The Clinical Doctorate: A Framework for Analysis in Physical Therapist Education
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The Clinical Doctorate: A Framework for Analysis in Physical Therapist Education

This article explores major considerations for analysis and discussion of the role of the clinical doctorate as the first professional degree in physical therapist education (DPT). A process for this analysis is posed based on a conceptual framework developed by Stark, Lowther, Hagerty, and Orczyk through grounded theory research on professional education. External influences from society and the profession, institutional and programmatic influences, and articulation of critical dimensions of professional competence and professional attitudes as major categories are discussed in relation to the DPT. A series of questions generated from the application of the model are put forth for continued discussion and deliberation concerning the DPT. We conclude that the DPT provides the best pathway to serve society, the patient, and the profession. [Threlkeld AJ, Jensen GM, Royeen CB. The clinical doctorate: a framework for analysis in physical therapist education. Phys Ther. 1999;79:567–581.]

Key Words: Physical therapy profession, Professional doctorates, Professional education.
This article presents a conceptual model that can be used to analyze current or contemplated clinical doctoral degree programs in physical therapy (DPT). Our working assumption is that the DPT is a professional clinical degree representing initial preparation for practice. Through our model, we will discuss physical therapist education programs in a broad context in an effort to describe the choices, actions, educational policies, and practices that should be discussed among administration, faculty, students, the profession, and public agencies. We hope that this model will provide a contextual framework within which individuals bring their moral beliefs and values into a discussion that leads to action, a process described as “deliberative reflection.” The deliberative reflective process requires consideration of the trends and forces shaping professional practice and education through problem identification and problem solving. By building upon a conceptual foundation proposed by Stark et al, we will delineate categories of issues to be considered and present a series of questions that we believe will facilitate the deliberative process regarding implementation of a DPT program within a given site or setting. By providing this framework for consideration and evaluation of DPT programs, we hope to facilitate, focus, and advance the discussion and deliberative reflection concerning this degree.

The purposes of this article are to articulate and categorize the broad spectrum of influences and needs of physical therapist education within the context of a theoretical framework and to discuss the fit of a DPT model within that framework. In an effort to assist the practical application of this framework, we have posed a series of questions within each dimension of the model. We hope these questions will facilitate discussion and assist physical therapist education programs in the process of self-assessment when considering the DPT degree. These questions are provided as a comprehensive list in the Appendix.

The professional doctorate is the appropriate degree for preparation of practitioners who are competent to meet the broad societal need for physical therapy services now and in the future.

Conceptual Framework

The model proposed is adapted from the work of Stark et al and their grounded theory study of 11 professions (architecture, dentistry, education, engineering, journalism, law, library science, medicine, nursing, pharmacy, and social work). Key components in the model were built upon work in professional education compiled through a review of the literature, through the incorporation of social and economic factors, and through expanded and defined levels of professional competence. The use of such a framework provides organizing principles that can allow for ongoing critical analysis as new data are discovered and incorporated.

We will focus on the application of 2 core dimensions of the framework: (1) professional education and (2) professional outcomes, which result from professional education (Figure). Like Stark et al, we assert that professional education is influenced by external forces, intraorganizational forces, and internal forces. The external forces include society at large and the relevant professional community, intraorganizational forces center on institutional forces, and internal forces include issues specific to the program. These 3 forces shape the professional education of physical therapists for professional (entry-level) practice. Furthermore, the efficacy of professional education is demonstrated by the performance of graduates, as measured by professional outcomes. In this model, professional outcomes are divided into the categories of professional competence and professional attitudes. The extent to
which the professional outcomes are achieved determines whether and how graduates, in turn, will influence, refine, and perhaps redefine the external, intraorganizational, and internal forces.

**Professional Education**

**External Influences From Society and the Professional Community**

External influences are those “factors from outside the immediate program which influence the professional preparation environment.”\(^3\) According to Stark et al.,\(^3\) there are 2 primary categories of influence: society and the professional community. We will address more specific key issues that arise from these 2 powerful external influences (Figure). Critical questions include: Does the DPT degree serve the greater good of society within the marketplace? Will the DPT degree influence the current and anticipated number and type of employment prospects available to physical therapists? Will the pressures of the marketplace influence the applicant pool to DPT programs, the market niches that DPT program graduates will fill, or the salaries they earn? How is the DPT degree viewed at national, state, and local levels? What are the cultural and socioeconomic considerations in the media portrayal of the DPT degree? In the public eye, how does the DPT degree influence the practice of physical therapy? What federal, state, and local funding sources are available for physical therapist education, and will those sources be influenced by the DPT degree? Would the DPT degree have an effect on physical therapy licensure or the scope of practice?

**Societal needs.** The needs of society are essential in determining the demand or need for physical therapy services as well as the social status of physical therapy as a profession, reflected in the reward system for practitioners.

Demographics in the United States suggest a dramatic and ongoing shift in our population characteristics. There are more elderly people and more immigrants from non-European countries, who have produced a change in the status of health.\(^4\)--\(^6\) Larger portions of the population, both young and old, have a chronic disease, such as acquired immunodeficiency syndrome, tuberculosis, diabetes, cancer, or asthma, and many have the accompanying disability.\(^7\),\(^8\) A larger proportion of our children are living at or below the poverty level and are subject to the “societal diseases” of malnutrition, neglect, and abuse from which spring the medical manifestations of such living conditions.\(^7\) Thus, the coming wave of health care consumers may look and act differently and have health care needs that are different from consumers in the recent past.

Faculty are challenged to educate physical therapists to provide services in a culturally sensitive model wherein time, space, families, and habit patterns may be markedly different from the physical therapist’s own culture. Only 7.1% of physical therapist members of the American Physical Therapy Association (APTA) currently categorize themselves as nonwhite. The number of minority physical therapists is increasing, as 13.5% of physical therapist students attending programs accredited by the Commission on Accreditation in Physical Therapy Education (CAPTE) in 1997 categorized themselves as nonwhite.\(^9\) Yet, physical therapists are likely to be working with ever-increasing numbers of clients who are considered to be from minority backgrounds.\(^10\)--\(^12\) Moreover, the challenge is not simply to provide services to the individual, but to fulfill the professional’s obligations to the communities from which these patients originate.\(^8\),\(^13\) These obligations include using demographic and epidemiologic data to develop, implement, and monitor
physical therapy practice models. These models must include health and wellness practices and address the changing health care environments in both rural and urban areas.\textsuperscript{8,12}

With the advent of the human genome project of the National Institute of Health (NIH), an explosion of knowledge about genetics and health is occurring. Increasing concern about health status, with the inevitable medical and ethical questions related to genetic status, will be a challenge.\textsuperscript{13,14} Yet, what scientific foundations are our current and future physical therapists receiving in the areas of genetics, molecular biology, histology, bioethics, and health policy? In response to this explosion of knowledge, we believe that physical therapist education should prepare practitioners to meet the needs of individuals and families by reading, understanding, and incorporating into clinical practice the knowledge from both the foundational and applied sciences that is essential for the profession’s expanding obligation to society. The grounding of professional education through the intensive study of the biological sciences, with the accompanying complex linkages to societal and ethical dimensions, in our view, is clearly best addressed through doctoral education. Health care consumers anticipate and expect this type of knowledge and level of integration from a practitioner bearing the doctoral title. Thus, the DPT degree provides the visible and appropriate signal to society that such services are available.

A final key issue influencing the societal role of physical therapist education and practice is the increasing concern about quality-of-life issues, including mental health, wellness, and prevention. Improving the quality of life in the presence of chronic disease or disability will be the goal of health care.\textsuperscript{15} As physical therapy is a profession grounded in science, physical therapists, in our opinion, should recognize and use the power of human belief and health behaviors in providing their services. We contend that physical therapists must be broadly educated and understand the role of the importance of health beliefs, health behaviors, and health status.\textsuperscript{15,16} Building the DPT degree on a firm foundation of liberal arts and the humanities, with explicit integration of social sciences into the professional curriculum, can provide graduates the broad base of knowledge necessary for understanding the larger social context of health care.

**Workforce issues.** Given the limited pool of DPT program graduates from the few existing professional programs, there are limited data to answer questions about the interaction of the degree with the marketplace. The traditional marketplace for physical therapists is appears to be shrinking due to changes in the health care system. Just as the workplace became oversupplied with people with MBA degrees in the 1970s and 1980s and just as physicians are currently coming into oversupply, it is likely that physical therapists will be in oversupply by the year 2005.\textsuperscript{17} Although the current changes in health care are confusing and seen by many people as a potential threat to the development of the profession, they also provide opportunities. Physical therapist education shares a responsibility to prepare graduates who can and will take risks through identifying new practice opportunities, assessing them, and demonstrating the ability to meet these new challenges. Education at the DPT level should be consistent with the expectations and responsibilities that graduates face in the current health care system.

Data from graduates of a DPT program surveyed less than 2 years after graduation indicated that the majority worked in clinical staff positions.\textsuperscript{18} Six of the graduates, however, reported working in nonstandard market niches, including a research institute and a postdoctoral fellowship, and several graduates reported working in academic faculty positions.\textsuperscript{18} In the absence of comparative data, we cannot contend that this diversity was a function of the degree over other factors. Other recent DPT program graduates who are employed in more standard settings have reported rapid advancement into management positions, assignments in the marketing arena, and assuming primary responsibilities for the development of new clinical service programs. The numbers from which these reports were drawn are small (51 graduates responding from a sample of 98), and the data must be classified as isolated comments that may not be reflective of a larger pool of DPT program graduates.

**Salary.** The Division of Practice and Research at APTA reported the following salary breakdown for physical therapists by professional education degree: mean salary of $52,321 for a baccalaureate-educated physical therapist (n=1,175, SD=$33,133), $45,224 for a physical therapist educated at the master’s level (n=530, SD=$23,379), and $55,000 for a physical therapist educated at the doctoral level (n=4, SD=$8,831).\textsuperscript{9} These data reflect only degree level, not years of practice. A Creighton University survey of DPT program graduates provides a slightly more complete salary picture, with a reported a salary range of $30,000 to $100,000. Approximately 66% of the DPT sample (34 of 51 respondents) reported salaries between $40,000 and $60,000, whereas 19% of the DPT sample (10 of 51 respondents) reported salaries between $60,000 and $100,000.\textsuperscript{18} In both data sets, the sample population of therapists with DPT degrees is small and derived from a limited geographic base; thus, the influence of the professional degree on salary cannot be stated with certainty.
Student applications. With so few physical therapist education programs offering the DPT degree, the effect of the degree alone on applications cannot be specifically determined. In a retrospective survey of applicants involved in the 1998 Creighton University physical therapy admissions interview process (76 responses from 96 surveys), the majority of applicants (66%) were offered admission to multiple programs and cited the availability of the DPT degree as a decisive factor in choosing to attend Creighton University. The numbers of applications to the Creighton University program have remained relatively stable (approximately 420 to 450) from 1994 through the 1998 admissions years. On a national basis, the numbers of students applying to physical therapist education programs decreased by approximately 19% when comparing the 1995 and 1997 admissions years. There has been no discernable decrease in the grade point average of students entering physical therapist education programs, but there have been sporadic reports of education programs that have chosen to leave student slots unfilled due to an unwillingness to admit applicants with lesser qualifications (personal communication from CAPTE).

Public image. Media portrayal or the public image of the profession of physical therapy and of the DPT degree, in our view, is important for understanding how society views the profession. Our judgment is that media portrayals of physical therapists have increased in frequency over the last 5 years. Physical therapists’ practices have expanded beyond the confines of the traditional hospital and clinical outpatient settings into community-based areas such as on-site occupational health, women’s health, wellness, and fitness. The national organization, APTA, is critical to helping the public understand the role of the physical therapist in the health care delivery system and the unique and complex services that physical therapists provide. The recent publication and dissemination of the Guide to Physical Therapist Practice is evidence of the Association’s desire to publicly define physical therapy. What do we expect of the public image of a physical therapist? Should this image be any different for the DPT? For us, the answer is clearly “no.” The emphasis of the image should be on the profession of physical therapy. We argue that the physical therapist’s image should be one that the public associates with their expectations of a professional: competence, trust, and autonomy of decision making. The doctoral designation should recognize and enhance that image. The public view of physical therapists at the national, state, and local levels will evolve based on our professional contributions, the behavior of our graduates, and the public’s opportunity to associate those contributions and behaviors with recognizable, established images of a professional. Socializing students in a DPT program to the obligations, responsibilities, and image associated with a professional doctoral degree is one part of how we feel that we can enhance the public’s image of physical therapists.

Creighton University graduates have reported their beliefs that their doctoral credential facilitated the rapid establishment of a peer-to-peer working relationship with other doctorally educated colleagues, including physicians, dentists, podiatrists, and chiropractors. The following are examples of comments taken from a recent alumni survey of the first 2 graduating classes:

I was offered a job in a company that does not hire new graduates.

I have increased respect from physicians.

The degree has enhanced my career development greatly. It has opened doors for me that would not have ever opened otherwise.

Opened doors to teach and direct.

Opened doors because people were interested in seeing what we were about...and to meet expectations has driven me to set goals toward what I see now as a PhD.

Greater initiative for advancement of self and physical therapy.

My employers wished to make use of my “doctor” degree.

Earlier entrance into academia...expected to contribute at management and administrative level...when other physical therapists were not asked.

These reports of early acceptance of the DPT credential into the community of doctorally prepared health care practitioners are encouraging. Establishing a clear image for the lay public of the physical therapist with a doctoral degree may be more challenging because the term “doctor” is commonly used by the general public and the media to indicate a physician. Other professions have gained wide recognition as doctorally prepared practitioners (eg, dentists, podiatrists, veterinarians, chiropractors, psychologists) but are often referred to in social or media discussions by their professional designation rather than by the term “doctor.” Promoting a recognizable public image of physical therapists that is consistent with existing clinical doctoral models while making the transition in professional physical therapy education to the DPT will powerfully link the title “physical therapist” with an evoked public perception of an autonomous, doctorally prepared professional. Governmental influence. Governmental policies and funding patterns also have an influence on the operation of an education program for the DPT. Currently, we...
believe there is a “mismatch” between health care services and governmental attention to and funding for health care education. That is, most of the regulations and funding pertain to physician education even though over 60% of the health care in the United States is provided by other health care professionals, such as physical therapists, occupational therapists, and pharmacists. Current and future opportunities in health care will incorporate the areas of primary care, cost awareness, community-based practice, prevention focus, popul-ulation perspectives, and team provider concepts. Evolving roles for physical therapists to serve on primary care teams is an example of these new opportunities. Physical therapists will need to actively seek opportunities and demonstrate the value and worth of the physical therapist in fulfilling these roles.

There are currently no federal funding initiatives or student loan programs specific to professional physical therapist education. We cannot predict the effect of widespread adoption of the DPT degree on federal funding. We can, however, point to the availability of targeted student loan programs for doctoral students in medicine and dentistry. Although now greatly diminished, both medical and dental schools have historically been the recipients of significant federal funding to assist in educating doctorally prepared practitioners. We believe that physical therapists could potentially make a stronger case for federal funding, either of educational institutions or for student loan programs, when we can point to equivalent provision of professional doctoral education programs and to the societal need for those practitioners.

Physical therapist education also reaches beyond entry level to include specialist certification and is expanding into the area of organized clinical residency programs. The physical therapist specialist certification process is well-established, and APTA has generated guidelines for recognizing clinical residency programs in physical therapy. Much like professional programs, no federal funds exist to support these physical therapy-specific graduate programs or the enrolled students. The established federal models of funding for residencies are for those that enroll students who already possess a professional doctorate. We propose that it is more congruent with established models to lobby for federal funds to support specialist training, fellowships, and residencies for professionals who possess a terminal doctoral degree. We contend that the widespread adoption of the DPT degree may impart an advantage in the quest for external funding for students and education programs.

Professional licensing. Licensing of the profession of physical therapy has an impact on educational format. Specifically, any proposed or anticipated changes in occupational licensure are of paramount importance to the structure of education programs. Physical therapists are granted access to practice licensure on a state-by-state basis. The nature of the respective state licensure laws, therefore, influences the scope of practice within a state. The first model practice act for physical therapy was recently released by the Federation of State Boards of Physical Therapy. Currently, all US-licensed physical therapists must be a graduate of an accredited program (or prove equivalent education if a graduate of a non-US program not accredited by the CAPTE) and must pass a national licensure examination provided by the Federation of State Board of Physical Therapy. There is no differentiation among degree levels in licensure examinations or in state practice acts. Licensure represents an example of the social-political process of occupations as they seek to protect the public and establish practice boundaries through their professional practice acts. In present and future state licensure debates, we argue that physical therapists would be well-served to ground their arguments in the professional obligations and responsibilities necessary to meet societal needs and provide evidence of cost-effective care. These foundational arguments in conjunction with the expectation for autonomous professional practice are most credible and effective when supported by the widespread adoption of a professional doctoral degree.

In times of turmoil, those who succeed are usually those who are willing to experiment, take risks, and adapt. Ongoing changes in government regulation require that graduates understand the complexity of health care and the influence of economic and political forces. Graduates should enter the field with the professional awareness and social responsibility to affect governmental regulation. The expectations placed on the professional doctoral student by society, practitioners, faculty, and peers are consistent with the challenges presented by clinical practice as it is predicted to evolve during the coming decades. The goals of DPT education clearly extend beyond the realm of job training or technical education and place strong emphasis on professional responsibilities and expectations. The DPT, in theory, is a degree that is well-positioned for meeting current and future challenges.

Intraorganizational Influences
Intraorganizational influences are those “influence(s) of the university, school, college, department, or division on the specific program.” Such intraorganizational variables are the mission, the interrelational support between programs, the financial support, and the governance patterns (Figure). The interaction of these intraorganizational influences can contribute powerfully to the professional culture. This culture will fundamentally shape the values and behaviors of practitioners.
trained within that environment. A rich culture will facilitate an expansive horizon for its students and faculty; a restricted culture will set limits on professional development that must be accommodated or overcome.

Thus, the types of questions to consider are: Do the intent and content of the DPT program match the institutional mission? Is the DPT program to be housed within an appropriate institutional structure? Are the scholarly, service, and teaching values associated with the host setting matched to those of a DPT education program? What is the availability of frequent and prolonged interactions of the DPT students with multiple other professional and service disciplines in training, particularly those at a doctoral level? Does the institution facilitate, monitor, and reward interactions of the DPT students and faculty across programs? Is the host institution sufficiently stable financially to implement and then support the DPT program? Is the primary institutional purpose for implementing a DPT program focused on professional doctoral education? Will the DPT program be adequately funded at start-up and remain at a steady state? Is the governance structure of the institution, school, and proposed program congruent or at least compatible with the professional competency expectations of the DPT education program? Do institutional programs or structures exist for the faculty and staff of a DPT education program to fully participate in the governance patterns?

**Institutional mission.** The mission statement of an institution is, in our view, of paramount importance to the professionalization of physical therapy and to the implementation of the DPT degree.\(^{16,27}\) We strongly argue that the institutional mission should be congruent with and inclusive of professional doctoral degrees based on

<table>
<thead>
<tr>
<th>Institutional Classification</th>
<th>Definition</th>
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| Research universities I     | Full range of baccalaureate programs  
|                             | Graduate education through doctorate\(^a\)  
|                             | High priority on research  
|                             | 50 or more doctorates granted per year  
|                             | $40 million or more in annual federal support |
| Research universities II    | Full range of baccalaureate programs  
|                             | Graduate education through doctorate\(^a\)  
|                             | High priority on research  
|                             | 50 or more doctorates granted per year  
|                             | 1.5 to $40 million in annual federal support |
| Doctoral universities I     | Full range of baccalaureate programs  
|                             | Graduate education through doctorate\(^a\)  
|                             | At least 40 doctorates granted annually in 5 or more areas |
| Doctoral universities II    | Full range of baccalaureate programs  
|                             | Graduate education through doctorate\(^a\)  
|                             | Annually grants at least 10 or more doctorates in 3 or more disciplines or 20 or more doctorates in 1 or more disciplines |
| Master’s universities and colleges I | Full range of baccalaureate programs  
|                             | Graduate education through master’s degree  
|                             | 40 or more master’s degrees granted annually in 3 or more disciplines |
| Master’s universities and colleges II | Full range of baccalaureate programs  
|                             | Graduate education through master’s degree  
|                             | 20 or more masters granted in 1 or more disciplines |
| Baccalaureate colleges I    | Undergraduate education  
|                             | 40% or more degrees granted in liberal arts  
|                             | Restrictive admissions |
| Baccalaureate colleges II   | Undergraduate education  
|                             | <40% of degrees granted in liberal arts  
|                             | Less restrictive admissions |
| Medical schools and medical centers | Specialized institutions awarding degrees in medicine; may include other health professional schools |
| Other separate health professions schools | Specialized institutions awarding most of their degrees in fields such as chiropractic, nursing, pharmacy, or podiatry |

\(^a\)The Carnegie definition of doctorate includes only Doctor of Education, Doctor of Juridical Science, Doctor of Public Health, and the PhD in any field.
Table 2. Frequency Count by Carnegie Foundation Rankinga of Higher Education Institutions Sponsoring Accredited Physical Therapist Education Programsb as of August 1998

<table>
<thead>
<tr>
<th>Rating</th>
<th>No. of Physical Therapist Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research university I</td>
<td>33</td>
</tr>
<tr>
<td>Research university II</td>
<td>6</td>
</tr>
<tr>
<td>Doctoral university I</td>
<td>10</td>
</tr>
<tr>
<td>Doctoral university II</td>
<td>13</td>
</tr>
<tr>
<td>Master’s college and university I</td>
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<tr>
<td>Master’s college and university II</td>
<td>11</td>
</tr>
<tr>
<td>Baccalaureate liberal arts college I</td>
<td>2</td>
</tr>
<tr>
<td>Baccalaureate liberal arts college II</td>
<td>9</td>
</tr>
<tr>
<td>Medical centers</td>
<td>22</td>
</tr>
<tr>
<td>Not listed</td>
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</tr>
<tr>
<td>Other health professions schools</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>168</td>
</tr>
</tbody>
</table>

a Rankings drawn from the most recent (1994) Carnegie Foundation publication.28
b This list does not include programs outside of the United States or physical therapist assistant programs.

rigorous scientific and theoretical foundations, interdisciplinary interactions, and a commitment to societal service. Comprehensive implementation of this mission across multiple programs provides the physical therapist student with the opportunity to become truly immersed in an academic and professional milieu. The vast majority of physical therapist programs are located in institutions rated by the Carnegie system as master’s college and university I or higher or are housed within medical centers (Tabs. 1 and 2).28 Level I and II research institutions are historically committed to the discovery of knowledge, whereas traditional academic doctoral preparation is conducted in institutions possessing the research or doctoral designation. We contend that the clinical research milieu and culture of health care professionals exists best in institutions that sponsor multiple professional doctoral programs. Notably, the Carnegie rating system is not based on professional doctorates (eg, medicine, dentistry, pharmacy).

Thus, we propose that, at a minimum, DPT programs should be housed in institutions with a doctoral university II or higher rating, within a medical center, or at institutions that provide a spectrum of professional education at the doctoral level. We do not believe that it is consistent with societal needs, nor is it consistent with professional needs, to educate physical therapists at the DPT level in institutions that do not possess an appropriate scholarly and professional culture. The higher expectations placed on faculty for traditional and clinical scholarship and the production of new knowledge at institutions that have doctoral programming are consistent with the needs of the profession and provide powerful role models for students enrolled in those programs. The implementation of the institutional mission, coupled with an informed review of the Carnegie rating, provides clear evidence of the scholarly and clinical environment and indicates the probability of fostering a broadly educated, scientifically based, professionally socialized, autonomous physical therapist practitioner.

Interrelational support. Program interrelationship refers to the administrative and scholarly relationships that a DPT program would have with other programs, departments, or centers in the host institution. The long-standing custom of strong disciplinary, isolated educational structures existing among schools has been challenged by the need for educational and economic reform.8 Thus, the positioning of a DPT program within an institution should require consideration of the presence of the existing milieu of client-directed, medically oriented programs that share an orientation toward doctoral professional education. In our view, students need frequent exposure to a spectrum of professionals in training who aspire to autonomous practice. For example, a DPT program situated within a medical center will be in a different culture and climate than one situated within a school of arts and sciences or an isolated professional school. Indeed, the culture of scholarship, dress, professional socialization, and demeanor are intimately related to positioning of the program within the organizational structure. The intraorganizational structure and orientation should ensure that these interactions will be integrative, positive, and rewarded.29–32

Financial support. The level of financial support necessary for any professional program is considerable. At a minimum, financial commitments are required for development and maintenance of teaching facilities, research laboratories, library holdings, technology, and student space.33 We are tempted to speculate that the recent growth in the number of new physical therapist programs34,35 is based primarily on an administrative perception that a program in physical therapy can enhance undergraduate enrollment and recruit competitive students for an array of programs in the host institution. Financial benefit certainly should be part of implementing any new program, but we believe that this consideration alone is insufficient to sustain and nurture viable professional education programs, least of all those at the doctoral level. These considerations emphasize the need to place DPT programs within institutions that have a history of commitment to professional education at the doctoral level.

Governance. Governance patterns of university systems are traditionally organized to facilitate the larger bureaucracy of higher education, whereas professional education programs are focused on producing competent professionals. In professional education, this has been called the “education-practice discontinuity,” where the
academic culture may be seen as unresponsive to practice needs and the professional program seems indifferent to academic needs.¹

We contend that the governance structure of a physical therapist program should provide support for a central focus on educational preparation of competent professionals. The presence of diverse health care professional educational programs within an institution can provide wider understanding and support for the need of those disciplines to ensure professional competency of the graduates, a need that might be given less recognition or value by disciplines not involved in the direct provision of patient care. Thus, the interaction of the governance patterns of the host institution and the manner in which the faculty and students are socialized into these governance patterns is extremely important to the success of the educational process.

Internal Influences
Stark et al³ described 4 sources of internal influences: mission and staffing, structure of the professional program, curricular tensions, and continuing professional education (Figure). Questions to consider include: Is the educational philosophy of the program, in terms of both instructional methods and outcome objectives, consistent with the philosophy of the DPT program? Do the shared professional values of the faculty support the foundation of beliefs for the development and conduct of a DPT curriculum? What are the student expectations of the DPT educational process? Do the students view the DPT curriculum as preparing them to assume specific professional roles? Do DPT students display behaviors consistent with the expectations for professional practice? Are the demographic characteristics of students enrolled in DPT programs different from those of students enrolled in other degree levels? What student-to-faculty ratios are necessary to support DPT education? Does the DPT curriculum adequately reflect an integration of the basic and social sciences necessary for current practice? Does the DPT curriculum systematically prepare students for future areas of physical therapy practice? Do instructional methods foster open-mindedness, critical thinking, and self-reflection? How will a sense of community and homogeneity of practice be fostered among physical therapists with differing professional degrees through post-professional routes?

Program mission and staffing. The elements of mission and staffing address the skills and beliefs that the faculty and students bring to the program and the curricular philosophy that guides their interaction. Both faculty and students bring with them knowledge, skills, attitudes, and values that have been shaped, at least in part, by prior education and experience. For example, a physical therapy faculty member with a post-professional PhD in a traditional foundation science (eg, anatomy, physiology) might be expected to advocate controlled bench research as a primary means of advancing the knowledge base of the profession. In contrast, this faculty member’s approach to the generation of knowledge and the value he or she places on descriptive clinical reports and qualitative studies might be mitigated by his or her professional physical therapist education, by his or her years and quality of clinical physical therapy experience, and by the mentorship he or she received during his or her post-professional studies. Even more important than individual faculty skills and attitudes is the aggregate influence of the faculty mix, which will determine the education, skills, and values imparted to the students.

Graduates need theoretical and technical knowledge along with reflective and practical knowledge and competencies to deal with the complexities of current practice.¹ Thus, the faculty mix should swing toward doctorally prepared faculty. The importance, however, of clinical skills should not be lost or devalued in the transition of the staffing of the academic core of DPT programs by doctorally prepared faculty.

Faculty members who primarily represent general and specialized clinical practice should always, in our view, be part of the full-time core teaching cadre. When considering the continuum of physical therapist professional education, a large percentage of the curriculum is provided by individuals who are qualified by their professional clinical credentials and by patient care experiences rather than by traditional academic degrees. Often, 50% of curricular clock hours in a physical therapist education program are devoted to clinical experiences.¹² This extensive commitment of curricular time to the clinical experience is also seen in the professional educational programs of physicians, dentists, and pharmacists, whose clinical training is more centralized. Clinical education experiences within medicine, dentistry, and pharmacy are primarily staffed by identifiable and closely aligned clinical faculty possessing a doctoral professional degree and relevant clinical experience within their own disciplines.

The lack of traditional academic linkages for physical therapist clinical teachers is bewildering and fosters an artificial, unhealthy separation between the didactic and clinical phases of physical therapist education. Part of this problem stems from the lack of recognition of the bachelor’s or master’s professional degree as appropriate for academic appointment. Conversely, the academic appointment of individuals with clinical doctorates is a common and widely accepted model for some other professions. Given this widespread academic precedent, the adoption of the clinical doctorate as the professional...
degree for physical therapists may facilitate the incorporation of clinical educators into the academic fold and help to mend the division between clinical and academic educators. This view is consistent with the description of “core” faculty within physical therapy accreditation guidelines.\textsuperscript{33}

The model of faculty possessing a professional doctorate as their only “credential” is firmly established across doctorally prepared professions (eg, medicine, dentistry, pharmacy, law, veterinary medicine, podiatry). The choice of placing clinically credentialed faculty in a tenure line is related far more to the institutional mission and culture than to the presence or absence of an academic degree. The same is true about the probability of a clinically credentialed faculty member obtaining tenure. These faculty are primarily reliant on productivity originating from their clinical skills and efforts in establishing a scholarly base for the award of tenure within any given set of institutional guidelines. We feel that this system fosters credible clinical research.

We have argued that the DPT degree may help bridge the gap between academic and clinical faculty. We feel that division of faculty into tenure-track and clinical compartments based solely on degrees impedes integrated professional education and does not promote adequate scholarly collaboration between foundational and clinical sciences. The inclusion of people with terminal professional doctorates as core faculty is also congruent with existing disciplines that award the professional doctorate.

Perhaps after firmly establishing their clinical competence, the graduates of DPT programs can meet some of the needs of education programs, particularly at the applied clinical level. The professional doctoral degree clearly and historically bridges the gap between traditional didactic and purely clinical educational experiences. The obvious danger is placing physical therapists with professional doctorates in academic roles for which they are not prepared. Academic administrators should recognize and employ holders of the DPT degree for what they are: well-prepared scientific practitioners. Given time and opportunities to develop mature clinical judgment, DPT practitioners can provide valuable academic services, as have doctoral practitioners in other professional disciplines.

The interaction of program philosophy with the beliefs and values of the faculty and students comprises a notable and conspicuous component of the education program. The program’s ideology and mission guide the interaction between faculty and the implementation of the curriculum. The relative importance of and the emphasis placed on clinical skills, development as a teacher (clinical and academic), and utilization and conduct of research are primarily influenced by the attitudes and skills of the physical therapy faculty and the program ideology. The characteristics of students who enter DPT programs will also influence the outcome. In general, these students expect an intensive, post-baccalaureate professional experience and may anticipate that doctoral education will place them at the forefront of professional knowledge and allow them to assume leadership roles more easily after graduation. These attitudes are consistent with the development of lifelong learning behaviors, career goals, and professional identification so crucial to the long-term development of the profession.\textsuperscript{1,27} The DPT would appear to be an appropriate professional degree for educating physical therapists as scientific, reflective practitioners.\textsuperscript{36}

We contend that students need to make distinctions between traditional academic work at the graduate level and professional doctoral education. It is easy for students to mistakenly assume that a DPT curriculum will permit them to engage in narrow or selective educational pursuits, much like those associated with traditional academic graduate education. The professional DPT program, like other professional programs, is designed to prepare generalist practitioners and must rigorously enforce this requirement in its educational philosophy. We have found that educational efforts and targeted discussions of the roles of professional doctoral education are needed. Although some additional curricular clock hours can be gained in the transition to a DPT degree, the curricular emphasis should be squarely focused on preparing graduates for the broad scope of physical therapy practice. Students enrolled in DPT curricula, in our view, must be encouraged to exercise intellectual humility and integrity as part of their critical thinking skills.\textsuperscript{37} Education at the professional doctoral level does not confer the efficiency, wisdom, skill, or political savvy inherent to years of experience. The DPT program graduate certainly should have the background and capacity to undertake rapid career advancement, but this advancement will be based on overt demonstrations of knowledge and skills, not on a conferred degree. The concept of intellectual humility extends to the manifestation of appropriate professional behaviors of DPT program students and graduates. Only through clear recognition and acknowledgment of their strengths and weaknesses will therapists with DPT degrees be able to become integrated into the existing diverse pool of practicing physical therapists and health care providers to effectively assist in the evolution of the profession.

**Program structure.** The structure of the DPT professional program encompasses admissions requirements
and chronologic, demographic, and evaluative elements of the program. These elements are clearly articulated in *A Normative Model of Physical Therapist Professional Education* and in *Evaluation Criteria for Accreditation of Education Programs for the Preparation of Physical Therapists*. These elements are very consistent with the needs of post-baccalaureate education of physical therapists, including the use of the DPT degree. Conversely, these are minimal standards, and they may not encompass all the elements desirable for a DPT program. We suggest that a lack of anticipation of the future needs of practice is inherent in the current accreditation standards, as they permit the formation and continuation of physical therapist education programs at institutions that do not offer and are not chartered for the award of professional doctoral degrees. The issue of providing an appropriate scholarly environment to facilitate professional education and advancement of the knowledge base of the profession is often a point of noisy contention among academic administrators but is at the core of the debate on professional doctoral education.

It is conceivable that the nature of a DPT program could influence the types of students who apply and the numbers of faculty necessary to support the program. Programs offering the DPT degree have not been in existence long enough to determine whether the demographic mix of students (gender, ethnic background) will be affected by the degree offered. Currently existing DPT programs are similar in length, requiring approximately 8 academic semesters to complete. The average faculty/student ratio is currently 1:13 across post-baccalaureate physical therapist programs. The ratio of faculty to students in a DPT program should increase if there is, as we suggest, an expanded need for faculty scholarship, curricular expectations, and lengthened academic time span. Additionally, in the first years of DPT education, there is a greater need for student and curriculum evaluation in order to document student experiences and performances related to the degree and the educational process.

**Curricular tensions.** Curricular tensions are the internal influences produced by the struggle to merge the range of faculty values and beliefs concerning curricular content and to reconcile divergent faculty teaching philosophies. Typical elements that produce tension include the content and sequencing of knowledge, the integration of theory and practice, and differing faculty choices among available teaching methodologies. The curriculum resulting from these choices should facilitate efficient development of professional knowledge, foster lifelong learning behaviors, encourage critical thinking, and promote diagnostic, prognostic, evaluative, and moral reasoning.

One of the basic premises of *A Normative Model of Physical Therapist Professional Education* as well as the existing DPT curricula is that strong foundational science courses should be a part of the professional curriculum. The foundational science courses may include courses such as histology, embryology, and pharmacology, along with the traditional focus on anatomy and physiology. In addition, the basics of diagnostic imaging, as they relate to understanding interventions and patient management, are increasingly important in selected areas of physical therapy practice.

Changes in the culture of medicine and health care delivery will increase the demand for professional competence in understanding patient belief systems, performing community-based assessment and intervention, and assuming a professional role of advocacy for patients. These expanded professional roles demand more background in the behavioral and social sciences, including health education, health policy, health services research, and ethics.

Because excellence in clinical practice is a desired outcome in professional education, clinical practice components must be included in the curricular sequence at the earliest feasible time and should be given equal emphasis with the foundational sciences. Considering the finite period of curricular time, emphasis should be placed on physical therapy practice of the future. The future of clinical practice is always a dangerous thing to predict. We suggest, however, that physical therapists will be performing more evaluation, diagnosis, and patient management; delegation and supervision of treatment; writing of clinical case reports; documentation using outcome data; education of patients, families, students, peers, and outside agencies; and confrontation with the ethical and financial dilemmas imposed by shrinking health care financing.

**Continuing education.** The final element stemming from internal influences is the need for ongoing professional development, which takes many forms, including specialization, clinical residencies, and traditional continuing education. One way to improve practice homogeneity and sense of community among physical therapists is by offering a clear route for existing practitioners to renew and build on their skills through transitional DPT programs. These programs would allow physical therapists with bachelor’s or master’s credentials to obtain the DPT credential. Helping bachelor’s or master’s educated practitioners make the transition to the doctoral level has been a key element in the conversion of other professions, such as pharmacy, to the doctoral entry level by eliminating much of the rancor caused by a dichotomy between level of academic degree and level of clinical experience. This route also provides a means...
of updating the knowledge and skills of existing practitioners in areas that may not have been included during or may have fundamentally changed since their professional education and are not easily available via traditional post-professional offerings. Thus, the profession and the practice of physical therapy become more homogeneous, and physical therapists become more easily identifiable as the primary providers of a consistent level of evaluation and treatment for movement dysfunction.

**Professional Outcomes**

The professional education environment is directed by external, intraorganizational, and internal influences that, in turn, lead to graduate professional outcomes. Stark et al proposed that professional outcomes be viewed as 2 core areas: professional competence and professional attitudes (Figure).

**Professional Competence**

Professional competence is the primary outcome of professional educational programs. Professionals are assumed to have acquired “special competence” as a result of prolonged education and training. The model suggests 6 areas of professional competence: conceptual, technical, integrative, contextual, adaptive, and interpersonal communication (Tab. 3). For these areas of professional competence, the following questions focus on the assumed relationship between what happens in the education program and graduate performance: Does the DPT graduate possess the core foundation knowledge in physical therapy? Is the DPT graduate knowledgeable of the key theories in the profession? Does the DPT graduate possess the technical skills of the profession, and are the skills linked to the knowledge base? Does the DPT graduate possess the fundamental skills for professional practice? Does the DPT graduate’s professional practice behavior demonstrate the integration of theory with practice? Does the DPT graduate demonstrate professional judgment in practice? Is the DPT graduate’s mastery of knowledge and skills in physical therapy comparable to other doctorally educated professionals’ mastery in their respective areas? Does the DPT graduate demonstrate professional practice behaviors that recognize and respond to the broad social, economic, and cultural context? Does the DPT graduate demonstrate evidence of problem identification and problem solving during practice?

The competencies and the questions related to the competencies can be viewed as applicable across professional education. We believe that DPT programs have the responsibility to emphasize certain competencies. The areas of conceptual and integrative competence both focus on the central importance of theory in understanding knowledge and guiding practice. Graduates of DPT programs should demonstrate the ability to integrate theory and practice as part of their clinical judgments. If the DPT curricular emphasis is on scientific and theoretical foundations coupled with a faculty committed to the scholarly generation, application, and integration of knowledge, this focus should foster these competencies in the students. Furthermore, as health care professionals, graduates must demonstrate the contextual and adaptive competence necessary to take risks and promote necessary change in society. These competencies are central to the role of an autonomous professional and must be nurtured during the student’s education.

**Professional Attitudes**

A final component of professional outcome is professional attitudes. These attitudes span a wide range, including professional identity, professional ethics, career marketability, scholarly concern for improvement, and career marketability.

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**Table 3.**
Dimensions of Professional Competence

<table>
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<tr>
<th>Competence</th>
<th>Definition</th>
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<tr>
<td>Conceptual</td>
<td>Understands the theoretical foundations of the profession and the application of professional science</td>
</tr>
<tr>
<td>Technical</td>
<td>Ability to perform tasks or fundamental skills of the profession</td>
</tr>
<tr>
<td>Integrative</td>
<td>Ability to integrate theory and practice, as evidenced by professional judgment</td>
</tr>
<tr>
<td>Contextual</td>
<td>Understands the societal context of practice, including the broader social, economic, and cultural issues of practice</td>
</tr>
<tr>
<td>Adaptive</td>
<td>Ability to anticipate and adapt to changes that affect practice and the profession</td>
</tr>
<tr>
<td>Interpersonal communication</td>
<td>Ability to effectively use written and oral communication</td>
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ment, and continued (lifelong) learning (Tab. 4). Questions that are applicable in this area include: Does the DPT graduate demonstrate evidence of clear communication, including evidence of clinical scholarship? Does the DPT graduate view himself or herself as a professional? Does the DPT graduate participate in the professional community? Does the DPT graduate demonstrate moral, ethical, and social responsibility? Can the DPT graduate adapt his or her talents and skills to a changing environment? Does the DPT graduate understand and apply evidence-based practice? Does the DPT graduate seek continued professional development?

The DPT degree provides a very clear indication of professional identity that is consistent with other health care professionals and would assist with the public recognition of physical therapists as professionals. Professional preparation that emphasizes the social, moral, and scholarly responsibilities expected of doctoral graduates is consistent with the DPT degree. Finally, an educational environment where inquiry and scholarship are fundamental values of the work environment, role modeled by faculty, and cultivated within students provides an essential foundation for the preparation of the next generation of professionals. We argue that DPT programs are well-positioned to provide this kind of academic environment.

Conclusion

We believe that there is broad societal need for physical therapy services now and in the future. The professional doctoral degree is the appropriate degree for preparation of practitioners who are competent to meet these needs. Support within the profession for doctoral professional education is emerging, as reflected by a recent editorial by Rothstein:

We need to prepare physical therapists to exemplify the highest standards of health care, to use evidence, to skillfully apply techniques, to be thoughtful and effective—and to do so within the confines of a health care system that can promise us nothing but chaos for the foreseeable future. The DPT can offer the freedom we need, but only if we first have an open dialogue about what form the DPT should take.29(p360)

The conceptual framework discussed and analyzed in this article provides a useful tool for this open dialogue about the role of the professional doctoral degree in physical therapy.

References

19 Admissions Office Survey of Applicants Interviewed for Physical Therapy. Omaha, Neb: Creighton University, School of Pharmacy and Allied Health Professions; 1998.


**Appendix.**

Questions for Consideration

**External Influences**

1) Does the DPT degree serve the greater good of society within the marketplace?

2) Will the DPT degree influence the current and anticipated number and type of employment prospects available to physical therapists?

3) Will the pressures of the marketplace influence the applicant pool to DPT programs, the market niches that DPT program graduates will fill, or the salaries they earn?

4) How is the DPT degree viewed at national, state, and local levels?

5) What are cultural and socioeconomic considerations in the media portrayal of the DPT degree?

6) In the public eye, how does the DPT degree relate to other doctoral professional degrees such as Doctor of Medicine (MD) or Doctor of Pharmacy (PharmD)?

7) What is the relationship of the DPT degree to federal, state, and local funding policies and regulations that influence the practice of physical therapy?

8) What federal, state, and local funding sources are available for physical therapist education, and will those sources be influenced by the DPT degree?

9) Would the DPT degree have an effect on physical therapy licensure or the scope of practice?

**Intraorganizational Influences**

10) Do the intent and content of the DPT program match the institutional mission?

11) Is the DPT program to be housed within an appropriate institutional structure?

12) Are the scholarly, service, and teaching values associated with the host setting matched to those of a DPT education program?

13) What is the availability of frequent and prolonged interactions of the DPT students with multiple other professional and service disciplines in training, particularly those at a doctoral level?

14) Does the institution facilitate, monitor, and reward interactions of the DPT students and faculty across programs?

15) Is the host institution sufficiently stable financially to implement and then support the DPT program?

16) Is the primary institutional purpose for implementing a DPT program focused on professional doctoral education?

17) Will the DPT program be adequately funded at startup and remain at steady state?

18) Is the governance structure of the institution, school, and proposed program congruent or at least compatible with the professional competency expectations of the DPT education programs?

19) Do institutional programs or structures exist for the faculty and staff of a DPT education program to fully participate in the governance patterns?

**Internal Influences**

20) Is the educational philosophy of the program, in terms of both instructional methods and outcome objectives, consistent with the philosophy of the DPT program?

21) Do the shared professional values of the faculty support the foundation of beliefs for the development of a DPT curriculum?

22) What are the student expectations of the DPT educational process?

23) Do students view the DPT curriculum as preparing them to assume specific professional roles?

24) Do DPT students display behaviors consistent with the expectations for professional practice?

25) Are the demographic characteristics of students enrolled in DPT programs different from those of students enrolled in other degree levels?

26) What student-to-faculty ratios are necessary to support DPT education?

27) Does the DPT curriculum adequately reflect an integration of the basic and social sciences necessary for current practice?

28) Does the DPT curriculum systematically prepare students for future areas of physical therapy practice?

29) Do instructional methods foster open-mindedness, critical thinking, and self-reflection?

30) How will a sense of community and homogeneity of practice be portrayed by the DPT degree?
Professional Outcomes
31) Does the DPT graduate possess the core foundation knowledge in physical therapy?
32) Is the DPT graduate knowledgeable of the key theories in the profession?
33) Does the DPT graduate possess the technical skills of the profession, and are the skills linked to the knowledge base?
34) Does the DPT graduate possess the fundamental skills for professional (entry-level) practice?
35) Does the DPT graduate’s professional practice behavior demonstrate the integration of theory with practice?
36) Does the DPT graduate demonstrate professional judgment in practice?
37) Is the DPT graduate’s mastery of knowledge and skills in physical therapy comparable to other doctorally educated professionals’ mastery in their respective areas?
38) Does the DPT graduate demonstrate professional practice behaviors that recognize and respond to the broad social, economic, and cultural context?
39) Does the DPT graduate demonstrate evidence of problem identification and problem solving during practice?
40) Does the DPT graduate demonstrate evidence of clear communication, including evidence of clinical scholarship?
41) Does the DPT graduate view himself or herself as a professional?
42) Does the DPT graduate participate in the professional community?
43) Does the DPT graduate demonstrate moral, ethical, and social responsibility?
44) Can the DPT graduate adapt his or her talents and skills to a changing environment?
45) Does the DPT graduate understand and apply evidence-based practice?
46) Does the DPT graduate seek continued professional development?

Invited Commentary

Expecting to see a commentary at the end of this Perspective on what is an especially timely and controversial topic in physical therapy? It’s up to you! The Journal invites readers to respond to this article. Responses that meet criteria for thoughtful dialogue supported by literature will be published as Letters to the Editor and posted on the Journal’s Web site. Forward your response to Editor, Physical Therapy, APTA, 1111 North Fairfax Street, Alexandria, VA 22314-1488; ptjourn@apta.org
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A Joseph Threlkeld, Gail M Jensen and Charlotte Brasic Royeen