ask for a correlation between students’ perceptions of what employers value and another variable, either the number of weeks students have spent in formal fulltime clinical education or the number of weeks spent in a clinical setting with physical therapists prior to enrollment. Both questions are posed to determine if the amount of experience students have in a physical therapy clinical setting influences their perceptions about what employers value. To address these two research questions, the Spearman’s correlation was computed.

Spearman’s rho is the statistical test selected for measuring the association between two ordinal variables. In this case, the two ordinal variables were the Likert-scale responses to the items and the number of weeks of clinical experience. The number of weeks of clinical experience could have been treated as a continuous variable, but was not because of the considerable range in responses for clinical experience prior to enrollment. Also, the question is directed more towards a relative response rather than a specific number of weeks.
Table 6
Correlation Between Weeks of Fulltime Clinical Education and Perceived Importance of Abilities Using Spearman’s Rho.

<table>
<thead>
<tr>
<th>Abilities</th>
<th>Correlation Coefficient</th>
<th>Significance (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manage time effectively</td>
<td>.024</td>
<td>.748</td>
</tr>
<tr>
<td>Abide by rules</td>
<td>.047</td>
<td>.526</td>
</tr>
<tr>
<td>Problem-solve/think critically</td>
<td>.024</td>
<td>.747</td>
</tr>
<tr>
<td>Communicate through listening/ speaking</td>
<td>-.021</td>
<td>.773</td>
</tr>
<tr>
<td>Work effectively in teams</td>
<td>.058</td>
<td>.426</td>
</tr>
<tr>
<td>Document patient care</td>
<td>-.089</td>
<td>.226</td>
</tr>
<tr>
<td>Maintain good attendance/ punctuality</td>
<td>-.025</td>
<td>.736</td>
</tr>
<tr>
<td>Recognize limitations</td>
<td>-.013</td>
<td>.861</td>
</tr>
<tr>
<td>Provide patient/family education</td>
<td>-.156</td>
<td>.032*</td>
</tr>
<tr>
<td>Adapt readily to change</td>
<td>-.059</td>
<td>.422</td>
</tr>
<tr>
<td>Work independently</td>
<td>.056</td>
<td>.449</td>
</tr>
<tr>
<td>Communicate through writing</td>
<td>-.020</td>
<td>.788</td>
</tr>
<tr>
<td>Contribute positively to work relationships</td>
<td>.037</td>
<td>.610</td>
</tr>
<tr>
<td>Work sensitively with people from diverse backgrounds</td>
<td>.076</td>
<td>.301</td>
</tr>
<tr>
<td>Manage resources efficiently</td>
<td>.109</td>
<td>.135</td>
</tr>
<tr>
<td>Demonstrate commitment to lifelong learning</td>
<td>-.129</td>
<td>.077</td>
</tr>
<tr>
<td>Provide instruction for diverse groups</td>
<td>-.028</td>
<td>.704</td>
</tr>
<tr>
<td>Establish liaisons with other professionals, departments</td>
<td>.062</td>
<td>.398</td>
</tr>
<tr>
<td>Delegate tasks to support personnel</td>
<td>.052</td>
<td>.478</td>
</tr>
<tr>
<td>Assume leadership role</td>
<td>-.095</td>
<td>.195</td>
</tr>
<tr>
<td>Assist with quality management/ outcomes assessment</td>
<td>-.016</td>
<td>.825</td>
</tr>
<tr>
<td>Assist with design and implementation of new programs</td>
<td>-.033</td>
<td>.651</td>
</tr>
<tr>
<td>Demonstrate basic computer skills</td>
<td>-.017</td>
<td>.820</td>
</tr>
</tbody>
</table>

*<p<.05

Table 6 summarizes the data about the correlation between the number of weeks a student had spent in fulltime clinical education and ranking of the 23 abilities using
Spearman’s rho. The correlation coefficient is a measure of the strength and the direction of the relationship. The only statistically significant result at the .05 level of significance is that the more fulltime clinical education experience students had, the less they seemed to perceive the importance of providing patient/family education. Patient/family education is strongly emphasized in most professional education programs and it is possible that students did not see it practiced as much in the clinical setting as they thought it would be.

Table 7
Correlation Between Weeks of Fulltime Clinical Education and Perceived Importance of Attributes Using Spearman’s Rho

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Correlation Coefficient</th>
<th>Significance (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethical behavior</td>
<td>.027</td>
<td>.718</td>
</tr>
<tr>
<td>Integrity</td>
<td>-.007</td>
<td>.924</td>
</tr>
<tr>
<td>Flexibility</td>
<td>-.008</td>
<td>.913</td>
</tr>
<tr>
<td>Strong work ethic</td>
<td>-.058</td>
<td>.427</td>
</tr>
<tr>
<td>Positive attitude</td>
<td>-.244</td>
<td>.001**</td>
</tr>
<tr>
<td>Energetic personality</td>
<td>-.089</td>
<td>.227</td>
</tr>
<tr>
<td>Intellectual curiosity</td>
<td>-.084</td>
<td>.253</td>
</tr>
<tr>
<td>Creativity</td>
<td>-.166</td>
<td>.023*</td>
</tr>
<tr>
<td>Sense of humor</td>
<td>-.118</td>
<td>.108</td>
</tr>
</tbody>
</table>

*p<.05   **p<.01

Table 7 summarizes the data about the relationship between the number of weeks of fulltime clinical education and the students’ perceptions of the relative value of the
nine attributes. The elements of the table are the same as those described previously.

The more fulltime clinical education students had, the less they perceived that employers value creativity (p< .05) and a positive attitude (p< .001). Students may have observed physical therapy practitioners who demonstrated less creativity and a less positive attitude than students perceived they would prior to spending more time in the clinical setting.

<table>
<thead>
<tr>
<th>Qualifications</th>
<th>Correlation Coefficient</th>
<th>Significance (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broad-based clinical knowledge/skills</td>
<td>.097</td>
<td>.188</td>
</tr>
<tr>
<td>Membership in APTA</td>
<td>-.322</td>
<td>.000**</td>
</tr>
<tr>
<td>Manual therapy certification</td>
<td>.150</td>
<td>.041*</td>
</tr>
<tr>
<td>Advanced master’s degree in PT</td>
<td>-.240</td>
<td>.001**</td>
</tr>
<tr>
<td>Administration experience</td>
<td>.038</td>
<td>.606</td>
</tr>
<tr>
<td>Advanced master’s degree in related field</td>
<td>.103</td>
<td>.162</td>
</tr>
<tr>
<td>Exercise physiology experience/degree</td>
<td>.134</td>
<td>.067</td>
</tr>
<tr>
<td>Research experience</td>
<td>.099</td>
<td>.179</td>
</tr>
<tr>
<td>Athletic trainer certification</td>
<td>.169</td>
<td>.020*</td>
</tr>
<tr>
<td>Massage therapy training/certification</td>
<td>.060</td>
<td>.412</td>
</tr>
</tbody>
</table>

*p<.05   **p<.01

Table 8 summarizes the data about the relationship between the number of weeks of fulltime clinical education and the students’ perceptions of the relative value of the ten
qualifications. The more weeks student had spent in fulltime clinical education experiences the more they perceived that employers value manual therapy certification (p<.05) and athletic training certification (p<.05) and the less they perceived that employers value membership in APTA (p<.01) or an advanced master’s degree in physical therapy (p<.01).

**Research Question 5:** Is the number of weeks students spent in a clinical setting with physical therapists prior to enrollment in a physical therapy education program correlated with their perceptions?

Table 9
*Correlation Between Weeks of Clinical Experience Prior to Enrollment and Perceived Importance of Abilities Using Spearman’s Rho*

<table>
<thead>
<tr>
<th>Abilities</th>
<th>Correlation Coefficient</th>
<th>Significance (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manage time effectively</td>
<td>-.020</td>
<td>.783</td>
</tr>
<tr>
<td>Abide by rules</td>
<td>.094</td>
<td>.205</td>
</tr>
<tr>
<td>Problem-solve/think critically</td>
<td>.001</td>
<td>.994</td>
</tr>
<tr>
<td>Communicate through listening/ speaking</td>
<td>-.029</td>
<td>.698</td>
</tr>
<tr>
<td>Work effectively in teams</td>
<td>.080</td>
<td>.282</td>
</tr>
<tr>
<td>Document patient care</td>
<td>-.032</td>
<td>.664</td>
</tr>
<tr>
<td>Maintain good attendance/ punctuality</td>
<td>.009</td>
<td>.903</td>
</tr>
<tr>
<td>Recognize limitations</td>
<td>.062</td>
<td>.404</td>
</tr>
<tr>
<td>Provide patient/family education</td>
<td>-.022</td>
<td>.763</td>
</tr>
<tr>
<td>Adapt readily to change</td>
<td>.084</td>
<td>.257</td>
</tr>
</tbody>
</table>
Table 9 summarizes the data about the relationship between the number of weeks of clinical experience prior to enrollment in a physical therapy education program and the students’ perceptions of the relative value of the 23 abilities. The only statistically significant correlation found was a positive correlation, significant at the .05 level, between the amount of experience in a physical therapy clinical setting prior to enrollment and the perceived importance of the ability to establish liaisons with other professionals and departments.
Table 10
Correlation Between Weeks of Clinical Experience Prior to Enrollment and Perceived Importance of Attributes Using Spearman’s Rho

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Correlation Coefficient</th>
<th>Significance (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethical behavior</td>
<td>.068</td>
<td>.361</td>
</tr>
<tr>
<td>Integrity</td>
<td>.067</td>
<td>.365</td>
</tr>
<tr>
<td>Flexibility</td>
<td>-.003</td>
<td>.654</td>
</tr>
<tr>
<td>Strong work ethic</td>
<td>.107</td>
<td>.149</td>
</tr>
<tr>
<td>Positive attitude</td>
<td>-.025</td>
<td>.738</td>
</tr>
<tr>
<td>Energetic personality</td>
<td>-.134</td>
<td>.070</td>
</tr>
<tr>
<td>Intellectual curiosity</td>
<td>-.010</td>
<td>.897</td>
</tr>
<tr>
<td>Creativity</td>
<td>-.026</td>
<td>.724</td>
</tr>
<tr>
<td>Sense of humor</td>
<td>-.001</td>
<td>.989</td>
</tr>
</tbody>
</table>

Table 10 summarizes the data about the relationship between the number of weeks of clinical experience prior to enrollment in a physical therapy education program and the students’ perceptions of the relative value of the nine attributes. No statistically significant correlation was found at the .05 level between the amount of experience in a physical therapy clinical setting prior to enrollment and the perceived importance of attributes.
Table 11
**Correlation Between Weeks of Clinical Experience Prior to Enrollment and Perceived Importance of Qualifications Using Spearman’s Rho**

<table>
<thead>
<tr>
<th>Qualifications</th>
<th>Correlation Coefficient</th>
<th>Significance (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broad-based clinical knowledge/skills</td>
<td>.057</td>
<td>.445</td>
</tr>
<tr>
<td>Membership in APTA</td>
<td>.134</td>
<td>.070</td>
</tr>
<tr>
<td>Manual therapy certification</td>
<td>.009</td>
<td>.909</td>
</tr>
<tr>
<td>Advanced master’s degree in PT</td>
<td>.003</td>
<td>.968</td>
</tr>
<tr>
<td>Administration experience</td>
<td>.045</td>
<td>.543</td>
</tr>
<tr>
<td>Advanced master’s degree in related field</td>
<td>.058</td>
<td>.440</td>
</tr>
<tr>
<td>Exercise physiology experience/degree</td>
<td>-.003</td>
<td>.963</td>
</tr>
<tr>
<td>Research experience</td>
<td>.114</td>
<td>.124</td>
</tr>
<tr>
<td>Athletic trainer certification</td>
<td>-.032</td>
<td>.670</td>
</tr>
<tr>
<td>Massage therapy training/certification</td>
<td>-.045</td>
<td>.544</td>
</tr>
</tbody>
</table>

Table 11 summarizes the data about the relationship between the number of weeks of clinical experience prior to enrollment in a physical therapy education program and the students’ perceptions of the relative value of the ten qualifications. No statistically significant correlation was found at the .05 level between the amount of experience in a physical therapy clinical setting prior to enrollment and the perceived importance of qualifications.

**Research Question 6:** How do the perceptions of students compare to the perceptions of employers on the relative importance of the list of abilities?
Research questions six, seven and eight ask for a comparison of students’ perceptions to employers’ perceptions on sets of ranked (ordinal) data. A nonparametric statistical test, the Mann-Whitney, was used to address these questions. It is a test for ordinal data that compares two sets of rankings to determine whether their average rankings differ significantly from each other. In the test the “combined sample of $n_1 + n_2$ measurements are ranked from 1 to $n_1 + n_2$ and the means of the ranks are computed for observations in each sample” (Agresti & Finlay, 1997, p. 232). The test statistic (U) compares these mean ranks. If U is statistically significant, it means that the bulk of scores in one group is higher than the bulk of scores in the other group. (Gall, Borg, & Gall, 1996).

Table 12

<table>
<thead>
<tr>
<th>Abilities</th>
<th>E Rank &amp; (Mean Rank)</th>
<th>S Rank &amp; (Mean Rank)</th>
<th>Significance</th>
<th>Higher Mean Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manage time effectively</td>
<td>1 (210)</td>
<td>1 (221)</td>
<td>.276</td>
<td>S</td>
</tr>
<tr>
<td>Abide by rules</td>
<td>2 (206)</td>
<td>2 (226)</td>
<td>.057</td>
<td>S</td>
</tr>
<tr>
<td>Problem-solve/think critically</td>
<td>3 (201)</td>
<td>2 (237)</td>
<td>.001**</td>
<td>S</td>
</tr>
<tr>
<td>Communicate through listening/ speaking</td>
<td>4 (199)</td>
<td>4 (238)</td>
<td>.000**</td>
<td>S</td>
</tr>
<tr>
<td>Work effectively in teams</td>
<td>5 (211)</td>
<td>7 (216)</td>
<td>.369</td>
<td>S</td>
</tr>
<tr>
<td>Document patient care</td>
<td>6 (203)</td>
<td>6 (231)</td>
<td>.002**</td>
<td>S</td>
</tr>
<tr>
<td>Maintain good attendance/ punctuality</td>
<td>7 (214)</td>
<td>10 (211)</td>
<td>.784</td>
<td>E</td>
</tr>
<tr>
<td>Recognize limitations</td>
<td>8 (201)</td>
<td>8 (235)</td>
<td>.001**</td>
<td>S</td>
</tr>
<tr>
<td>Provide patient/family education</td>
<td>9 (198)</td>
<td>5 (239)</td>
<td>.000**</td>
<td>S</td>
</tr>
</tbody>
</table>
Table 12 (cont’d)

<table>
<thead>
<tr>
<th>Abilities</th>
<th>E Rank &amp; (Mean Rank)</th>
<th>S Rank &amp; (Mean Rank)</th>
<th>Significance</th>
<th>Higher Mean Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adapt readily to change</td>
<td>10 (223)</td>
<td>13 (197)</td>
<td>.062</td>
<td>E</td>
</tr>
<tr>
<td>Work independently</td>
<td>11 (212)</td>
<td>12 (217)</td>
<td>.850</td>
<td>S</td>
</tr>
<tr>
<td>Communicate through writing</td>
<td>12 (201)</td>
<td>9 (237)</td>
<td>.000**</td>
<td>S</td>
</tr>
<tr>
<td>Contribute positively to work relationships</td>
<td>13 (217)</td>
<td>14 (205)</td>
<td>.614</td>
<td>E</td>
</tr>
<tr>
<td>Work sensitively with people from diverse backgrounds</td>
<td>14 (205)</td>
<td>11 (228)</td>
<td>.023*</td>
<td>S</td>
</tr>
<tr>
<td>Manage resources efficiently</td>
<td>15 (197)</td>
<td>15 (243)</td>
<td>.000**</td>
<td>S</td>
</tr>
<tr>
<td>Demonstrate commitment to lifelong learning</td>
<td>16 (201)</td>
<td>16 (234)</td>
<td>.000**</td>
<td>S</td>
</tr>
<tr>
<td>Provide instruction for diverse groups</td>
<td>17 (200)</td>
<td>17 (236)</td>
<td>.000**</td>
<td>S</td>
</tr>
<tr>
<td>Establish liaisons with other professionals, departments</td>
<td>18 (204)</td>
<td>19 (227)</td>
<td>.014*</td>
<td>S</td>
</tr>
<tr>
<td>Delegate tasks to support personnel</td>
<td>19 (197)</td>
<td>18 (244)</td>
<td>.000**</td>
<td>S</td>
</tr>
<tr>
<td>Assume leadership role</td>
<td>20 (212)</td>
<td>22 (215)</td>
<td>.644</td>
<td>S</td>
</tr>
<tr>
<td>Assist with quality management/ outcomes assessment</td>
<td>21 (200)</td>
<td>20 (233)</td>
<td>.000**</td>
<td>S</td>
</tr>
<tr>
<td>Assist with design and implementation of new programs</td>
<td>22 (213)</td>
<td>21 (215)</td>
<td>.355</td>
<td>S</td>
</tr>
<tr>
<td>Demonstrate basic computer skills</td>
<td>23 (194)</td>
<td>23 (247)</td>
<td>.000**</td>
<td>S</td>
</tr>
</tbody>
</table>

* p<.05, **p<.01, E = Employer, S = Student, Rank = relative importance among all alternatives, Mean Rank = statistical computation based on a comparison of the value assigned to a particular item by each employer and student who responded

Table 12 displays the comparison of employers’ and students’ rankings of abilities: (1) the actual ranking of abilities based on employers’ (E) and students’ (S) responses (E Rank and S Rank); (2) the mean rank for employers and mean rank for students as determined by the Mann Whitney U computation; (3) the significance of the
findings; and (4) whether employers (E) or students (S) had a higher mean rank for that item. In the column for significance a single asterisk (*) indicates statistical significance at the .05 level and a double asterisk (**) indicates statistical significance at the .01 level.

The importance of the numeric value of the mean rank for one independent sample (e.g., employers) lies in its relative value when compared to the mean rank of the second independent sample (e.g., students).

A statistically significant difference exists in the distributions of the two sets of rankings at the .01 level of significance for the following abilities:

- Problem-solve/think critically
- Communicate through listening/speaking
- Recognize limitations
- Provide patient/family education
- Communicate through writing
- Manage resources efficiently
- Demonstrate commitment to lifelong learning
- Provide instruction for diverse groups
- Delegate tasks to support personnel
- Assist with quality management/outcomes assessment
- Demonstrate basic computer skills

At the .05 level of significance, there is a significant difference in the distributions of scores for the following abilities:

- Work sensitively with people from diverse backgrounds
- Establish liaisons with other professionals and departments

For all items in which a significant difference was found, the mean rank for students was higher than that of employers. Employers’ mean rank for “maintain good attendance/punctuality,” “adapt readily to change,” and “contribute positively to work relationships,” was higher than students’ mean rank but not at a statistically significant level. In general, students assigned scores for each item that reflected perception of a higher value, making the differences in students’ responses less discriminating than those of employers.

**Research Question 7:** How do the perceptions of students compare to the perceptions of employers on the relative importance of the list of attributes?

Table 13
*Employers’ and Students’ Rankings of Specific Attributes and Statistical Comparison of Rankings Using Mann-Whitney U*

<table>
<thead>
<tr>
<th>Attributes</th>
<th>E Rank &amp; (Mean Rank)</th>
<th>S Rank &amp; (Mean Rank)</th>
<th>Significance</th>
<th>Higher Mean Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethical behavior</td>
<td>1 (226)</td>
<td>1 (242)</td>
<td>.084</td>
<td>S</td>
</tr>
<tr>
<td>Integrity</td>
<td>2 (232)</td>
<td>2 (233)</td>
<td>.918</td>
<td>S</td>
</tr>
<tr>
<td>Flexibility</td>
<td>3 (248)</td>
<td>5 (209)</td>
<td>.001**</td>
<td>E</td>
</tr>
<tr>
<td>Strong work ethic</td>
<td>4 (233)</td>
<td>4 (229)</td>
<td>.721</td>
<td>E</td>
</tr>
<tr>
<td>Positive attitude</td>
<td>5 (233)</td>
<td>3 (232)</td>
<td>.956</td>
<td>E</td>
</tr>
<tr>
<td>Energetic personality</td>
<td>6 (230)</td>
<td>7 (236)</td>
<td>.576</td>
<td>S</td>
</tr>
<tr>
<td>Intellectual curiosity</td>
<td>7 (228)</td>
<td>6 (239)</td>
<td>.328</td>
<td>S</td>
</tr>
<tr>
<td>Creativity</td>
<td>8 (231)</td>
<td>8 (235)</td>
<td>.749</td>
<td>S</td>
</tr>
<tr>
<td>Sense of humor</td>
<td>9 (241)</td>
<td>9 (220)</td>
<td>.073</td>
<td>E</td>
</tr>
</tbody>
</table>
* p<.05, **p<.01, E = Employer, S = Student, Rank = relative importance among all
alternatives, Mean Rank = statistical computation based on a comparison of the value
assigned to a particular item by each employer and student who responded

Table 13 displays the comparison of employers’ and students’ rankings of
attributes in the same manner as that for abilities. Flexibility was the only attribute in
which there was a significant difference (p<.01) between the rankings of the list of
attributes by students and employers. Employers’ mean rank for flexibility was higher
than the students’ mean rank.

Research Question 8: How do the perceptions of students compare to the perceptions of
employers on the relative importance of the list of qualifications?

Table 14
Employers’ and Students’ Rankings of Specific Qualifications and Statistical Comparison
of Rankings Using Mann-Whitney U

<table>
<thead>
<tr>
<th>Qualifications</th>
<th>E Rank &amp; (Mean Rank)</th>
<th>S Rank &amp; (Mean Rank)</th>
<th>Significance</th>
<th>Higher Mean Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broad-based clinical knowledge/skills</td>
<td>1 (233)</td>
<td>1 (228)</td>
<td>.716</td>
<td>E</td>
</tr>
<tr>
<td>Membership in APTA</td>
<td>2 (200)</td>
<td>3 (274)</td>
<td>.000**</td>
<td>S</td>
</tr>
<tr>
<td>Manual therapy certification</td>
<td>3 (218)</td>
<td>4 (249)</td>
<td>.010*</td>
<td>S</td>
</tr>
<tr>
<td>Advanced master’s degree in PT</td>
<td>4 (181)</td>
<td>2 (305)</td>
<td>.000**</td>
<td>S</td>
</tr>
<tr>
<td>Administration experience</td>
<td>5 (204)</td>
<td>5 (268)</td>
<td>.000**</td>
<td>S</td>
</tr>
<tr>
<td>Advanced master’s degree in related field</td>
<td>6 (205)</td>
<td>7 (266)</td>
<td>.000**</td>
<td>S</td>
</tr>
<tr>
<td>Exercise physiology experience/degree</td>
<td>7 (214)</td>
<td>8 (258)</td>
<td>.000**</td>
<td>S</td>
</tr>
<tr>
<td>Research experience</td>
<td>8 (194)</td>
<td>6 (287)</td>
<td>.000**</td>
<td>S</td>
</tr>
<tr>
<td>Athletic trainer certification</td>
<td>9 (213)</td>
<td>10 (259)</td>
<td>.000**</td>
<td>S</td>
</tr>
</tbody>
</table>
Massage therapy training/certification  10 (209)  9 (265)  .000**  S

* p<.05,  **p<.01,  E = Employer,  S = Student,  Rank = relative importance among all alternatives,  Mean Rank = statistical computation based on a comparison of the value assigned to a particular item by each employer and student who responded

Table 14 displays the comparison of employers’ and students’ rankings of qualifications in the same manner as that for abilities and attributes. Students assigned a significantly higher value than employers to all of the qualifications except broad-based knowledge/skills. In general, students seemed to have an inflated perception of the value of many of the qualifications that go beyond basic physical therapy preparation.

Employers seem to perceive broad-based knowledge and skills as essential and the only qualification from the list that they perceive more important than students do (although not significantly more important).

**Summary of Results**

Student’ perceptions of abilities, attributes and qualifications that employers value in the physical therapists they employ can be summarized by listing the top five in each category.

Table 15

*Students Perceptions of the Five Most Valued Abilities, Attributes and Qualifications*

<table>
<thead>
<tr>
<th>ABILITIES</th>
<th>ATTRIBUTES</th>
<th>QUALIFICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manage time effectively</td>
<td>Ethical behavior</td>
<td>Broad-based clinical knowledge/skills</td>
</tr>
<tr>
<td>Problem-solve/think critically</td>
<td>Integrity</td>
<td>Advanced masters degree in physical therapy</td>
</tr>
<tr>
<td>Abide by rules and</td>
<td>Strong work ethic</td>
<td>Membership in APTA</td>
</tr>
</tbody>
</table>
It was questioned whether experience in a clinical setting, either the fulltime clinical education experiences that are a major component of the professional curriculum or experience in a physical therapy setting prior to enrollment in a professional education program, might influence the perceptions of students about what employers value. Significant negative correlations between the number of weeks of fulltime clinical education and students perceptions were: provide patient family education (p<.05); creativity (p<.05); positive attitude (p<.01); membership in APTA (p<.01); and advanced masters degree in physical therapy (p<.01). Significant positive correlations were found for manual therapy certification (p<.05) and athletic trainer certification (p<.05). The only significant correlation between the number of weeks of experience in a clinical setting students had prior to enrollment and their perceptions of what employers value was a positive correlation for the ability to establish liaisons with other professionals and departments (p<.05).

A comparison of students’ perceptions and employers’ perceptions of the five most important characteristics demonstrated agreement in all areas, except that employers placed the ability to work effectively in teams in the top five (students had it ranked seventh) and students placed the ability to provide effective patient/family education in the top five (employers had it ranked ninth).
Statistical analysis of the rankings indicated that students assigned statistically significant higher value to many of the abilities and qualifications, but none of the attributes.

**Abilities:**
- Work sensitively with people from diverse backgrounds (p<.05)
- Demonstrate basic computer skills (p<.01)
- Assist with quality management/outcomes assessment (p<.01)
- Communicate through listening/speaking (p<.01)
- Communicate through writing (p<.01)
- Provide effective instruction for diverse groups (p<.01)
- Provide patient/family education (p<.01)
- Problem-solve/think critically (p<.01)
- Document patient care concisely/comprehensively (p<.01)
- Recognize limitations/know when to request assistance (p<.01)
- Demonstrate a commitment to lifelong learning (p<.01)
- Delegate appropriate tasks to support personnel (p<.01)
- Manage resources efficiently (p<.01)
- Establish liaisons with other professionals and departments (p<.05)

**Qualifications:**
- Membership in APTA (p<.01)
- Advanced masters degree in physical therapy (p<.01)
- Advanced masters degree in related field (p<.01)
- Research experience (p<.01)
- Administration experience (p<.01)
- Manual therapy certification (p<.01)
- Athletic trainer certification (p<.01)
- Exercise physiology experience/degree (p<.01)
- Massage therapy training/certification (p<.01)

The only one of the characteristics that employers ranked higher at a statistically significant level was the attribute, flexibility (p<.01). This probably reflects the necessity of physical therapy employees being flexible to cope successfully with the dramatic changes in health care.
Chapter V – Conclusions

Introduction

Change characterizes our world today. Dramatic change has occurred in healthcare, including the physical therapy profession. The Balanced Budget Act of 1997 that cut more than $115 billion out of the Medicare budget, the shift towards managed care, globalization of the economy, rapid advances in technology and the knowledge explosion are just some of the major changes that have altered the landscape in which physical therapists practice and the roles that they play. Healthcare professionals in general are expected to accomplish more in less time, with fewer resources and demonstrate better outcomes.

Much of the adaptation has been reactionary rather than planned as health professions struggle to redefine themselves and seek new directions. It has created a dynamic tension between the various sectors of the physical therapy profession. Shifts in reimbursement policies forced rapid change in the practice sector that was essential for survival. Research and education sectors struggled to keep up with change and to shift their direction and reorder their priorities. Under the transformational leadership of Jan Richardson, the national professional organization (APTA) embraced change as an opportunity to make fundamental shifts in the vision for the future roles physical therapists would assume and the education they would receive.

Students in physical therapy education programs are attempting to develop their own professional identity at the same time the profession is redefining itself. They will
enter the profession at a time when an oversupply of physical therapists is projected (Vector Research, 1997) and cuts in federal programs continue to decrease reimbursement for rehabilitation services. As students prepare to enter an increasingly competitive marketplace it would be helpful to be aware of the abilities, attributes and qualifications that employers value.

It seems logical that to adapt successfully to change and to address the challenges of today’s workplace, employers might want different qualities in the physical therapists they hire than they did in the past. Since the qualities that physical therapy employers value has never been researched, it is impossible to measure change. However, a survey of employers done previously by this author established a baseline of the abilities, attributes and qualifications that physical therapy employers perceive as most important.

Research has shown that institutions of higher education are often slow to change compared to practice settings and that a chasm exists between workforce needs and academic preparation of students to enter the workforce. If this is true in the profession of physical therapy, than the perceptions of physical therapy students about the characteristics employers value in the physical therapists they hire should differ from the perceptions of employers. The same survey that was administered to employers was also administered to second year physical therapy students to determine if this was true.

Conclusions

The study conducted by the Business-Higher Education Forum (Labrecque & Duderstadt, 1996) reported that employers believed recent graduates were most deficient
in: (1) communication skills, (2) ability to work in teams, (3) flexibility, (4) ability to accept ambiguity comfortably, (5) ability to work with people from diverse backgrounds, (6) understanding globalization and its implications, and (7) adequate ethics training.

Research in other fields (Carnevale & Desrochers, 1999; Henri, 1994; Kirk, et al., 1989; Lacey, et al., 1997; Ottensmeyer & Key, 1991; Villanueva, et al., 1995; Willis & Taylor, 1999) indicated that these are the abilities and attributes that employers value. Given a list of 23 abilities, physical therapy employers ranked managing time effectively as the most important, followed by abiding by rules and regulations, demonstrating the ability to problem-solve or think critically, communicating effectively through listening/speaking, and working effectively in teams. In ranking a list of nine attributes, they ranked ethical behavior, integrity, flexibility, a strong work ethic and a positive attitude as the most important. These findings closely resemble the findings of earlier research.

Despite radical change, employers still value essential professional behaviors more than they do specialized credentials, skills or knowledge (Henri, 1994; Kirk, et al., 1989; Lacey, et al., 1997; Villanueva, et al., 1995). Recent trends in healthcare also indicate better reimbursement for generalist practitioners than for specialists (Nosse, et al., 1999). The survey of physical therapy employers indicates a similar trend. Given a list of various types of specialization, employers of physical therapists showed a strong preference for broad-based knowledge and skills (Lunnen, et al., 2001).

A report by the National Center for Research in Vocational Education (Stasz & Brewer, 1999) supports the shift in focus from technical competencies to “soft” skills such as appropriate professional behaviors. Despite significant advances in technology
and increased use of computers in physical therapy practice settings for data collection, sophisticated equipment, documentation, and financial management, employers ranked basic computer skills as the least important ability in the physical therapists they hire.

A global economy and the growing multicultural nature of our society challenge healthcare professions to increase the diversity within the profession and to assure that practitioners respond sensitively to people from diverse backgrounds. Employers of physical therapists ranked this ability fourteenth, although it could be argued that many of the abilities ranked above it (e.g., communication) would be broad enough to encompass the diversity issue. The amount of information available to health care practitioners is increasing exponentially and access to the information has improved dramatically. In response to the so-called knowledge explosion, the Pew Commission recommended a regulatory system to ensure practitioners’ initial and continued competence (Finnochio, et al., 1995). In the ranking of 23 abilities calculated from employers assignment of importance to each ability listed, “commitment to lifelong learning” was ranked sixteenth.

Physical therapy students were asked to assign a level of importance to specific abilities, attributes and qualifications for today’s workforce on the same survey instrument that was administered to physical therapy employers. Rankings were determined based on these responses. A surprising degree of agreement was observed between the rankings of students and employers in all three areas. Of the top five in each area (abilities, attributes and qualifications) there was agreement on all but two. Employers valued the ability to work effectively in teams slightly more and students
perceived more value in the ability to provide effective patient/family education. In
general, students tended to perceive higher value for more qualities, thus inflating their
responses and making them less discriminatory. This was particularly true in the area of
qualifications where students assigned significantly more value than employers did to all
of the qualifications listed except for broad-based clinical knowledge and skills. In the
list of abilities, students assigned significantly more value than employers did to almost
half (11) of the abilities that were listed. No particular pattern is discernable from those
abilities assigned greater importance. Flexibility was the one characteristic that
employers gave statistically significant higher value than did students. This probably
reflects their experience with dramatic change in the workplace and their recognition of
the importance of flexibility within that changing environment.

Agreement on the rankings of abilities among employers and students was also
seen on recognizing limitations (8th), managing resources efficiently (15th), demonstrating
a commitment to lifelong learning (16th), providing instruction to diverse groups (17th),
and demonstrating basic computer skills (23rd). Students and employers both ranked an
energetic personality, intellectual curiosity, creativity and a sense of humor as the least
important attributes. Certification as an athletic trainer or massage therapist was
perceived by both groups as the least important qualifications.

It was theorized that experience in physical therapy clinical settings might shape
the perceptions of physical therapy students about the characteristics that employers
value. Almost no correlation existed between the amount of clinical experience students
had prior to enrolling in a physical therapy education program and their perceptions. The
only statistically significant finding was a mild positive correlation between the number of weeks of clinical experience prior to enrollment and the importance given to the ability to establish liaisons with other professionals and departments. Typically, students at this level are only observing and they may have been impressed with the amount of interaction that occurs between professionals from different disciplines, but were not knowledgeable enough to have the experience alter their perceptions in general.

The number of weeks that physical therapy students had spent in fulltime clinical education experiences as part of their professional education did influence their perceptions in multiple areas. A negative correlation was found between length of clinical education experience (in weeks) and students’ perceptions of the importance of the ability to provide effective patient/family education and the attributes of being creative and having a positive attitude. Clinical education assignments are a challenging experience for students in which they are expected to demonstrate a wide variety of professional behaviors, skills and knowledge. Their expectations of themselves are high and they may have been somewhat disillusioned to witness physical therapists who did not have particularly strong qualities in those areas who were still functioning with apparent success in the workplace.

The most significant correlations between the length of fulltime clinical education experience and students’ perceptions were with the list of qualifications. Students who had spent more time in physical therapy clinical settings tended to place less value on membership in the national professional organization (APTA) and an advanced degree in physical therapy. It is likely that these are qualifications that are stressed in academic
programs, but students did not find widely evident among clinical practitioners during their clinical education experiences. A positive correlation was found for students who had more time in fulltime clinical education experiences and the value they awarded to certification in manual therapy or athletic training. These are both challenging areas of relative specialization that might be possessed by more experienced physical therapists (manual therapy) or therapists working with athletes (a desirable area of practice).

Implications

To adapt successfully, change must be perceived as an opportunity rather than a threat. Leadership in all sectors of the profession must establish a clear vision that is a source of self-esteem and common purpose. If widely accepted, APTA’s Vision Statement for 2020 will establish an important framework. Students and all sectors of the profession must be engaged in the dialog about professional roles and boundaries and all sectors must be open to the possibility of fundamentally altering physical therapy education.

Both students and employers recognize the importance of essential professional behaviors for effective clinical practice. This has implications for educational programs to assure that expectations about desirable professional behaviors are clearly communicated to students; that these are assessed on an ongoing basis in a reliable manner; and that students’ learning occurs in an environment that promotes the development of these behaviors. May et al. (1995) developed 10 generic abilities that they thought were essential for physical therapists. These abilities create the framework
for expectations related to appropriate professional behaviors that should be evident from
the time a student applies to a program and then carefully integrated throughout the curriculum.

The ability to function effectively on teams is valued by both employers and students. Educational curricula could develop more interdisciplinary content, especially around core courses and opportunities could be made available for students to participate on interdisciplinary or transdisciplinary teams. Cooperative learning strategies could be incorporated throughout the curriculum as a way to promote active learning and teach the fundamentals of successful team interaction.

Physical therapy education is at the graduate level. Students may enter immediately after completing an undergraduate curriculum or may return to higher education after performing adult roles. Regardless, during the course of a two or three year professional education program, these students must be prepared to accept adult roles and to demonstrate professional behaviors that are adult in nature. If adult behaviors are expected, than adult education methodologies must be utilized that will be most likely to enhance the development of appropriate professional behaviors. Traditionally, education that prepared individuals for careers in the health care professions was guided by behaviorist philosophy. Making a shift to a more humanistic philosophy of adult education may be appropriate. It would make students responsible for their own learning, which is a responsibility that must continue throughout their careers. It would make them active participants and require collaboration rather than
competition, favoring the development of communication skills and professional behaviors that are important qualities for long term success in employment settings.

As the physical therapy profession makes its transition to entry level preparation at the doctoral level it is an opportunity to further explore the knowledge, skills and behaviors that are desirable in today’s workforce; to examine the underlying philosophy of our educational programs; and to anticipate change rather than react to it. It is an opportunity to develop strategies for collaboration among allied health disciplines and to build alliances. Evidence-based practice is the buzzword in clinical practice and it needs to be applied with the same rigor in educational settings. The various sectors of the profession must continue to build bridges that will facilitate cooperation and communication and carry us successfully into the new century.

Recommendations

Suggestions for further study include expanding the population of employers and students surveyed beyond the states of North and South Carolina and looking more closely at the influence of subsets within both populations. For example, does the institution a student attends influence his/her perceptions? Interesting variables to explore about the educational environment would include: (1) size of the institution, (2) size of the physical therapy class, (3) whether public or private, (4) whether part of a large medical teaching hospital or not, (5) degree offered, (6) status of the student in the curriculum (i.e., first, second or third year), (7) predominate teaching-learning model used, and (8) methods used to address the development of professional behaviors.
Physical therapists practice in diverse clinical settings. This study has shown that the length of clinical education experience (in weeks) impacts students’ perceptions. Does the type of clinical education experience also impact their perceptions? Employers were asked to characterize their employment setting as one of ten types based on categories identified by the APTA. Some variability in their perceptions could be accounted for by the type of setting in which they practiced. Students could be asked the type of setting where they have had fulltime clinical education experiences. And, in responding to the survey, they could be asked to base their responses on a particular type of clinical setting (e.g., acute care hospital).

Since the profession of physical therapy is transitioning toward an entry level doctorate as the preferred degree and none of the employers surveyed expressed a preference for the degree, it would be interesting to explore that area further. How well do employers understand the rationale for the transition? It would also be interesting to conduct a qualitative study of how employers perceive change and its impact on clinical practice, leading to more specific delineation of the qualities they see as necessary for practitioners to make a successful adaptation.

Students tended to grant high levels of importance to many of the abilities, attributes and qualifications. This made their responses less discriminating. It would be interesting to force greater discrimination, perhaps by using a Delphi technique or conducting a qualitative study.
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Appendices
DESIRABLE ABILITIES, ATTRIBUTES and QUALIFICATIONS for PHYSICAL THERAPISTS in TODAY’S WORKFORCE (Student Survey)

WESTERN CAROLINA UNIVERSITY
College of Applied Sciences
Department of Physical Therapy
309 Moore Hall
Cullowhee, NC 28723
828 227-2192
Desirable Abilities, Attributes and Qualifications for Physical Therapists in Today’s Workforce

STUDENT SURVEY

Please respond to the following questions from the perspective of an employer of physical therapists in today’s workforce. Indicate the relative importance of each item listed below as it applies to employment decisions for physical therapists by circling the appropriate number on the continuum from not important to essential.

ABILITIES: How important is the ability to…?

<table>
<thead>
<tr>
<th>#</th>
<th>Ability</th>
<th>Not Important</th>
<th>Important</th>
<th>Essential</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Work effectively in teams</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Manage time effectively</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Maintain good record of attendance and punctuality</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Work sensitively with people from diverse backgrounds</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>Demonstrate basic computer skills</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>Assist with design and implementation of new programs</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>Assist with quality management/outcomes assessment</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>Abide by rules and regulations</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td>Communicate effectively through listening/speaking</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>Communicate effectively through writing</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>11</td>
<td>Provide effective instruction for diverse groups</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>12</td>
<td>Provide effective patient/family education</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>13</td>
<td>Problem-solve/think critically</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>14</td>
<td>Document patient care concisely/comprehensively</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>15</td>
<td>Work independently</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>16</td>
<td>Recognize limitations/know when to request assistance</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>17</td>
<td>Demonstrate commitment to lifelong learning</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>18</td>
<td>Adapt readily to change in the work environment</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>19</td>
<td>Contribute positively to working relationships</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>20</td>
<td>Assume leadership role within department/organization</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>21</td>
<td>Delegate appropriate tasks to support personnel</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>22</td>
<td>Manage resources efficiently</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>23</td>
<td>Establish liaisons with other professionals, departments</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Of all the items listed above, which do you believe are the three most important abilities to consider when making employment decisions? (in order of importance): #1: ____ #2: ____ #3: ____

ATTRIBUTES: How important are the following attributes?

<table>
<thead>
<tr>
<th>#</th>
<th>Attribute</th>
<th>Not Important</th>
<th>Important</th>
<th>Essential</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Flexibility</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Creativity</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
3. Integrity
4. Intellectual curiosity
5. Strong work ethic
6. Energetic personality
7. Ethical behavior
8. Sense of humor
9. Positive attitude

Of all the items listed above, which do you believe are the three most important attributes to consider when making employment decisions? (in order of importance): #1: ____ #2: ____ #3: ____

QUALIFICATIONS: How important are the following qualifications?

<table>
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<tr>
<th>#</th>
<th>Qualifications</th>
<th>Not Important</th>
<th>Important</th>
<th>Essential</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Membership in American Physical Therapy Association</td>
<td>1 2 3 4 5 6</td>
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<td></td>
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<tr>
<td>2</td>
<td>Advanced master’s degree in physical therapy</td>
<td>1 2 3 4 5 6</td>
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<tr>
<td>3</td>
<td>Advanced master’s degree in related field</td>
<td>1 2 3 4 5 6</td>
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<td>4</td>
<td>Research experience</td>
<td>1 2 3 4 5 6</td>
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<tr>
<td>5</td>
<td>Administration experience</td>
<td>1 2 3 4 5 6</td>
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<tr>
<td>6</td>
<td>Broad-based clinical knowledge/skills</td>
<td>1 2 3 4 5 6</td>
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<td>7</td>
<td>Manual therapy certification</td>
<td>1 2 3 4 5 6</td>
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<td>8</td>
<td>Athletic trainer certification</td>
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<td>9</td>
<td>Exercise physiology experience/degree</td>
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<td>10</td>
<td>Massage therapy training/certification</td>
<td>1 2 3 4 5 6</td>
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</tr>
</tbody>
</table>

Of all the items listed above, which do you believe are the three most important qualifications to consider when making employment decisions? (in order of importance): #1: _____ #2: _____ #3: _____

Which degree do you think employers prefer?
Entry level master’s: ___ Entry level doctorate: ___ No preference: ___ Unsure: ___

GENERAL INFORMATION:
1. In which physical therapy education program are you currently enrolled?
   - Duke University
   - East Carolina University
   - Elon College
   - Medical University of South Carolina
   - University of North Carolina (Chapel Hill)
   - Western Carolina University
   - Winston-Salem State University

2. How many full semesters of didactic work have you completed? _____ semesters

3. How many weeks of full-time clinical education have you completed? _____ weeks

4. Approximately how many weeks of volunteer or employment experience did you have prior to enrolling in a physical therapy program? _____ weeks

Your comments would be appreciated, either here or on the back of the page. Thank you for your assistance.

Karen Y. Lunnen, Western Carolina University
DESIRABLE ABILITIES, ATTRIBUTES and QUALIFICATIONS for PHYSICAL THERAPISTS in TODAY’S WORKFORCE (Employer Survey)

WESTERN CAROLINA UNIVERSITY
College of Applied Sciences
Department of Physical Therapy
309 Moore Hall
Cullowhee, NC 28723
828 227-2192
To be completed by the person responsible for hiring physical therapists

Please assume that you are hiring a full-time physical therapist for your setting. Please indicate the relative importance of each item listed below as it applies to employment decisions for physical therapists by shading a circle on the continuum from not important to essential.

**ABILITIES: How important is the ability to…?**

<table>
<thead>
<tr>
<th>#</th>
<th>Ability</th>
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<tbody>
<tr>
<td>1.</td>
<td>Work effectively in teams</td>
<td>1 2 3 4 5 6</td>
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<tr>
<td>2.</td>
<td>Manage time effectively</td>
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<td>3.</td>
<td>Maintain good record of attendance and punctuality</td>
<td>1 2 3 4 5 6</td>
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<tr>
<td>4.</td>
<td>Work sensitively with people from diverse backgrounds</td>
<td>1 2 3 4 5 6</td>
<td></td>
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</tr>
<tr>
<td>5.</td>
<td>Demonstrate basic computer skills</td>
<td>1 2 3 4 5 6</td>
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<tr>
<td>6.</td>
<td>Assist with design and implementation of new programs</td>
<td>1 2 3 4 5 6</td>
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<tr>
<td>7.</td>
<td>Assist with quality management/outcomes assessment</td>
<td>1 2 3 4 5 6</td>
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<td>Abide by rules and regulations</td>
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<tr>
<td>15.</td>
<td>Work independently</td>
<td>1 2 3 4 5 6</td>
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<tr>
<td>16.</td>
<td>Recognize limitations/now when to request assistance</td>
<td>1 2 3 4 5 6</td>
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<tr>
<td>17.</td>
<td>Demonstrate commitment to lifelong learning</td>
<td>1 2 3 4 5 6</td>
<td></td>
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<tr>
<td>18.</td>
<td>Adapt readily to change in the work environment</td>
<td>1 2 3 4 5 6</td>
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<tr>
<td>19.</td>
<td>Contribute positively to working relationships</td>
<td>1 2 3 4 5 6</td>
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<td>Assume leadership role within department/organization</td>
<td>1 2 3 4 5 6</td>
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<td>21.</td>
<td>Delegate appropriate tasks to support personnel</td>
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<td>22.</td>
<td>Manage resources efficiently</td>
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<tr>
<td>23.</td>
<td>Establish liaisons with other professionals, departments</td>
<td>1 2 3 4 5 6</td>
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<td></td>
</tr>
</tbody>
</table>

Of all the items listed above, which do you believe are the three most important abilities to consider when making employment decisions? (in no particular order): #: ___ #: ___ #: ___

**ATTRIBUTES: How important are the following attributes?**

<table>
<thead>
<tr>
<th>#</th>
<th>Attribute</th>
<th>Not Important</th>
<th>Important</th>
<th>Essential</th>
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<tr>
<td>2.</td>
<td>Creativity</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Integrity</td>
<td>1 2 3 4 5 6</td>
<td></td>
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</tr>
<tr>
<td>4.</td>
<td>Intellectual curiosity</td>
<td>1 2 3 4 5 6</td>
<td></td>
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<tr>
<td>#</td>
<td>Attribute</td>
<td>Not Important</td>
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<td>Essential</td>
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</tr>
<tr>
<td>5</td>
<td>Strong work ethic</td>
<td>1 2</td>
<td>3 4</td>
<td>5 6</td>
</tr>
<tr>
<td>6</td>
<td>Energetic personality</td>
<td>1 2</td>
<td>3 4</td>
<td>5 6</td>
</tr>
<tr>
<td>7</td>
<td>Ethical behavior</td>
<td>1 2</td>
<td>3 4</td>
<td>5 6</td>
</tr>
<tr>
<td>8</td>
<td>Sense of humor</td>
<td>1 2</td>
<td>3 4</td>
<td>5 6</td>
</tr>
<tr>
<td>9</td>
<td>Positive attitude</td>
<td>1 2</td>
<td>3 4</td>
<td>5 6</td>
</tr>
</tbody>
</table>

Of all the items listed above, which do you believe are the three most important attributes to consider when making employment decisions? (in no particular order): #: _____ #: _____ #: _____

**QUALIFICATIONS: How important are the following qualifications?**

<table>
<thead>
<tr>
<th>#</th>
<th>Qualification</th>
<th>Not Important</th>
<th>Important</th>
<th>Essential</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Membership in American Physical Therapy Association</td>
<td>1 2</td>
<td>3 4</td>
<td>5 6</td>
</tr>
<tr>
<td>2</td>
<td>Advanced master’s degree in physical therapy</td>
<td>1 2</td>
<td>3 4</td>
<td>5 6</td>
</tr>
<tr>
<td>3</td>
<td>Advanced master’s degree in related field</td>
<td>1 2</td>
<td>3 4</td>
<td>5 6</td>
</tr>
<tr>
<td>4</td>
<td>Research experience</td>
<td>1 2</td>
<td>3 4</td>
<td>5 6</td>
</tr>
<tr>
<td>5</td>
<td>Administration experience</td>
<td>1 2</td>
<td>3 4</td>
<td>5 6</td>
</tr>
<tr>
<td>6</td>
<td>Broad-based clinical knowledge/skills</td>
<td>1 2</td>
<td>3 4</td>
<td>5 6</td>
</tr>
<tr>
<td>7</td>
<td>Manual therapy certification</td>
<td>1 2</td>
<td>3 4</td>
<td>5 6</td>
</tr>
<tr>
<td>8</td>
<td>Athletic trainer certification</td>
<td>1 2</td>
<td>3 4</td>
<td>5 6</td>
</tr>
<tr>
<td>9</td>
<td>Exercise physiology experience/degree</td>
<td>1 2</td>
<td>3 4</td>
<td>5 6</td>
</tr>
<tr>
<td>10</td>
<td>Massage therapy training/certification</td>
<td>1 2</td>
<td>3 4</td>
<td>5 6</td>
</tr>
</tbody>
</table>

Of all the items listed above, which do you believe are the three most important qualifications to consider when making employment decisions? (in no particular order): #: _____ #: _____ #: _____

**GENERAL INFORMATION:**

1. Which one classification best describes your facility? *(Check only one.)*
   - Acute care/hospital
   - Ambulatory care/Outpatient center
   - Chronic pain center
   - Extended care facility
   - Home health agency
   - Athletic, fitness or recreation organization
   - Private practice
   - Rehabilitation center
   - School/Preschool system
   - Industrial rehabilitation
   - Wound care
   - Other

2. In which state is your facility located? _______________________

3. How many years have you been responsible for hiring physical therapists? _____

4. How many physical therapists are typically employed at your facility?
   - Number of full-time: _____
   - Number of part-time: _____

5. How many budgeted full-time equivalent positions for physical therapists are currently unfilled? _____
6. How many support personnel are employed by your facility?
   Physical therapist assistants: ___  Physical therapy aides or technicians: ___
   Exercise physiologists: ___  Massage therapists: ___
   Certified athletic trainers: ___  Other (clerical, etc.): ___

7. Approximately how many patients/clients are seen by your facility per day? ___

8. Approximately how many applications for employment did you review for the last physical therapist position? ___

9. How many physical therapists did you hire during the last 12 months? ___  How many of those were new graduates? ___

10. During the past 12 months, did the number of full-time positions for physical therapists in your organization:
    Increase: ___  Decrease: ___  Remain the same: ___  Unsure: ___

11. During the next two years, do you expect the number of full-time positions for physical therapists to:
    Increase: ___  Decrease: ___  Remain the same: ___  Unsure: ___

12. During the next two years, do you expect the number of positions for support personnel to:
    Increase: ___  Decrease: ___  Remain the same: ___  Unsure: ___

13. Which degree do you prefer?
    Entry level master’s: ___  Entry level doctorate: ___  No preference: ___  Unsure: ___

14. Are you currently using the Guide to Physical Therapy Practice?
    Not at all: ___  A little: ___  A lot: ___

Your comments would be appreciated, either here or in a separate envelope.

Thank you for your assistance. Please return your completed questionnaire in the enclosed envelope:

Karen Y. Lunnen, MS, PT, Assistant Professor
Department of Physical Therapy
309 Moore Hall
Western Carolina University
Cullowhee, NC 28723
April 6, 2001

Jan K. Richardson, PT, PhD, OCS
Professor and Chair
Division of Physical Therapy
Duke University Medical Center
PO Box 3965
Durham, NC 27710

Dear Dr. Richardson:

My doctoral dissertation involves a survey of second year physical therapy students. The purpose is to determine the perceptions of physical therapy students about the attributes, abilities and qualifications that are desired by employers of physical therapists in today’s workforce. Further, the study will compare the perceptions of students with those of employers based on an earlier survey of employers with a similar instrument. I reported the results of the employer survey at Combined Sections Meeting in San Antonio.

I would like to ask your permission to survey the second year students in your program. It would take about 15 minutes of their time. Examinations are fast approaching and I would like to coordinate survey administration at each of the physical therapy programs in North Carolina and South Carolina to occur during the week of April 16th. My thought is to request the assistance of the Academic Coordinator of Education in your program to administer the survey, but I am open to suggestions.

A copy of the survey instrument and application approved by the Institutional Review Board at North Carolina State University are enclosed. I will contact you next week after you have had an opportunity to consider my request. Thank you in advance for your time and your support of physical therapy research.

Sincerely,

Karen Y. Lunnen, MS, PT, Assistant Professor
Academic Coordinator of Clinical Education
Instructions for Administering the Survey to Students

1. Please briefly explain the purpose of the survey:

The purpose of the study is to determine the perceptions of physical therapy students about the abilities, attributes and qualifications that are desired by employers of physical therapists in today’s workforce. Further, the study will compare the perceptions of students with those of employers based on an earlier study of employers with a similar survey instrument.

2. Please explain that their participation is voluntary. Assure them that their responses are completely anonymous. No identifying information is attached to the survey.

3. Ask them to sign the consent form.

4. Ask them to complete the survey. Read for them the directions at the top of the first page.

5. Collect the consent forms and survey instruments separately to avoid any identifying information being associated with the survey itself.

6. Distribute candy bars as a small token of my appreciation for their willingness to participate.

7. Put consent forms and surveys in self-addressed stamped envelope and return to me.

8. Eat your candy bar and know you are appreciated!

THANK YOU SO MUCH FOR YOUR HELP!