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School of Allied Health Professions

PATTERNS OF SCHOLARLY PRODUCTIVITY IN
PHYSICAL THERAPY FACULTY


by

Ardith L. Williams-Meyer

A Publishable Paper in Lieu of a Thesis in
Partial Fulfillment of the Requirements for the
Degree Doctor of Physical Therapy Science

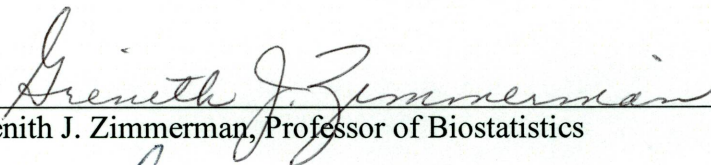
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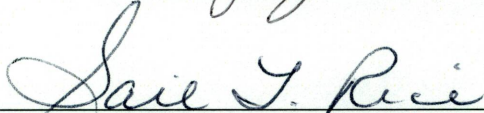


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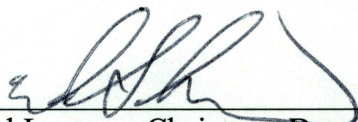
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ABSTRACT

PATTERNS OF SCHOLARLY PRODUCTIVITY IN PHYSICAL THERAPY FACULTY

by

Ardith L. Williams-Meyer

Due to the proliferation of entry-level doctorate physical therapy programs (DPT), there are two important qualifications for current physical therapy educators: 1) they should hold academic doctorate degrees and 2) they need to conduct scholarly activity, such as research, to increase the scientific base for physical therapy practice. In order to determine current faculty preparation for the increasing number of DPT programs, this descriptive study compared the current percentage of doctorally prepared faculty teaching in entry-level doctorate and masters degree programs, and determined their contributions through original research, publications as first or contributing authors or presentations, during the last five years. A questionnaire requesting demographic characteristics of faculty; the time spent on teaching, research, administration, and supervising student research; and the number of publications and presentations during the last five years was developed. The questionnaire was sent to 1416 faculty members in 182 physical therapy programs throughout the United States. Forty-three percent or 609 questionnaires were returned and used for data analysis. Results showed the majority of faculty teaching in physical therapy programs offering doctorate degrees were doctorally prepared (61.9%). In entry-level masters degree programs, masters degree faculty (50.2%) showed a slight majority over doctorally prepared faculty (47.3%). The study indicated that among the total faculty respondents less than half (48.0%) published as first authors while 60.3%

published as contributing authors during the last five years. Higher percentages of faculty (81.5%) presented at scientific meetings than published. Results showed a significant relationship between number of publications and presentations and faculty's highest earned degree, and academic rank. There was no relationship with faculty experience. Faculty with PhD, EdD, and DPTSc degrees published an average of at least one article per year during the last five years, while faculty with masters degrees published just over one article in five years. Small increases in doctorally prepared faculty that have occurred since 1994 indicate a shortage of doctorally prepared faculty to teach in the increasing number of entry-level DPT programs. In addition, if most of the current masters level faculty are not presently in doctoral degree programs, this shortage will be even greater in the future, and will hinder the ability of entry-level masters degree programs to move toward the entry-level DPT. The lack of doctorally prepared faculty publishing original research will hinder the profession's progress toward autonomous practice. Compounding this problem is the fact that faculty are presenting more than they are publishing. These presentations are not archived to add to the foundation of physical therapy practice.

Key Words: Physical Therapy Education, Scholarly Productivity, Faculty Scholarship, Professional Issues, Physical Therapy Profession

The qualifications of physical therapy faculty have changed over the last twenty years, in order to meet predicted future goals of the physical therapy profession and the increased requirements for scholarly productivity from physical therapy faculty by their sponsoring universities. In the 1970s and early 1980s, the goal of professional education was to produce excellent clinicians who would become specialists, and the measure of a good physical therapy faculty member was based primarily upon his/her skill and expertise as a clinician and teacher.¹ By the mid 1980s, however, it was becoming increasingly difficult for physical therapists, whether specialized or not, to receive payment for services. The physical therapy profession recognized the need to justify its place as an important member of the healthcare team by requiring higher levels of education for entry level practitioners, in order to transition to the level of a doctorally trained profession. The profession also recognized the necessity of improving the evidence base for physical therapy practice. By the early 1990s, the American Physical Therapy Association (APTA) had established two important objectives for the profession:

- 1) To increase the body of knowledge in physical therapy in order to justify our profession's importance to patient care¹.
- 2) To train doctoral level physical therapists able to practice with greater autonomy, procure direct access to patient care, justify care provided based on scientific evidence, and support their care through outcome measures¹.

Building a foundation for evidence-based practice required a different faculty. In physical therapy, as in the other health professions of medicine, dentistry, nursing, social work, and allied health, there was an increased demand for doctorally prepared faculty.

Many colleges, universities, and professional education programs use Boyer's definition of scholarly activity from *Scholarly Productivity Reconsidered*,³ which identifies four types of scholarly activity. The first is the *Scholarship of Discovery*, which most closely resembles the idea of research and the dissemination of research through publication. The second type is the *Scholarship of Integration*, in which research findings are interpreted, and their meaning defined and shared among multiple professional or academic disciplines. The third important type of scholarly activity is the *Scholarship of Application*, in which the knowledge gained from original research is applied for the improvement of individual lives and society's needs. The fourth type of scholarship is the *Scholarship of Teaching*, which Boyer explains is meant to develop teaching methodologies that will entice future scholarship from the next generation.³

Boyer's differentiations have helped many faculty teaching in established healthcare professions to realize that while scholarship of discovery (research) is absolutely important,⁴⁻⁸ different faculty will demonstrate unique individual talents in scholarship, which should be identified and used.³ The Commission for Accreditation of Physical Therapy Education (CAPTE) has used Boyer's definition as a basis for defining and evaluating physical therapy faculty scholarship, emphasizing that all faculty should demonstrate ability in at least one of the four components. A qualified faculty member was one who, in addition to being an excellent clinician and instructor, was also a scholar who presented their original work for peer-review and disseminated it through publication or presentation at scientific conferences.

In order to determine faculty performance in one type of scholarship, original research, Holcomb et al⁹ studied physical therapy faculty in 1987 and found 57% had

been sole authors of at least one article and 48% had been contributing authors of at least one article. Thirty percent, however, had not published at all. Subsequent surveys by the APTA (1988, 1991, 1994, and 1996) reported only those who had published at least one article. They did not identify the percentage of faculty who had not published nor did they differentiate between faculty who had published as first authors and contributing authors.² Although these studies show an increase in scholarship over the last 15 years, they do not indicate what is currently being done or whether scholarship has been performed by faculty in entry-level doctorate programs or programs in the process of transition to entry-level doctorate degrees.

The physical therapy profession is committed to training new therapists at the doctorate level. Since 1990, 43 existing physical therapy programs have converted from bachelor or masters entry-level programs to doctoral level programs, 12 are in process and, presently, there are 60 programs in the planning stages.^{10,11} Doctoral level programs require doctorally prepared faculty, who will not only teach, but also participate in many forms of scholarly activity. The question is "Are current physical therapy faculty prepared for the changes taking place and the expectations required of them?". Answers to this question could assist a more accurate assessment of realistic goals for the profession. Scholarly activity is defined in the present study as original research terminating in publications or presentations. The purpose of this study was to identify:

- 1) What percentage of current faculty hold doctoral degrees?
- 2) What percentage of physical therapy faculty have performed original research and at what rate have they published or presented it, during the last five years?

- 3) Does scholarly activity increase with faculty experience in education?
- 4) Is scholarly activity conducted by most of the faculty or a select few?
- 5) What are faculty opinions concerning what should be considered as scholarly activity?
- 6) What factors hinder faculty performance of scholarship, and what factors are helpful?

METHODS

Based on a review of similar studies, a scholarly productivity survey was developed. Table 1 identifies the five general categories of questions covered in the survey. Questions on demographic characteristics of faculty members were developed

Table 1. Categories of Questions Covered in the Scholarly Productivity Survey

I. Characteristics of Faculty Members:

1. Age
2. Gender
3. Years in Education
4. Academic Rank
5. Highest Degree and Year Degree was Received
6. Focus of Doctoral Research
7. Administrative Responsibility

II. Questions Profiling Physical Therapy Program

1. Number of Registered Students
2. Number of Core Faculty
3. Highest Degree Offered in the Program
4. Number of Different Degrees Offered in the Program

III. Questions Related to Time Spent on Faculty Tasks

1. Hours Worked per Week
2. Hours of Teaching per Week
3. Hours of Supervision of Student Research per Week
4. Hours of Personal Research per Week
5. Hours of Administration per Week

IV. Questions Concerning Activities Considered Scholarly

V. Number of Scholarly Activities Completed Over Last 5 Years, 10 Years, and Entire Career

from general studies in dentistry,¹² nursing,^{13,14} occupational therapy,¹⁵ allied health,¹⁶⁻¹⁹ and physical therapy.^{9,20-22} Questions concerning time spent on various faculty tasks were taken from interviews with faculty, as well as a review of nursing,¹⁴ allied health^{9,17,27} and physical therapy literature.⁹ Questions concerning scholarly activity were questions most often studied by other authors.^{12,13,15,20-25} Questions concerning professional development and professorial duties were tasks defined by CAPTE's accreditation guidelines.²⁶ Journal publications and presentations at scientific meetings were forms of scholarship commonly discussed by other professions.^{4-6,13,18,23,25}

Based on previous studies, questions allowing faculty to express what they felt should be considered as scholarly activity, as well as the factors faculty felt were deterrents or helpful to their ability to perform scholarly activity were also included.^{9,12,13,15,27-29} To determine the validity of the items, the questionnaire was completed by fourteen faculty members from two different schools. Based on the results, some questions were modified or eliminated.

The names of current faculty members were recorded from individual school websites. Surveys were sent to core faculty only, those with a designation of professor, associate professor, assistant professor, instructor, or academic coordinator of clinical education (ACCE). Clinical and adjunct faculty were not included in the study. Each survey consisted of four pages, the last of which was designated "optional", to complete. A packet containing multiple surveys was mailed to every director of an accredited physical therapy program in the United States and Puerto Rico. Except for five schools with greater than 13 faculty, most schools reported between 5 and 12 faculty members. Packets containing 11 surveys were mailed to directors of schools where specific faculty

names could not be located. A total of 182 packets, including surveys for an estimated 1,559 core faculty members, were sent.

Each director received a letter of instruction for disseminating the surveys, and each faculty member survey was attached to a letter with specific instructions and a stamped self-addressed envelope for direct return to the researcher. All envelopes were given codes identifying them by state and school. To assure confidentiality, we instructed all respondent not to return their instruction letter with the survey. By returning the survey, each respondent acknowledged his/her voluntary consent to participate in the study. In order to keep an accurate tally of the core faculty from every school, we asked the program directors to return a yellow card indicating the total number of faculty members in their programs, along with the number of additional surveys needed.

After the first return deadline, we contacted program directors of schools whose faculty had returned only a few or none of the surveys by phone or e-mail to see if they had received the packets, as well as to request that the remaining surveys be returned. Schools that did not return the enclosed yellow card identifying the number of core faculty in their programs were phoned and asked for the number directly.

Data Analysis

The data were analyzed using SPSS version 10.³⁰ Frequencies were tabulated for all qualitative variables. Kruskal-Wallis tests were used to compare the number of publications among faculty groups with different levels of experience. Chi-square tests were used to determine possible relationships between publication levels and faculty degrees and academic ranks. Mean number of publications per faculty were calculated in

order to compare results of the current study with results of previous surveys conducted by Holcomb⁹ and the APTA.²

RESULTS

Faculty Profiles

Faculty from 86% of the contacted schools responded to the survey. Out of 1416 total physical therapy faculty, 609 surveys were returned for a response rate of 43%.

Table 2 describes all of the faculty groups analyzed in the present study.

Table 2. Reference List of All Faculty Groups in the Current Study

Abbreviation	Definition
TF	Total faculty who responded to the questionnaire
NDDF	Faculty teaching in non-doctoral degree physical therapy programs
DDF	Faculty teaching in doctoral degree physical therapy programs
DPNDDF	Doctorally prepared faculty teaching in non-doctoral degree physical therapy programs
DPDDF	Doctorally prepared faculty teaching in doctoral degree physical therapy programs
MDNDDF	Masters degree faculty teaching in non-doctoral degree physical therapy programs
MDDDF	Masters degree faculty teaching in doctoral degree physical therapy programs

Table 3 summarizes the profile of the total faculty respondents (TF). The largest single percentage of physical therapy faculty was between 40-49 years of age (47.7%), and female (63.9%); 51.3% had completed doctoral degrees while 46.9% had completed master degrees. The majority of faculty had been in physical therapy education for ten years or less (61.0%), and did not hold administrative positions (65.4%).

Table 3. Profile of Total Physical Therapy Faculty (TF) Responding to the Survey Questionnaire

	%**	(n)
Age		
<30 years	1.7	(10)
30-39 years	23.8	(143)
40-49 years*	47.7	(286)
50-59 years	22.2	(133)
60-69 years	4.5	(27)
70 or > years	0.2	(1)
Missing***	1.5	(9)
Gender		
Female*	63.9	(333)
Male	36.1	(188)
Missing***	14.4	(88)
Academic Rank		
Instructor	11.9	(71)
Assistant Professor	45.9	(275)
Associate Professor	28.8	(172)
Professor	13.0	(78)
Professor Emeritus	0.5	(3)
Missing***	1.6	(10)
Highest Complete Degree		
Bachelor's	1.8	(11)
Master	46.9	(284)
	51.3	(311)
Doctorate*		
DPT	0.8	(5)
DPTSc	0.8	(5)
EdD	6.1	(37)
PhD	43.1	(261)
Other	0.5	(3)
Number of Years in Physical Therapy Education		
<1 year	2.6	(16)
1-5 years	30.6	(185)
6-10 years	27.8	(168)
11-20 years	25.2	(152)
21-30 years	9.6	(58)
>30 years	4.1	(25)
Missing***	0.8	(5)
Administrative Position		
Yes	34.6	(202)
No*	65.4	(381)
Missing***	4.3	(26)

* Highest percentages

** Percentage calculated based on number of respondents who answered this question

*** Percentage of respondents with missing data

Table 4 compares the demographic characteristics of the total faculty (TF) group in the current study with those from previous studies by the American Physical Therapy Association (APTA) (1983),⁹ Holcomb et al (1987),⁹ and the APTA surveys conducted in 1994 and 1996.² In 1983, the highest degree held by the majority of faculty was a masters degree (73.0%); 16% held doctoral degrees. By 1987, the percentage of doctorally prepared faculty had increased 13% and by 1994, it increased another 16.5%. Since that time, the increase in doctorally prepared faculty has occurred slowly. Except for a slight increase in the percentage of Assistant Professors (5.9%), the percentages of faculty at each academic level has shown little change from 1987 to the present study.

The majority of physical therapy faculty have been, and based on the present study, continue to be women. Results of chi-square tests indicated no significant difference in gender distribution between the 1983 APTA survey, Holcomb's study, and the present study ($P=.26$). However, there were highly significant differences among these studies in the areas of highest completed degree ($P<.001$) and faculty rank ($P<.001$).

Table 5 compares the demographics of the physical therapy faculty teaching in non-doctoral degree programs (NDDF), faculty teaching in programs offering doctoral degrees (DDF), and doctorally prepared faculty teaching in doctoral degree programs (DPDDF). The non-doctoral degree program faculty (NDDF) and the doctoral degree program faculty (DDF) were similar for gender, rank, and the number of years they had been in physical therapy education. The highest single percentages of faculty in both groups were 40-49 years of age (NDDF=46.0%; DDF= 52.1%); women (NDDF=63.9%; DDF=65.4%); and Assistant Professors (NDDF=45.0%; DDF=48.3.0%).

Table 4. Comparison of Physical Therapy Faculty (TF) Profiles in the Present Study with Faculty in Previous Studies

	1983 APTA* Survey n=345 %*** (n)	Holcomb 1987* Regional Survey n=127 %*** (n)	1994 APTA Survey n**** %*** (n)	1996 APTA Survey n=903 %*** (n)	Present Study 2001 n=609 %*** (n)
Gender					
Male	30.0 (104)	37.0 (47)	35.7	35.3 (319)	36.1 (188)
Female	70.0** (241)	63.0** (80)	64.3**	64.7** (584)	63.9** (333)
Missing*****	0 (0)	0 (0)	0	0 (0)	14.4 (88)
Highest Degree					
BA, BS	11.0 (38)	13.0 (16)	3.7	3.0 (27)	1.8 (11)
MA, MS, MPT	73.0** (252)	58.0** (74)	49.6**	47.6 (430)	46.9 (284)
Doctorate	16.0 (55)	29.0 (37)	45.5	48.0** (433)	51.3** (311)
Other	0 (0)	0 (0)	1.2	1.4 (13)	0 (0)
Missing*****	0 (0)	0 (0)	0	0 (0)	0.5 (3)
Academic Ranks					
Lecturer	1.6	1.9 (17)	...
Instructor	22.0 (76)	13.0 (17)	13.0	9.9 (89)	11.9 (71)
Assist. Professor	46.0** (159)	40.0** (51)	43.2**	44.5** (402)	45.9** (275)
Assoc. Professor	20.0 (69)	30.0 (38)	28.5	27.9 (252)	28.8 (172)
Professor	5.0 (17)	13.0 (17)	9.8	11.3 (102)	13.0 (78)
Professor Emer.	7.0 (24)	3.0 (4)	3.9	4.5 (41)	0.5 (3)
Missing*****	0 (0)	0 (0)	0	0 (0)	1.6 (10)

* Reported by: Holcomb JD, et al. Scholarly productivity: A regional study of physical therapy faculty in schools of allied health. *Phys Ther* 1990; 70:118-124.

** Highest percentage

*** Percentage calculated based on number of respondents who answered this question

**** Number of respondents not available

***** Percentage of respondents to questionnaire who have missing data for this question

Table 5. Comparison of Profiles of Three Physical Therapy Faculty Groups: Faculty Teaching in Non-Doctoral Degree Programs (NDDF), Faculty Teaching in Doctoral Degree Programs (DDF), and Doctorally Prepared Faculty Teaching in Doctoral Degree Programs (DPDDF)

	Non-Doctoral Program Faculty (NDDF)		Doctoral Program Faculty (DDF)		Doctorally Prepared Faculty/Doctoral Programs (DPDDF)	
	(n=448)		(n=148)		(n=91)	
	%**	(n)	%**	(n)	%**	(n)
Age						
<30 years	2.0	(9)	0.7	(1)	0	(0)
30-39 years	24.0	(106)	24.7	(36)	15.4	(14)
40-49 years*	46.0	(203)	52.1	(76)	54.9	(50)
50-59 years	23.1	(102)	18.5	(27)	24.2	(22)
60-69 years	4.5	(20)	4.1	(6)	5.5	(5)
70 or > years	0.2	(1)	0	(0)	0	(0)
Missing***	1.6	(7)	1.4	(2)	0	(0)
Gender						
Female*	63.9	(244)	65.4	(83)	56.2	(41)
Male	36.1	(138)	34.6	(44)	43.8	(32)
Missing***	14.7	(66)	14.2	(21)	19.8	(18)
Academic Rank						
Instructor	11.4	(50)	14.3	(21)	3.3	(3)
Assistant Professor*	45.0	(198)	48.3	(71)	44.4	(40)
Associate Professor	31.4	(138)	21.8	(32)	31.1	(28)
Professor	11.8	(52)	15.0	(22)	21.1	(19)
Professor Emeritus	0.5	(2)	0.7	(1)	0	(0)
Missing***	1.8	(8)	0.7	(1)	1.1	(1)
Highest Completed Degree						
Bachelor's	2.5	(11)	0	(0)	0	(0)
Masters	50.2*	(224)	38.1	(56)	0	(0)
Doctorate	47.3	(211)	61.9*	(91)	100.0*	(91)
DPT	0.4	(2)	2.0	(3)	3.3	(3)
DPTSc	0.7	(3)	1.4	(2)	2.2	(2)
EdD	5.8	(26)	6.8	(10)	11.0	(10)
PhD	39.9	(178)	51.7	(76)	83.5	(76)
Other	0.4	(2)	0	(0)	0	(0)
Missing***	0.4	(2)	0.7	(1)	0	(0)

* Highest percentages

** Percentage calculated based on number of respondents who answered this question

*** Percentage of respondents with missing data

Although the DPDDF group was similar in age to the NDDF and the DDF groups, the DPDDF group showed 9.2% more men than their entire faculty group (DDF), and

7.7% more men than the NDDF group. Comparison of faculty ranks indicated that the DPDDF group had the fewest faculty at the academic rank of Instructor, 8.1% less than the NDDF group, and 11.0% fewer faculty than the DDF group. The percentages of Assistant Professors in all three groups were similar (DPDDF=44.4%; DDF=48.3%; NDDF=45.0%). Both the DPDDF and the NDDF groups had more Associate Professors than the DDF group (DPDDF=31.1%; DDF=21.8%; NDDF=31.4%).

Table 5 also indicates 14.6% fewer faculty of the NDDF group (47.3%) than the DDF (61.9%) group had obtained their doctoral degrees. In the NDDF group, the percentages of master degree faculty (50.2%) and doctorally prepared faculty (47.2%) were similar. Comparison of the percentages of PhD faculty among the three faculty groups indicates that the DPDDF group had 31.8% more PhD faculty than the DDF group, and 43.6% more than the NDDF group.

The majority of faculty in both the NDDF (61.3%) and DDF (60.8%) groups had been in education for ten years or less. A majority of the DPDDF (52.8%) group had been in education longer than ten years. The DPDDF group (44.8%) showed a greater percentage of faculty who held administrative positions than the other two groups, 11.5% greater than the NDDF group (33.3%), and 6.8% greater than the DDF group (38.0%).

Profile of Time Spent on Faculty Duties

Table 6 summarizes time spent on teaching and research, as reported by each of the faculty groups. Results indicated that the single highest percentage of faculty in all three groups taught 6-10 hours per week (NDDF=40.0%; DDF=44.1%; DPDDF=43.3%). The majority of faculty in the DDF (72.4%) and the DPDDF (74.4%) groups taught for ten hours or less. In contrast, 40.6% of the NDDF group taught more than ten hours per

Table 6. Comparison of Time Spent by the Non-doctoral Degree Program Faculty (NDDF), Doctoral Degree Program Faculty (DDF), and Doctorally Prepared Doctoral Degree Program Faculty (DPDDF), on Teaching and Research During the Last Five Years

Time Spent Hrs/wk	Non-Doctoral Degree Faculty (n=448)		Doctoral Degree Program Faculty (n=148)		Doctorally Prepared Doctoral Degree Faculty (n=91)	
	Teaching	Research	Teaching	Research	Teaching	Research
	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)
None	1.1 (5)	23.8 (102)	1.4 (2)	23.0 (32)	1.1 (1)	8.2 (7)
1-5 Hrs/wk	18.3 (81)	49.5 (212)	26.9 (39)	38.8* (54)	30.0 (27)	38.8* (33)
6-10 Hrs/wk	40.0* (177)	15.0 (64)	44.1* (64)	16.5 (23)	43.3* (39)	21.2 (18)
11-15 Hrs/wk	28.7 (127)	6.1 (26)	17.9 (26)	3.6 (5)	15.6 (14)	2.4 (2)
16-20 Hrs/wk	9.7 (43)	2.6 (11)	7.6 (11)	9.4 (13)	7.8 (7)	15.3 (13)
21-30 Hrs/wk	2.0 (9)	1.6 (7)	1.4 (2)	4.3 (6)	2.2 (2)	7.1 (6)
> 30 Hrs/wk	0.2 (1)	1.4 (6)	0.7 (1)	4.3 (6)	0	7.1 (6)
Missing**	1.1 (5)	4.5 (20)	2.0 (3)	6.1 (9)	1.1 (1)	6.6 (6)
Total	(n=448)		(n=148)		(n=91)	

* Highest percentages

** Percentage calculated based on number of respondents who answered this question

*** Percentage of respondents with missing data

week, 13% more than the DDF group and 15% more than the DPDDF group.

Similar percentages of faculty in the NDDF (76.2%) group and the DDF (77.0%) group spent at least 1-5 hours per week on research, however, many of the faculty in the NDDF (23.8%) and the DDF (23.0%) groups did not spend any time on research. In contrast, the majority of the DPDDF group (91.8%) spent at least 1-5 hours per week on

research, and 31.9% reported spending more than ten hours per week in research, 20.2% more than the NDDF (11.7%) group, and 10.3% more than the DDF (21.6%) group.

Table 7 summarizes time spent supervising student research and on administration. The highest single percentage of faculty in every group, supervised

Table 7. Comparison of Time Spent by Non-doctoral Degree Program Faculty (NDDF), Doctoral Degree Program Faculty (DDF), and Doctorally Prepared Doctoral Degree Program Faculty (DPDDF), Supervising Student Research During the Last Five Years

Time Spent Hrs/wk	Non-Doctoral Degree Faculty (n=448)	Doctoral Degree Program Faculty (n=148)	Doctorally Prepared Doctoral Degree Faculty (n=91)
	Student Supervision % (n)	Student Supervision % (n)	Student Supervision % (n)
None	23.5 (105)	24.3 (36)	7.7 (7)
1-5 hrs/wk	65.3* (292)	53.4* (79)	57.1* (52)
6-10 hrs/wk	8.9 (40)	12.8 (19)	20.9
11-15 hrs/wk	0.7 (3)	6.8 (10)	11.0 (10)
16-20 hrs/wk	1.6 (7)	2.0 (3)	3.3 (3)
21-30 hrs/wk	0 (0)	0 (0)	0 (0)
> 30 hrs/wk	0 (0)	0.7 (1)	0 (0)
Missing**	0.2 (1)	0 (0)	0 (0)
Total	(n=448)	(n=148)	(n=91)

* Highest Percentages

** Percentage calculated based on number of respondents who answered this question

*** Percentage of respondents with missing data

student research 1-5 hours per week (NDDF=65.3%; DDF=53.4%; DPDDF= 57.1%). The highest percentage of faculty who supervised at least one student research project was seen in the DPDDF group (92.3%). Many in the DDF (24.3%) and the NDDF (23.5%) groups did not supervise student research at all. A greater percentage of the DPDDF group (14.3%), than the DDF group (9.5%), and the NDDF group (2.3%), supervised student research more than 10 hours per week.

High percentages in every faculty group (NDDF=89.3%; DDF=88.6%; DPDDF=91.4%) reported spending time on administration. The highest single percentage of faculty in every group reported spending 1-5 hours on administrative tasks.

Table 8 compares the mean number of hours spent on major faculty duties. The means were calculated from Tables 6.1, 6.2, 6.3, and 6.4 (Appendix C) using the mid-

Table 8. Comparison of Mean Number of Hours Spent on Major Faculty Duties by Faculty Group

Faculty Group**	Teaching Mean*	Research Mean*	Administration Mean*	Supervision of Students Mean*
TF	9.6	5.5	9.8	3.3
NDDF	9.8	5.0	9.7	3.0
DDF	8.7	7.5	9.8	4.1
DPDDF	8.4	10.5	9.9	5.4

* Mean number of hours per week based on an assumed maximum of 40 hours per week

** See Table 2 for definitions of abbreviations

points of each interval and an assumed maximum of 40 hours per week. The NDDF

(9.8 hrs.) group taught at least one hour more per week than the DDF (8.7 hrs.) and the DPDDF (8.4 hrs.) groups, and spent half as much time (5.0 hrs.) as the DPDDF (10.5 hrs.) group on research. The DPDDF (5.4 hrs.) group also spent 2.4 hours per week more than the NDDF (3.0 hrs) group, and 1.3 hours per week more than the DDF (4.1 hrs) group supervising student research.

Faculty Activities Over the Last Five Years

Three different categories of activity are reflected in Table 9: 1) scholarly activities, as described by CAPTE's definition,²⁶ which include publication as a first or sole author, publication as a contributing author, conference presentations, and book reviews or editorials, 2) professional development, which includes conference attendance and attendance at continuing education programs, and 3) activities which are faculty responsibilities but, according to CAPTE, do not qualify as scholarly or professional in nature, including teaching and supervision of student research. A lack of publication as a sole or first author or as a contributing author is noticeable. During the previous five years, 52.0% of the TF group did not publish as a sole or first authors, 39.7% did not publish as contributing authors, and 18.5% did not present at scientific meetings.

Table 10 profiles the number of publications as first or sole author, contributing author, and presentations at scientific conferences by the NDDF, DDF, and the DPDDF groups during the last five years. The highest percentages of faculty in all three groups who published as first author (NDDF=24.4%; DDF=26.8%; DPDDF=36.8%), contributing authors (NDDF=28.9%; DDF=37.4%; DPDDF=45.1%), or presented at scientific meetings (NDDF=43.1%; DDF=37.7%; DPDDF=36.7%) completed 2-5

Table 9. Number of Activities Completed by Total Faculty (TF) Respondents During the Last Five Years

Number Completed	1 st Author	Contributing Author	Conference Presentation	Book Review or Editorials	Conference Attendance	Attendance at CEU Course	Supervising Student Research	Teaching
	%** (n)	%** (n)	%** (n)	%** (n)	%** (n)	%** (n)	%** (n)	%** (n)
None	52.0* (306)	39.7* (239)	18.5 (111)	62.5* (370)	2.0 (12)	7.3 (44)	10.6 (63)	2.4 (13)
1	16.5 (97)	19.4 (117)	13.6 (82)	11.7 (69)	3.6 (22)	7.3 (44)	9.4 (56)	5.1 (27)
2-5	24.8 (146)	30.9 (186)	41.3* (248)	17.9 (106)	40.8* (247)	42.9* (257)	34.7* (207)	19.7 (105)
6-10	5.1 (30)	7.0 (42)	15.1 (91)	5.2 (31)	36.1 (219)	28.7 (172)	19.8 (118)	14.8 (79)
11-20	1.2 (7)	2.2 (13)	7.3 (44)	1.9 (11)	14.4 (87)	9.3 (56)	13.4 (80)	11.6 (62)
20+	0.5 (3)	0.8 (5)	4.2 (25)	0.8 (5)	3.1 (19)	4.3 (26)	12.1 (72)	46.4* (248)
Missing***	3.3 (20)	1.1 (7)	1.3 (8)	2.8 (17)	0.5 (3)	1.6 (10)	2.1 (13)	12.3 (75)
Total	(n=609)	(n=609)	(n=609)	(n=609)	(n=609)	(n=609)	(n=609)	(n=609)

* Highest percentages

** Percentage calculated based on number of respondents who answered this question

*** Percentage of respondents with missing data

Table 10. Number of Publications as First Author, Contributing Author, and Presentations at Scientific Meetings Completed by Non-doctoral Degree Program Faculty (NDDF), Doctoral Degree Program Faculty (DDF), and Doctorally Prepared Faculty Teaching in Doctoral Degree Programs (DPDDF) During the Last Five Years

Number Completed	1 st Author			Contributing Author			Conference Presentations		
	NDDF	DDF	DPDDF	NDDF	DDF	DPDDF	NDDF	DDF	DPDDF
	%* (n)	%* (n)	%* (n)	%* (n)	%* (n)	%* (n)	%* (n)	%* (n)	% (n)
None	55.6 (242)	42.3 (60)	24.1 (21)	44.0 (195)	26.5 (39)	11.0 (10)	20.1 (89)	13.0 (19)	5.6 (5)
1	15.2 (66)	19.0 (27)	21.8 (19)	20.3 (90)	17.7 (26)	16.5 (15)	14.2 (63)	13.0 (19)	8.9 (8)
2-5	24.4 (106)	26.8 (38)	36.8 (32)	28.9 (128)	37.4 (55)	45.1 (41)	43.1 (191)	37.7 (55)	36.7 (33)
6-10	3.4 (15)	9.2 (13)	12.6 (11)	5.0 (22)	12.2 (18)	17.6 (16)	13.3 (59)	19.2 (28)	22.2 (20)
11-20	0.9 (4)	2.1 (3)	3.4 (3)	1.4 (6)	4.1 (6)	6.6 (6)	5.2 (23)	13.0 (19)	21.1 (19)
20+	0.5 (2)	0.7 (1)	1.1 (1)	0.5 (2)	2.0 (3)	3.3 (3)	4.1 (18)	4.1 (6)	5.6 (5)
Missing**	2.9 (13)	4.1 (6)	4.4 (4)	1.1 (5)	0.7 (1)	0 (0)	1.1 (5)	1.4 (2)	1.1 (1)
Total	(n=448)	(n=148)	(n=91)	(n=448)	(n=148)	(n=91)	(n=448)	(n=148)	(n=91)

* Percentage calculated based on number of respondents who answered this question

** Percentage of respondents with missing data

publications or presentations during the last five years. For all faculty groups more faculty completed presentations (NDDF=79.9%; DDF=87.0%; DPDDF=94.4%) than publications. Most noticeable, however, are the high rates of faculty who did not publish as first or contributing authors in the NDDF and the DDF groups (first author: NDDF=55.6%; DDF=42.3%, contributing author: NDDF=44.0%; DDF=26.5%). Of the faculty who published or presented at least once, the DPDDF group had higher publication and presentation rates overall than either the NDDF group or the DDF groups. Fifty-six percent of the NDDF group, 73.5% of the DDF group and 89.0% of the DPDDF groups were contributing authors of at least one article.

Table 11 compares the mean number of first authorships, contributing authorships, and scientific presentations completed per DDF, NDDF, and DPDDF member, based on an assumed maximum of twenty-five articles or presentations. In all three categories, the mean number completed by the DPDDF group was higher than for the DDF and the NDDF groups, and the mean number completed by the DDF group was higher than the NDDF group.

Table 11. Comparison of Mean Numbers* of Publication and Conference Presentations Completed Per Faculty Member By Faculty Group During the Last Five Years

Faculty Group**	First Author Mean*	Contributing Author Mean*	Conference Presentations Mean*
DDF	2.4	3.6	6.0
NDDF	1.5	2.0	4.7
DPDDF	3.3	5.5	7.8

* Based on an assumed maximum of 25 articles

** See Table 2 for definitions of abbreviations

Table 12 shows the mean number of total publications for various faculty groups, during the last five years. Results confirm that publication rates were highest in the doctorally prepared faculty teaching in doctoral degree programs. More than half of this faculty group published at a rate of one per year. Second in publication rates were doctorally prepared faculty teaching in non-doctoral degree programs. Half of this faculty group approached one publication per year. At least half of the master's degree faculty teaching in doctoral and non-doctoral degree programs did not publish at all.

Table 12. Comparison of the Mean and Median Publication Rates by Faculty Group

Faculty Groups**	Mean Number of Publications*	Median Number of Publications*
TF	3.9	2.0
NDDF	3.3	1.0
DDF	5.9	4.0
DPNDDF	5.4	4.0
DPDDF	8.3	6.0
MDNDDF	1.5	0.0
MDDDF	1.8	0.0

Table 13 compares the percentages of faculty who did not publish, but presented at scientific meetings during the last five years by faculty group. The largest percentage of non-publication was seen for the NDDF group. The smallest percentages of non-publication were seen for doctorally prepared faculty. Table 14 compares the mean hours spent teaching and on research by total faculty who did not publish during the last five years. They spent 9.6 hours per week on research and did not publish.

Table 13. Comparison of Faculty Who Have Not Published but Have Presented, and Those Faculty Who Have Not Published or Presented During the Last Five Years by Faculty Group**

Last Five Years	TF (n=609) %* (n)	NDDF (n=448) %* (n)	DDF (n=148) %* (n)	DPDDF (n=91) %* (n)	DPNDDF (n=201) %* (n)	MDNDDF (n=247) %* (n)	MDDDF (n=57) %* (n)
Faculty Who Have Not Published, but Have Presented	34.4 (209)	36.2 (162)	23.6 (35)	8.8 (8)	21.1 (43)	24.3(60)	28.1 (16)
Faculty Who Have Not Published or Presented	13.3 (81)	43.2 (64)	2.1 (14)	3.3 (3)	4.5 (9)	20.2 (50)	19.3 (11)

* Percentage calculated based on number of respondents who answered this question

** See Table 2 for definitions of abbreviations

Table 14. Comparison of Mean Hours Spent Teaching and on Research by Total Faculty Who Did Not Publish During The Last Five Years

Faculty Duties	Mean Hours Spent Per Week
Teaching	6.6
Research	9.6
Supervision of Student Research	3.9

* Based on an assumed 40 hour work week

Changes in Scholarly Productivity With Years of Experience in Education

Table 15 summarizes the mean number of publications and presentations at scientific meetings per physical therapy faculty member (TF) over the last five years by the number of years they have been in physical therapy education. In the category of first authors, faculty members who had been in education from 1-5 years showed the highest mean rate of publication(2.6), averaging approximately one article every two years. Faculty with more than five years of experience contributed to one publication every two years (2.6), and faculty with 11-30 years of experience (2.9) did the most. Faculty members began presenting at conferences within their first year in education (3.0), and presentation rates continued to increase with years of experience. Faculty with more than five years of experience averaged at least one presentation each year, and presentations peaked in faculty with 21-30 years of experience (6.7).

Table 15. Mean Number* of Publications and Conference Presentations Per Physical Therapy Faculty Member (TF) During the Last Five Years by Years in Physical Therapy Education

Years in PT Education	1st Author	Contributing Author	Conference Presentation
< 1 year	0.4	0.6	3.0
1-5 years	2.6	1.7	3.7
6-10 years	1.7	2.6	5.1
11-20 years	2.0	2.9	5.6
21-30 years	2.4	2.9	6.7
> 30 years	2.4	2.6	5.1

* Based on an assumed maximum of 25 articles

Table 16 compares the mean number of publications and conference presentations of the NDDF and DDF groups by number of years in physical therapy education. The highest mean for first author in the NDDF (2.8) group, was seen in faculty with more than 30 years experience and in faculty in the DDF (4.5) group with 21-30 years experience. The DDF faculty had already shown publication of at least one article as first author, in faculty with less than one year experience.

The highest mean number of publications as contributing author for both groups was seen in faculty with 11-20 years experience, and faculty members in both groups with less than one year experience had already published more than one article as contributing authors. The highest rate of presentations at scientific meetings by both groups was seen in faculty with 21-30 years experience. In faculty with less than one year experience, the presentation rate of the NDDF (3.2) group was higher than the DDF (2.7) group.

Table 16. Comparison of Mean Number* of Publications and Conference Presentations Completed By the NDDF Group and the DDF Group During the Last Five Years by Number of Years in Physical Therapy Education

Years in Physical Therapy Education	1 st Author		Contributing Author		Conference Presentations	
	NDDF	DDF	NDDF	DDF	NDDF	DDF
< 1 Year	0.7	1.2	1.4	1.5	3.2	2.7
1-5 Years	1.4	1.1	1.4	1.5	3.6	4.2
6-10 Years	1.4	3.1	1.4	2.5	4.4	6.9
11-20 Years	1.8	2.5	2.4	4.6	5.0	7.5
21-30 Years	1.6	4.5	2.4	3.9	6.8	9.0
> 30 Years	2.8	2.8	2.4	2.2	6.0	4.9

* Based on an assumed maximum of 25 articles

Kruskal-Wallis and Chi-square Results

Kruskal-Wallis tests were performed on the TF group to determine whether the number of faculty publications significantly increased with the number of years faculty were in physical therapy education. There was a significant difference among faculty groups with different years in physical therapy education ($P < .001$). The results indicated no significant differences in publications and presentations between faculty who had been in education less than one year and those who had been in education for 1-5 years. There was, however, a significant increase in publications and presentations between those who have been in education for five years or less and those who have been in education six years or more.

Chi-square tests were performed to see if there were significant relationships between the number of years of faculty experience and number of publications as first author, contributing author, or presentations at scientific meetings, among faculty in the DDF group and in the NDDF group. In the DDF group, chi-square results indicated no significant relationship between years of experience and rate of publication as first author ($P = .30$), contributing author ($P = .16$), or presentations ($P = .24$). Results for the NDDF group showed no significant relationship between years of experience and first ($P = .62$) or contributing authorships ($P = .41$), but there was a significant relationship between experience and the number of presentations at scientific meetings ($P < .001$).

Scholarly Productivity By Degree

Over the previous five year period, 48.0% of the respondents indicated they had published at least one article as first author, 60.3% had published at least one article as a contributing author, and 81.5% had made presentations at scientific meetings (Table 9).

Tables 17, 18, and 19 provide profiles of faculty participation in three different types of scholarly activity, as defined by CAPTE,⁶ by degree. Table 20 summarizes the number of student research projects supervised by faculty by degree.

Table 17. Number of Publications as First or Sole Author During the Last Five Years by Faculty Degree (n=603)*

Number	Bachelor's %** (n)	Masters %** (n)	DPT %** (n)	DPTSc %** (n)	EdD %** (n)	PhD %** (n)
None	81.8 (9)	71.7 (200)	80.0 (4)	50.0 (2)	38.2 (13)	30.0 (75)
1	9.1 (1)	15.4 (43)	20.0 (1)	0 (0)	17.6 (6)	18.0 (45)
2-5	9.1 (1)	12.5 (35)	0 (0)	25.0 (1)	38.2 (13)	38.0 (95)
> 5	0 (0)	.4 (1)	0 (0)	25.0 (1)	5.9 (2)	14.0 (35)
Missing***	0 (0)	1.8 (5)	0 (0)	20.0 (1)	8.1 (3)	4.2 (11)
Total	(n=11)	(n=284)	(n=5)	(n=5)	(n=37)	(n=261)

* The data of other doctoral degrees were not included in this table (n=6)

** Percentage calculated based on number of respondents who answered this question

*** Percentage of respondents to questionnaire who have missing data for this question

Of the faculty who published as first authors (Table 17), the greatest single percentage of the DPTSc (25.0%), EdD (38.2%), and PhD (38.0%) faculty published at the 2-5 article level. The highest percentages of masters degree (15.4%) and DPT (20.0%) faculty who published completed one article during five years. Seventy percent of the the PhD. faculty, 61.8% of the EdD faculty, and 28.3% of the masters degree faculty published as first authors at a rate of at least one article during five years. In the category of contributing author (Table 18), the largest single percentage of faculty

published 2-5 articles during the last five years for the doctoral degree faculty members with DPTSc (60.0%), EdD (43.2%), and PhD (43.0%) degrees. The highest percentage of master degree faculty (22.9%), published one article.

Table 18. Number of Publications as Contributing Author During the Last Five Years by Faculty Degree (n=603)*

Number	Bachelor's %** (n)	Masters %** (n)	DPT %** (n)	DPTSc %** (n)	EdD %** (n)	PhD %** (n)
None	72.7 (8)	56.1 (157)	80.0 (4)	20.0 (1)	27.0 (10)	21.3 (55)
1	18.2 (2)	22.9 (64)	0 (0)	20.0 (1)	21.6 (8)	16.3 (42)
2-5	9.1 (1)	18.9 (53)	0 (0)	60.0 (3)	43.2 (16)	43.0 (111)
> 5	0 (0)	2.1 (6)	20.0 (1)	0 (0)	8.1 (3)	19.4 (50)
Missing***	0 (0)	1.4 (4)	0 (0)	0 (0)	0 (0)	1.1 (3)
Total	(n=11)	(n=284)	(n=5)	(n=5)	(n=37)	(n=261)

* The data of other doctoral degrees were not included in this table (n=6)

** Percentage calculated based on number of respondents who answered this question

*** Percentage of respondents to questionnaire who have missing data for this question

In the category of presentations made at scientific meetings (Table 19), the highest percentages of faculty with bachelors degree (54.5%), masters degree (41.3%), and DPT degree (40.0%) faculty, presented 2-5 times during five years. Faculty with DPTSc (40.0%), EdD (43.2%), and PhD (42.2%) degrees, however, presented more than five times. Table 20 profiles faculty supervision of student research projects over the last five years. The highest percentages of faculty who supervised more than five projects were faculty with DPTSc degrees (80.0%), EdD degrees (59.5%), and PhD degrees (58.5%).

Table 19. Number of Presentations of Original Work at Scientific Conferences During The Last Five Years by Faculty Degree (n=603)*

Number	Bachelor's	Masters	DPT	DPTSc	EdD	PhD
	%** (n)	%** (n)	%** (n)	%** (n)	%** (n)	%** (n)
None	45.5 (5)	29.5 (83)	60.0 (3)	20.0 (1)	8.1 (3)	6.3 (16)
1	0 (0)	17.1 (48)	0 (0)	20.0 (1)	10.8 (4)	10.5 (27)
2-5	54.5 (6)	41.3 (116)	40.0 (2)	20.0 (1)	37.8 (14)	41.0 (105)
> 5	0 (0)	12.1 (34)	0 (0)	40.0 (2)	43.2 (16)	42.2 (108)
Missing***	0 (0)	1.1 (3)	0 (0)	0 (0)	0 (0)	1.9 (5)
Total	(n=11)	(n=284)	(n=5)	(n=5)	(n=37)	(n=261)

* The data of other doctoral degrees were not included in this table (n=6)

** Percentage calculated based on number of respondents who answered this question

*** Percentage of respondents to questionnaire who have missing data for this question

Table 20. Number of Student Research Projects Supervised During the Last Five Years by Faculty Degree (n=603)*

Number	Bachelor's	Masters	DPT	DPTSc	EdD	PhD
	%** (n)	%** (n)	%** (n)	%** (n)	%** (n)	%** (n)
None	27.3 (3)	15.1 (42)	60.0 (3)	20.0 (1)	5.4 (2)	4.3 (11)
1	45.5 (5)	11.1 (31)	0 (0)	0 (0)	2.7 (1)	7.5 (19)
2-5	9.1 (1)	41.2 (115)	40.0 (2)	0 (0)	32.4 (12)	29.6 (75)
> 5	18.2 (2)	32.6 (91)	0 (0)	80.0 (4)	59.5 (22)	58.5 (148)
Missing***	0 (0)	1.8 (5)	0 (0)	0 (0)	0 (0)	3.1 (8)
Total	(n=11)	(n=284)	(n=5)	(n=5)	(n=37)	(n=261)

* The data of other doctoral degrees were not included in this table (n=6)

** Percentage calculated based on number of respondents who answered this question

*** Percentage of respondents to questionnaire who have missing data for this question

Chi-square tests were performed to determine if the relationship between number of publications as first or sole author, contributing author, or making presentations and the faculty member's highest degree were significant. All three types of scholarly activity were found significantly related ($P < .001$) to the faculty member's highest degree.

Scholarly Productivity by Academic Rank

Out of 609 faculty questionnaires, 599 responded identifying their current academic rank. Tables 21, 22, and 23 show faculty publications as first or sole author (5.1), contributing author (5.2), and presentations given at scientific meetings (5.3) by faculty academic rank. Table 21 indicates that other than Professor Emeritus, the greatest percentage of non-publication was by Instructors (80.3%), and Assistant Professors (57.8%). Of the faculty who published at least one article as first authors, the highest percentages were Associate Professors (66.5%), with Professors second (58.9%). While the largest percentage of Instructors published at a rate of 1 article during five years (16.9%), the other groups published 2-5 articles: 37.2% for Associate Professors, 35.6% for Professors, and 20.5% of Assistant Professors. The highest percentage of faculty who published more than five articles had the academic rank of Professor.

Publication as a contributing author followed a similar pattern. Instructors showed the highest percentage of non-publication (62.9%). The greatest percentage of faculty who published at least one article were Associate Professors (78.1%) followed by 72.7% of Professors.

Table 21. Publications as First Author During the Last five Years by Faculty Academic Rank (n=599)*

Number	Instructor	Assistant Professor	Associate Professor	Professor	Professor Emeritus
	%** (n)	%** (n)	%** (n)	%** (n)	%** (n)
None	80.3 (57)	57.8 (155)	33.5 (55)	41.1 (30)	100.0 (3)
1	16.9 (12)	17.2 (46)	20.7 (34)	4.1 (3)	0 (0)
2-5	2.8 (2)	20.5 (55)	37.2 (61)	35.6 (26)	0 (0)
> 5	0 (0)	4.5 (12)	8.5 (14)	19.2 (14)	0 (0)
Missing***	0 (0)	2.5 (7)	4.7 (8)	6.4 (5)	0 (0)
Total	(n=71)	(n=275)	(n=172)	(n=78)	(n=3)

* The data of other doctoral degrees were not included in this table (n=10)

** Percentage calculated based on number of respondents who answered this question

*** Percentage of respondents to questionnaire who have missing data for this question

Table 22. Publications as Contributing Author During the Last Five Years by Faculty Academic Rank (n=599)*

Number	Instructor	Assistant Professor	Associate Professor	Professor	Professor Emeritus
	%** (n)	%** (n)	%** (n)	%** (n)	%** (n)
None	62.9 (44)	47.6 (130)	21.9 (37)	27.3 (21)	33.3 (1)
1	21.4 (15)	22.3 (61)	17.8 (30)	10.4 (8)	33.3 (1)
2-5	12.9 (9)	23.8 (65)	46.2 (78)	42.3 (33)	33.3 (1)
> 5	2.9 (2)	6.3 (17)	14.2 (24)	19.5 (15)	0 (0)
Missing***	1.4 (1)	0.7 (2)	1.7 (3)	1.3 (1)	0 (0)
Total	(n=71)	(n=275)	(n=172)	(n=78)	(n=3)

* The data of other doctoral degrees were not included in this table (n=10)

** Percentage calculated based on number of respondents who answered this question

*** Percentage of respondents to questionnaire who have missing data for this question

Table 23 provides the percentages of faculty who reported giving presentations during the previous five years. The percentages of presentations by each rank were greater than publications as first or contributing authors. For all academic ranks, except Professors, the highest percentage of faculty who presented made 2-5 presentations

Table 23. Conference Presentations During the Last Five Years by Faculty Academic Rank (n=599)*

Number	Instructor	Assistant Professor	Associate Professor	Professor	Professor Emeritus
	%** (n)	%** (n)	%** (n)	%** (n)	%** (n)
None	42.9 (30)	20.9 (57)	8.3 (14)	10.5 (8)	0 (0)
1	14.3 (10)	16.8 (46)	12.4 (21)	3.9 (3)	33.3 (1)
2-5	37.1 (26)	42.5 (116)	41.4 (70)	39.5 (30)	66.7 (2)
> 5	5.7 (4)	19.8 (54)	37.9 (64)	46.1 (35)	0 (0)
Missing***	1.4 (1)	0.7 (2)	1.7 (3)	2.6 (2)	0 (0)
Total	(n=71)	(n=275)	(n=172)	(n=78)	(n=3)

* The data of other doctoral degrees were not included in this table (n=10)

** Percentage calculated based on number of respondents who answered this question

*** Percentage of respondents to questionnaire who have missing data for this question

during the last five years. The highest percentage of Professors presented at a rate of more than one per year. Chi-square tests were performed to determine if the relationships between publications as first or sole author, contributing author, and presentations at scientific meetings and faculty rank were significant. All three types of scholarly activity were found to have a significant relationship with faculty rank ($P < .001$).

Results From Optional Survey

In order to gain insight into why faculty had not published without increasing the length of the main part of the survey, the last page, which required some writing, was labeled "optional". Five hundred-eighty faculty members (95.2%) of the 609 survey respondents chose to complete all or a part of the optional fourth page of the survey. This part of the survey asked for the faculty member's opinion concerning the emphasis on scholarly productivity, the importance of scholarly activity to quality graduate education, and their opinion concerning the greatest deterrents and helps to scholarly productivity.

Table 24 summarizes 120 responses to Question 21 of the survey, in which faculty were asked their opinions concerning which activities should be included as scholarship. The scale included grading options of: 1) absolutely important, 2) very important, 3) important, but not necessary, 4) not important but nice to have, and 5) totally unnecessary.

Of the fourteen items in this part of the survey, teaching, publishing as first or contributing author, conferences presentations, and conference attendance were the top five categories identified by respondents as either absolutely important or very important. Table 24 shows the two highest categories. The combined results indicated that publication as a contributing author (82.7%) and conference presentations (82.7%) were the highest. More than 82% of the respondents felt that teaching was an important scholarly activity, 62.9% felt that publication as a first author and 69.6% felt that conference attendance were important scholarly activities. Table 25 indicates that 38.7%, of the total respondents thought that scholarly productivity was very important in providing quality graduate education, while 29.0% felt it was absolutely important.

Table 24. Profile of Physical Therapy Faculty Opinions Concerning Important Scholarly Activities Ranking from Highest to Lowest (n=120)

ABSOLUTELY IMPORTANT		VERY IMPORTANT	
(1) Teaching	44.3%	(1) Contributing Author	49.8%
(2) Conference Presentations	33.2%	(2) Conference Presentations	49.5%
(3) Contributing Author	32.9%	(3) Teaching	38.1%
(4) Conference Attendance	32.2%	(4) Conference Attendance	37.4%
(5) First Author	29.4%	(5) First Author	33.5%

Table 25. "In Your opinion, how important is scholarly productivity to the provision of quality graduate education?" (n=120)

	%
Absolutely Important	29.0
Very Important	38.7
Important	28.0
Not Important	4.3

Four hundred sixty-two faculty responded to the two questions concerning what were the greatest deterrents and the greatest helps to their performance of scholarly activity. Table 26 summarizes faculty opinion of the greatest deterrents to performing scholarly activity. Seventy-six percent indicated that lack of time is the greatest deterrent, followed by 45.0% who identified the lack of support, resources, and money.

Table 27 profiles faculty opinion of the greatest helps to scholarly productivity; 74.2% of the respondents reported release time as most important. Money was the second greatest help identified (55.8%), and collaboration with another faculty member was identified as third (37.6%). Less than half (45.7%) of the respondents felt that connections with journal editors were "helpful" or the "greatest help" to scholarly productivity.

Table 26. Opinion of Physical Therapy Faculty – The Greatest Deterrents to Scholarly Productivity (n=462)*

Deterrent	Greatest Deterrent %** (n)	Deterrent %** (n)	Least Deterrent %** (n)
Lack of Time	76.0 (351)	20.8 (96)	3.2 (15)
Lack of Support/Resources/ Money	45.0 (208)	31.9 (145)	15.2 (70)
No Research Expert to Consult	13.6 (408)	25.1 (116)	48.9 (226)
Don't Know How to Proceed	8.9 (41)	17.3 (80)	61.7 (285)
No Idea of What to Study	6.9 (32)	12.3 (57)	66.2 (306)
Other* (n=51)			

* The data of other doctoral degrees were not included in this table (n=147)

** Percentage calculated based on number of respondents who answered this question

Table 27. Opinion of Physical Therapy Faculty – The Greatest Helps to Scholarly Productivity (n=462)*

Help	Greatest Help %** (n)	Help %** (n)	Least Help %** (n)
Release Time	74.2 (302)	18.2 (74)	7.4 (30)
Money	55.8 (227)	32.3 (131)	12.0 (49)
Collaboration with Colleague	37.6 (153)	33.0 (134)	22.1 (90)
Statisticians	24.8 (101)	34.6 (141)	31.9 (130)
Connections with Editors/journals	16.5 (67)	29.2 (119)	36.9 (150)
Research Design Expert	5.0 (82)	31.0 (126)	37.8 (154)
Other (n=40)			

* The data of other doctoral degrees were not included in this table (n=147)

** Percentage calculated based on number of respondents who answered this question

DISCUSSION

In an effort to establish the availability of qualified faculty needed for the rapid proliferation of entry-level doctorate programs, this study identified the percentage of doctorally prepared faculty currently teaching in physical therapy programs, and their publication and presentation rates. Results indicated that although the majority of the faculty in current doctoral degree programs hold doctorates, this is not the case in non-doctoral degree programs. In addition, the majority of faculty surveyed (86.7%) have participated in, and published or presented original research. Doctorally prepared faculty are more productive than faculty with masters degrees, whether they teach in doctoral degree or non-doctoral degree physical therapy programs.

In 1996, aware of the coming changes within the profession, CAPTE initiated the requirement that faculty in programs applying for initial accreditation hold or be in the process of obtaining doctorates. CAPTE holds the position that in order to assure qualified faculty to train competent physical therapists capable of functioning as primary care providers, the faculty should possess doctoral degrees.²⁶ Doctoral level faculty would serve as qualified researchers, who would, through original research and publication, enrich the scientific basis of physical therapy practice. Quality research, which specifically supports physical therapy, is essential to its place as a valued member of the medical care team.

Percentage of Doctorally Prepared Faculty in Physical Therapy Programs

Studies over the last 18-20 years have reported increases in doctorally prepared faculty. In their regional study of physical therapy faculty in the southeastern United States, Holcomb et al⁹ showed a 13.0% increase in the number of doctorally prepared

faculty between 1983 and 1987. A subsequent APTA survey showed an additional 16.5% increase between Holcomb's 1987 study and 1994.² Since 1994, increases in doctorally prepared faculty have been small, compared to previous studies. The majority of doctorally prepared faculty (61.9%) teach in doctoral degree programs. In the non-doctoral degree programs, the percentage of masters degree faculty is slightly higher than doctorally prepared faculty (50.2% and 47.3% respectively). This presents a potential shortage of doctoral faculty in the near future, as many masters programs are seeking to transition to the entry-level doctorate degree (DPT).

Percentage of Faculty Doing Original Research Identified by Time Spent

Since teaching loads and research time may influence faculty scholarship, present study results of time spent teaching and on research were compared to previous studies by the APTA (1994 and 1996).² Percentages reported by the APTA studies were converted to hours per week using a 40 hour week. The present study indicated a decrease in teaching loads since 1996 of more than seven and a half hours per week. This difference may be due to the fact that the APTA surveys asked for percentages of time spent on "instruction", rather than in student contact hours as in the present study.

In their 1987 study, Holcomb et al⁹ reported that 80% of physical therapy faculty spent 3-5 hours per week on research. The total faculty in the present study show similar results (5.5 hrs./wk). Comparison of the present study with the 1996 APTA² study results indicated decreased research time by total faculty and faculty teaching in non-doctoral degree programs (APTA-6.4 hrs./wk; total faculty-5.5 hrs/wk; non-doctoral degree program faculty-5.0 hrs/wk). Faculty teaching in doctoral degree programs showed increased research time (7.5 hrs/wk), especially among doctorally prepared faculty in

these programs (10.5 hrs/wk). The present study suggests that for programs offering entry-level doctorates, post-professional doctorates, or transitional doctorates, the trend is toward greater scholarship.

Publication Rates Among Faculty

Previous studies identified total publications by faculty over their entire careers (total number of publications/number of years in physical therapy education).^{2,9,27} Among the overall respondents to their study, Holcomb et al⁹ found a mean number of 0.9 publications per faculty member every two years. They reported that 30% of the total 127 respondents had not published at all during their entire careers. The present study indicates a similar percentage of faculty who have not published but have presented (34.4%), but the mean number of publications per faculty member was 3.9 articles during the last five years, rather than career, and was slightly higher (0.8 publications per faculty per year) than in 1987. This study identified that although they did not publish, the 34.4% did present at scientific meetings.

None of the APTA surveys indicated the number of faculty who had not published at all. At first glance it would seem that all faculty had published at least one journal article. This makes it difficult to compare APTA results with the present study.²

Based on an assumed maximum of thirty articles, the mean number of total career publications per faculty member in 1996 was 7.3. The mean number of articles published by doctorally prepared faculty teaching in doctoral degree programs (8.3) is more during the last 5 years than reported by the 1996 APTA study, or other studies previously reported.^{9,21,31,32}

Faculty teaching in doctoral degree programs have averaged at least one publication per year during the last five years, similar to the minimum standard for publications in other medical fields.^{11-14,23-25,28} As early as 1976, when research among medical school faculty was first identified as an important issue, Pearce²⁴ reported age related peaks among medical school faculty. The first was seen in faculty 42-44 years of age, who produced 1.2 articles per faculty per year, and the second peak in faculty 57-59 years of age who averaged one article per faculty per year. Krumland et al²³ in a 1979 study of Baylor Medical School faculty reported that although 39.0% of the faculty had not published, the mean publication rate was 2.2 publications per faculty per year. More recently, Katerndahl²⁸ in 1996, reporting on a program to encourage family medicine faculty to publish, affirmed the expectation for medical faculty was submission of at least two manuscripts per year. Jones et al¹², in 1989, reported that 30% of all full time faculty who had been in dentistry education for five years or less showed a mean rate of 4.35 publications or approximately one per year.

Nursing also has shown higher publication results than physical therapy. Kohlenberg¹⁴ studied 128 nursing faculty and found that out of 39% who were Assistant Professors, the mean number of publications per year was 6.54 articles, and out of 19% who were Professors the mean rate of publication was 9.07 per year. Megel et al³² defined "high productivity" levels in nursing faculty as those who had produced 8 or more publications during three years and faculty with "medium productivity" as those who had produced 5-7 published articles during the same period. Waller et al¹⁷ investigated scholarship among 73 allied health deans and program directors between 1990 and 1997, and found 50% had published close to one article per year.

Relationship of Faculty Publications to Faculty Experience, Faculty Degree, and Faculty Rank

In order to determine whether current research was performed by a select group of faculty, publication and presentation rates were compared by faculty experience, faculty degrees, and faculty rank. Results for the total respondents indicated that the number of research publications was significantly related to faculty experience. The significant difference in mean number of publications was between faculty who have been in education five years or less (6.8 publications) and faculty who have been in education 6 years or more (9.6 publications). There are two plausible explanations for this difference. First, it may be due to the fact that it takes time for new faculty to establish a study, collect data, and submit it for publication. Second, after five years of teaching faculty may be at their best in organization of their classes, committee participation, and administrative duties allowing more time for scholarly productivity.

There was a significant relationship between faculty degree and publication rates. Differences in mean number of publications between doctorally prepared faculty (range: 5.4-8.3) and master degree faculty (range: 1.5-1.8) teaching in both doctoral degree and non-doctoral degree programs confirms the relationship between degree and scholarly productivity. Faculty with PhD degrees, followed by faculty with EdD and DPTSc degrees, are most productive as first authors, contributing authors, and in giving presentations. Because the faculty with PhDs are most numerous, they should be identified as contributing the most in scholarship. Faculty with PhD and DPTSc degrees had the highest percentages of faculty publishing greater than five articles in the last five years or at rates closer to that of the medical and nursing professions, (one per year). Although the DPTSc faculty showed higher percentages of productivity, there were very

few subjects in the sample with DPTSc degrees. Faculty with bachelors, masters, and DPT degrees published at lower rates, one article in five years.

Publications and presentations were significantly related to faculty rank. While Holcomb et al⁹ previously reported highest publication rates for Professors, in the present study the highest percentages of faculty who published as first or contributing authors, or presented original research at scientific conferences, were faculty with the rank of Associate Professor, closely followed by Professors. Large percentages of Instructors and Assistant Professors did not publish as first authors or contributing authors during the last five years. Results of this study indicated faculty at lower academic ranks prefer presentations over publications.

Faculty Opinion Toward Scholarly Activity—Helps and Deterrents

The present study indicated that the majority of current faculty believe conference presentations, publishing as contributing authors, teaching, and conference attendance are more important scholarly activities than publishing their own original research as first author. Although very important, CAPTE considers conference attendance to be a form of professional development rather than scholarly activity.

Faculty in the present study identified the lack of time as the greatest deterrent to scholarly productivity and felt that release time would be the greatest help. The other deterrents included a lack of administrative support, resources, and money. These results are consistent with previous studies.^{1,9,14,17,20,29, 34-39}

Implications for the Physical Therapy Profession

Currently, students may enter the physical therapy profession with either a masters or a doctorate degree. Programs offering the entry-level masters degree have a

greater percentage of faculty and students, and it is these programs that are currently seeking to transition to entry-level doctorates. The slow increase in doctorally prepared faculty that has occurred since 1991, indicates a shortage of what CAPTE considers as “qualified” doctorally prepared faculty, especially within the masters degree programs. This shortage will continue to rise as the demand for doctorally prepared faculty exceeds the supply, especially if most of the current masters degree level faculty are not in doctoral programs. Most academic doctoral programs such as the PhD, EdD, or DPTSc, require from two to seven years to complete. If faculty entered doctoral studies in 1996 or before, there should be a significant increase in doctorally prepared faculty by the year 2003. A faculty shortage, although not unique to master degree programs, may impact entry level masters programs seeking to transition to an entry-level doctorate the most.

Entry level master degree programs that continue to lack adequate doctorally prepared faculty may have difficulties with re-accreditation through CAPTE, as well as regional accrediting organizations. Doctorally prepared faculty who are currently producing the most research publications and presentations in masters degree programs may leave for DPT programs which offer greater opportunity to conduct research through their better resources, release time, and potential collaborative research with other productive faculty. In their 1996 survey, CAPTE found 17.0% of the faculty surveyed had changed positions for increased research opportunities and 44.0% had moved for increased faculty development.² Faculty leaving masters degree programs will create an even greater faculty shortage for these programs.

Due to the factors mentioned above, masters degree programs may feel an urgency to switch to the DPT degree. In order to establish that they have qualified

faculty to do so, current masters programs may rely on doctoral faculty from other university disciplines to justify adequate doctoral degree core faculty. This trend may produce other problems. First, these programs will be unable to identify appropriate core physical therapy faculty performing research directly related to physical therapy, especially in clinical areas. Second, if their faculty are not publishing research and adding to the foundation of physical therapy practice in orthopedic, cardiopulmonary, pediatric, and neurological physical therapy, the lack of physical therapy doctoral core faculty would hinder the growth of the profession. This may result in placing a greater burden on faculty from other institutions who are doing research. As a group, physical therapy is behind other professions in both quality and quantity of research and all faculty need to perform scholarly activity to increase the basis of physical therapy practice and to assure the profession's place as part of healthcare.

While it may seem that smaller programs will be most affected by the lack of qualified faculty and research, larger programs are not exempt. Michels¹ in his 1989 address to the Society of Allied Health Professionals, pointed out that his program at University of Pennsylvania was disbanded and other programs would be disbanded for several reasons. One reason given was the inability of allied health (including physical therapy) faculty to meet the same promotion criteria required of other university disciplines. Secondly, compared to medical and dental schools, allied health programs were not bringing large grant funding or recognition to the university through scholarship. A small grant acquisition and a few publications may be seen as significant by administrators of small universities, if the institution has a history of very little scholarship in the past. The same grants and publications may not be enough for physical

therapy programs in larger universities, where medical schools bring in millions of dollars per year from these same types of activity.

Maintaining a place in medical care necessitates the performance and dissemination of not just quantities of research, but quality research. Although this study shows faculty are taking this responsibility seriously, it is doctorally prepared faculty who are doing the most. If it is the responsibility of faculty to increase the scientific basis of practice for the profession as quickly as possible, at rates of at least one published study per year, as many qualified physical therapy faculty conducting original research as possible are needed. Faculty also need to supervise and teach future clinicians in efficient methods of conducting research within their own clinical practices.

In addition, as Harrison and Kelly²² describe, more experienced faculty are needed within physical therapy programs to mentor less experienced faculty. All physical therapy faculty need to publish in at least one of the categories described by Boyer³ of discovery, integration, application, or teaching. Research, grant writing, and the continuation of physical therapy programs necessitates that we all be scholars, and that we regenerate scholars as well. The present study indicates faculty feel a lack of experience or confidence in developing, as well as publishing research. Through the mentoring of less confident and less experienced faculty by more experienced faculty, or through collaborative studies, more faculty should be able to begin their own grants and research. As seen in the present study, the profession cannot wait for recently trained doctoral faculty to begin being productive, 15-20 years later.

Finally, this study found that among every faculty group, the percentage of faculty giving presentations at scientific meetings was greater than the percentage of faculty

publishing. There are several possible advantages to giving presentations at scientific meetings. First, one can apply to give presentations based upon an abstract rather than a finished study. As a result, less time elapses between completion of the study and presentation of the research. In contrast, studies submitted for publication must be complete before submission and they may only be submitted to one peer-reviewed journal at a time. In order to get information out to the profession quickly, presentations may be the preferred method.

Second, faculty may choose presentations over publications because conference committees are less strict in accepting their projects than peer-reviewed journals. Although CAPTE identifies scientific presentation as an equal form of scholarship to publications of original research, in order to encourage more publications, presentations at scientific meetings should carry less weight than journal publications

A third reason for choosing presentations over publishing is that there are more opportunities to present at meetings than to publish. National and state meetings within the physical therapy profession are held at least three times a year. In addition, there are interdisciplinary conferences and continuing education programs in specialized areas. These offer a forum for presenting original research and integrative or clinical scholarship, both as podium speakers and as poster presentations. The number of opportunities to publish in peer-reviewed journals is limited to a handful within our general field of practice, and several within various areas of specialization. As a result, many faculty may need to look to journals outside of physical therapy in order to publish.

Although presentations allow information to be quickly disseminated, if given as a podium presentation, the presenter's original work may not be archived for future

consideration. The profession needs to identify as many sources as possible to retain conference presentations in a printed form. One method might be the establishment of *Physical Therapy Abstracts*. In this form, the information given at physical therapy conferences and continuing education courses would be retained for future reference. The APTA should maintain archives of its own publications past and current so that authors wishing to refer to APTA surveys published more than twenty years ago could gain access to them.

It would also be helpful for the APTA to maintain lists of the most appropriate journals to which faculty might submit publications. This would facilitate greater opportunities for faculty and practicing therapists to publish research. Although this study showed present faculty are publishing, greater emphasis should be placed on publications, or publications and presentations rather than simply a presentation of research. Publication quotas may be required of physical therapy faculty in the near future either by CAPTE or their sponsoring universities.

Limitations of the Study

The most prominent limitation of the study was the design of the survey questionnaire. Faculty are often inundated with research questionnaires. In an effort to gain a large quantity of data which could be used for further research publications, too many questions not related to the direct purpose of this study were included. To simplify faculty responses, intervals of responses such as 6-10 years, or 2-5 articles, were used rather than asking for specific numbers. This was done to shorten faculty time spent answering the questionnaire. Future researchers should consider limiting their surveys to fewer pages, while requesting more exact data. Additionally, a fourth optional page was

included to allow faculty to express their opinions concerning factors that help or deter faculty scholarship. The data showed similar findings to previous research in several professions. For convenience, it should either have been in similar form to the rest of the survey or perhaps saved for a future study.

Although similar studies have been done, their instruments were not applicable to the present study. In order to better identify problems with the questionnaire, at least 50-60 subjects from various schools should have been included in the pilot study to improve the design of the research tool. The small number of subjects in the pilot study allowed problems with the questionnaire to go unnoticed. Some of the questions related to faculty activity such as, teaching, clinical practice, and courses were ambiguous to faculty requiring the elimination of what might have been informative data. The year 1980 was not included as an answer to the question, "What year was your degree granted?" causing a larger percentage of missing data. These and other problems might have been prevented with a larger sample size for the pilot study or review by a physical therapy group of research experts.

Recommendations for Future Studies

Several studies would be useful to the physical therapy profession during this time of transition in education. First, a short follow-up study identifying how many faculty are currently in the process of obtaining their doctorates, the degree, and the expected year of completion would be useful in further identifying how great a shortage of qualified faculty may be faced by physical therapy programs in the future. This would also identify faculty currently in, or recently graduated from advanced DPT programs with degrees not identified as academic degrees by CAPTE. It would also be helpful to

identify what percentage of current faculty have decided not to return to school for doctoral degrees, or those who may have decided to leave teaching as the result of the changes taking place. Another study identifying the specifics of current faculty workloads would be useful, since a high percentage of faculty expressed a lack of time as the greatest deterrent to their performance of scholarly activity.

CONCLUSION

The current study reinforces the need for more doctorate level faculty performing viable scholarship, supporting the physical therapy profession in two ways: First to assure adequate faculty for the physical therapy profession's move to the entry-level DPT, and second, to assure the profession's position as part of the healthcare team. The study highlights a possible shortage of qualified faculty for these changing programs. This study also points out the need for more faculty to conduct and publish original research. This would allow research to be adequately archived for future reference. Finally, changes in physical therapy education may be happening too quickly to continue the debate over what scholarship is and who should do it. Scholarship, especially in the form of discovery is a necessity not an option.

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APPENDIX A

REVIEW OF LITERATURE

During the twentieth century, the role of the college and university expanded as a source for development through research and communication of knowledge through excellence in teaching, and knowledge was opened to students in many different fields of study.¹ Over a forty year period, healthcare professions, such as medicine, dentistry, nursing, and allied health including physical therapy, which had begun as hospital affiliated proprietary schools with an emphasis on clinical practice and teaching of clinical skills moved into academic settings. Although there was a continued need for teaching of clinical skills, over time, the emphasis has shifted away from teaching clinical practice toward research and the development of a scientific base of knowledge.^{2,3}

The first profession to unite with academia was medicine. In the early 1920's as medicine moved to the university setting, faculty were expected to produce research and publications along with their teaching duties.⁴ Over the remainder of the century, medicine developed a strong science base to its clinical practice.⁵ Dentistry followed. In the 1950's the nursing profession realized that in order to maintain its place in healthcare, it needed to do the same.⁶ In the 1960's and 1970's allied health professions became part of university settings or academic medical centers. These programs functioned more for the training of clinicians and most faculty were not researchers.⁷ Although solely vocationally oriented, there was a demand for such programs, as well as a shortage of healthcare workers in these fields.⁸

As allied health programs gained credibility, colleges and universities, who welcomed the additional revenue, made less demand on faculty of these disciplines than

for faculty in other academic disciplines, when it came to tenure and promotion. While most faculty were required to demonstrate teaching, service, and scholarship to receive promotion or tenure, allied health faculty were judged mainly on excellence in teaching, clinical expertise, service, and experience.^{8,9} For most physical therapy programs, the teaching emphasis was on theory and the handing down of clinical skills in evaluation and treatment.^{3,10} Very few faculty participated in research or published, and like most of the other professions before, they lacked the necessary skills. In order to improve their research skills, medicine, dentistry, and nursing encouraged their faculty to obtain additional degrees such as masters in statistics, Ph.Ds, and complete postdoctoral fellowships. Once again, allied health programs followed the same pattern, but much more slowly.¹¹⁻¹⁴

As in allied health, physical therapy sought to improve its status on the healthcare team. In the early 1970's, physical therapy programs began offering an entry level master's degree rather than the bachelor's, with the expectation that all programs would be converted to the higher level by 1990. Faculty with doctoral degrees were needed, but again, they functioned more as teachers, rather than scholars who performed research and published. As society looked for therapists able to provide the best care possible, the physical therapy profession developed specialties in pediatrics, cardiopulmonary, orthopedics and neurology. Still the scientific base of physical therapy practice lagged behind.¹⁰

Through the 1980's and 1990's, the physical therapy profession saw the need for a scientific basis to our practice and increasing numbers of faculty began to pursue doctoral degrees.^{15,16} Managed care demanded increased output of clinicians at all levels,

and physical therapists realized that in order to maintain our place in healthcare, a more advanced type of practice was needed. The field also needed clinical practice based on scientific evidence, critical thinking, and a rapid growth in scholarship especially in the form of original research, written publication, scientific presentations, and textbooks.^{8,10}

Woods¹⁷ reported that, while originally our profession has relied heavily on its clinicians to train physical therapy interns in the hands on skill of evaluation and treatment, caseload demands of the clinicians are taking more time and thus decreasing the time allotted to close instruction of new graduates. As a result, new graduates must enter the profession with many of their skills such as critical thinking, self motivation and learning, and independent decision making in place, in order to deliver the high level of care expected of them.¹⁷ This need for advanced clinical reasoning and skills, along with the necessity to remain a viable component of the healthcare team, has brought about the development of the entry level clinical doctorate in physical therapy (DPT). According to Woods,¹⁷ in 1996 Creighton graduated its first DPT class. By 2000 there were 22 institutions offering DPT programs with 19 more approved to move to DPT degrees and 43 in process of transitioning to the DPT degree. As of March, 2001, there were 43 accredited DPT programs, 4 developing programs, 8 programs approved to transition to the DPT, and 60 programs seeking approval to transition to the DPT.^{10,17} If all of these programs transition to the DPT within the next year, by the end of 2003 there could be as many as 115 DPT programs, or 61% of all accredited programs in existence. In addition, many licensed physical therapists are applying for clinical specialization in areas such as pediatrics, neurology, orthopedics, and cardiopulmonary care. Physical therapists are also pursuing advanced doctoral programs in order to improve their personal status as

members of healthcare teams, for advanced learning, or to enter into academic education.¹⁷

Although Hislop,¹⁹ in the 10th Mary McMillan address, stated that scholarship in the form of research was the responsibility of the entire profession including clinicians; that responsibility has come to rest primarily on the shoulders of physical therapy faculty, placed there by the profession, society, and the respective colleges and universities in which physical programs exist.¹⁹ Clinicians have little time, administrative support or expertise to participate in ongoing research. Yet the public expects that clinicians will provide the most effective care, and that the college or university programs are capable of providing quality training.¹⁸

As in other healthcare professions, the roles of graduate physical therapy faculty members must include teaching, advising students, scholarship, administration, service, and perhaps, clinical practice. It is the role of scholarship that has created the most controversy among faculty of all healthcare professions.

DEFINITION OF SCHOLARSHIP

In his 1989 address to the 21st Annual Conference of the American Society of Allied Health Professions, Eugene Michels, the former Executive Director of the American Physical therapy Association, pointed out that a serious intellectual discipline such as “research and other forms of scholarship contribute to advancing knowledge germane to the field and other related fields.”⁸ According to Michels, although research is a part of scholarship, the two were not synonymous. Research includes the development of a relevant question leading to a hypothesis which is then tested through the scientific method. The second equally important step is scholarly communication, the

means by which the findings are reported by written publication or oral presentation. This then allows for peer analysis and criticism in order for all to learn.⁸

In 1990, Ernest Boyer of the Carnegie Foundation for the Advancement of Teaching, defined scholarship in *Scholarship Reconsidered: Priorities of the Professoriate*.¹ It consists of four equally important components:

- 1) *Scholarship of Discovery*, is best defined in academia as original research and its publication. It must contribute to human knowledge, while at the same time contributing to development of the academic environment.
- 2) *Scholarship of Integration* takes new knowledge of research and gives it context and meaning within the profession and in relation to other fields of discipline as well. Again for this type of scholarship to have meaning, it must be presented for general discussion in either oral or written form.
- 3) *Scholarship of Application* in which knowledge gained from research is used to solve important problems of the individual, the community, or the society.
- 4) *Scholarship of Teaching* involves the stimulation of critical thinking in others by someone knowledgeable about their particular field using the latest teaching ideas concerning student learning and assessment.

All of the healthcare professions, including physical therapy, have generally adapted their definitions of scholarship based on some form similar to Boyer's model.^{8,21,24,28}

The Commission for Accreditation of Physical Therapy Education (CAPTE),⁷ applied Boyer's model to physical therapy faculty and provided specific examples of each type.

- 1) Scholarship of Discovery means participation in, and the publication of research for the development of new knowledge, or memberships in societies of research recognition
- 2) Scholarship of Integration consists of publishing or oral presentation of literature reviews, met-analysis, synthesis, and comparison of the literature of our profession with that of other disciplines
- 3) Scholarship of Application is the application of original research to clinical practice, teaching, or learning in order to solve a problem for society
- 4) Scholarship of Teaching, as stated by CAPTE, is more than just “good teaching.” It is the implementation of current ideas about teaching in the field, and might include collaboration and investigation around student learning.

It is expected that all faculty would participate in and complete at least one of the above forms. Activities involving professional development such as the pursuit of advanced degrees, practice to remain current in physical therapy, and public service are not considered scholarly activity.⁷

MEDICINE

In medicine, the most scholarly advanced profession, most authors agree research is necessary for the profession,^{4,11,12,22} but many faculty are concerned the majority of their time must be spent in teaching.²¹ While the priority of research in medical schools was well established in the early 20th century, it was through the establishment of the National Institute of Health in the 1950's that extensive funding was provided for

medical research. The 1960's-1970's brought the development of Academic Medical Centers resulting in an increased need for more clinical faculty to teach and supervise medical students and residents, along with increased revenue to medical schools.⁵

From 1980-1988, many medical schools developed a non-tenure track faculty category of "clinical educator".^{4,5} In addition, with the development of managed care, medical school faculty were pressured to spend more time in clinical activities and less time in research. As a result, today, there are many more clinical faculty than academic/research faculty. Barchi et al.⁵ concluded that the need was great for both teaching and research.⁵

In 1976, Pearse²⁰ studied research productivity in medical faculty and found that, like non-medical PhD faculty, medical faculty demonstrated two distinct peaks in research publication (42-44 yrs career age; 57-59 yrs. career age). These peaks occurred later than for non-medical faculty (40-44 yrs career age; 50-54 yrs. career age). Krumland¹² surveyed scholarly productivity (research and number of publications) of medical faculty during a seven year period. The study group consisted of medical faculty who were in one of the following degree categories: 1) MD with a speciality, 2) PhD, 3) MD with a specialty and an additional masters or PhD degree. He found the number of publications for the entire group to be two articles every two years and that faculty with the MD plus another degree (9%), were the most productive. Their greatest publication rate occurred between 17-29 years into their careers, when they published at a rate of 7-8 articles per year. The faculty with PhDs or MDs only published 3.3-3.5 articles per year.

A recent report by Rosenberg¹¹ noted a serious decline in the “physician-scientist,” the research MD or MD-PhD. Statistics taken from the numbers of projects funded by NIH, showed a 31% decrease over three years in the number of first time applicants. They also showed a 51% decrease in the number medical postdoctoral trainees, and a 4% decline over a seven year period in the number of medical students interested in research careers. Rosenberg noted that at this rate of decline, by 2003 there would no longer be “physician-scientists.”

To encourage more scholarly productivity among medical faculty, several authors have proposed the need for broader definitions of scholarship and the utilization of several types of medical faculty, other than tenured research faculty. Schweitzer²¹ reported on the University of Louisville’s difficulty in utilizing the Boyer model of scholarship for its medical faculty. First, many medical faculty did not understand the model. Although it included four types of scholarship, all medical faculty were still required to do research to achieve promotion or tenure. Second, only seasoned faculty could meet the requirements; junior faculty could not. Third, it was difficult to determine how to assess the four different types of scholarship equally, and as a result excellent teaching faculty were often denied promotion. Katerndahl,²² in an effort to facilitate increased research and publishing among family medicine faculty, implemented a faculty development program. It included discussion groups on faculty research projects, peer evaluations, policies requiring faculty to submit two manuscripts for publication per year, a departmental five year goal plan for publications, and protected time for faculty scholarship. The results of implementing this plan indicate that research forums, method conferences, setting policies, and department goals for research cause an increase in the

number of research projects, while providing protected time for scholarship along with peer discussions on research methods, increases the number of faculty scientific meeting presentations.

In addition to faculty development programs, other authors proposed the need for different levels of faculty.^{4,5} Barchi and Lowery⁵ proposed three types of medical school faculty. The first was the typical tenure track faculty including three different categories: 1) The PhD scientist whose role is research in basic science with limited teaching responsibilities, 2) the physician-scientist whose role is high quality research supported by outside funding, and 3) the clinician with a specialty, responsible for performance of clinical research. Research of the tenure track faculty could be independent or collaborative. Barchi and Lowery's second type of medical faculty is the "clinical educator," whose primary responsibility is education. Clinical educators are required to produce clinically relevant publications such as literature reviews, case-study reviews, chapters or textbooks, and educational materials. The third faculty group is the excellent clinician, known as adjunct with clinical expertise. This group would be used for teaching and supervising students and residents, and would not have imposed scholarship requirements.^{4,5} This group would not qualify for tenure.

Medicine has a long history of scholarship and has looked at creative ways to increase its scholarly productivity incorporating Boyer's model of scholarship, while maintaining excellence in instruction, by attempting to utilize various faculty talents,¹ and at the same time meeting patient care needs.

DENTISTRY

Although dentistry literature indicates the profession's awareness of the need for scholarship and especially research, the emphasis on scholarship developed after medicine's. A 1989 study by Jones et al¹³ indicates that the typical dental faculty member (62.3%, n=203) had been in education for 10 years or less. The study noted that 26% of the faculty obtained a DDS degree, another 65% a DDS and specialty, and the smallest percentage of faculty (9%) obtained a DDS, specialty, as well as a research PhD. For all groups, faculty publication rates increased with the number of years in education, and as in medicine, the rates were highest in the faculty with the combined DDS and PhD. Although clinical faculty were collaborating to produce research, time spent teaching was a deterrent. These authors conclude that an increase in research within dental education was needed to maintain the profession's place in the academic arena.

A 1993 study by Scheetz and Mendel²³ compared changes in the level of scholarship among dental faculty and found that 32.3% of faculty member were publishing 3-5 articles per year, while 21.0% published as many as 6-8 articles per year. In a previous study by the same authors, 20% of the faculty had received tenure with twelve or more publications. In this follow-up study, the authors found 30% of faculty had received tenure with twelve or more publications, a 9% increase over a ten year period.^{23,24}

While some authors in the field of dentistry are convinced that scholarship is necessary for excellence and maintenance of dental programs,²⁴ others are not.²⁵ Menges²⁵ proposes that research appears more important because it increases funding and brings greater visibility to the university. He points out, however, that the public is

discontented with the quality of the practitioner and that teaching excellence in order to prepare quality practitioners is more important. He proposes better documentation of good teaching, as well as teaching new educators how to prepare and teach in a shorter amount of time. Scheetz²³ concludes that bringing in adjunct teachers to replace core faculty, whose primary role was research, was detrimental to student instruction. It lends itself to disconnectedness between student and faculty, to disorganized instruction, and faculty who are unavailable to students for questions and advisement.²⁵

NURSING

In order to strengthen its place in healthcare and academia, the nursing profession has followed a similar but later path of development. In its pursuit toward autonomy of practice, it has also developed specialties, nursing doctorates, and a strong emphasis on scholarship among its faculty.^{26-28,33,34} Niewiandomy¹⁴ studied scholarly activity among nursing faculty and found that 25% were conducting research. A later study by Kohlenberg²⁹ is less optimistic, finding only 6% of faculty productive in the area of research. As in the medical and dental professions, the majority of scholarly research is done by doctorally prepared nursing faculty teaching in schools with graduate programs. In a literature review, Collins²⁹ reported a study by Williams which indicates the most productive nursing faculty produced eight or more articles over a three year period, and that these faculty were more likely than less productive faculty to have collaborated with mentors. Collins also found that nursing faculty spent less time on research and published less than faculty of other academic disciplines. Several authors report although the number of authors increased, the need for research and publication is still great.^{6,27-29,30,31}

Niewiandomy¹⁴ found that faculty with nursing doctorates (83%) were more involved in current research, but only 25% had published the results. For nursing faculty with doctorates in outside fields such as education or public health, less (58%) were involved in current research, but a greater percentage had published.

Several early studies in the 1980's looked at factors that facilitated or hindered scholarship. Again the need for improved research skills, administrative support, a good research environment, and time were important.^{30,32} Covey² and Copp³⁰ both note the need for doctorally prepared nurses. Feldman and Steward³³ describe mentoring from the dean downward as very successful in getting nursing faculty involved in research.

As in the fields of medicine and dentistry, Freund (1990),²⁶ proposed the need for two standards for nursing faculty, in order to promote more research yet maintain good teaching, 1) The tenure track faculty who would spend 55%-60% of their time teaching, 20%-25% of their time in scholarly activity, and the remaining 20% of their time in service activities, and 2) The fixed term nursing faculty, more clinically oriented who would spend 60%-70% of their time teaching.

ALLIED HEALTH

As in medicine, dentistry, and nursing, there have been several similar studies identifying percentages of doctoral faculty and levels of scholarship in allied health faculty as well as helps or deterrents to research, publication, and presentations among allied health faculty.

Several studies indicate a continued increase of doctorally prepared faculty through the 1980s while the percentage of master degree faculty remained essentially the same. Flanigan et al.³⁶ studied the demographics of 2,187 allied health faculty from 10

allied health professions, time they spent on research, and their publication rates. They found 46.7% with masters degrees, and 25.6% with doctorates. In a similar study of 942 faculty, Holcomb and Roush¹⁶ found 47% of allied health faculty in the southeastern United States held masters degrees and 42% held doctorates. Likewise, Hassanein,⁴³ in his small study of 62 allied health faculty from one local school, found 46.8% with masters degrees and 32.3% with doctorates. A more recent study by Waller, et al¹⁰ of 73 allied health deans and program directors indicate the majority (77%) hold PhD degrees

Several researchers have reported time spent on research by allied health faculty. Kramer and Lyons³⁷ reported that the majority of allied health faculty from 50 schools spent the greatest percentage of their time in non-research related areas, especially teaching and administration. The highest mean number of hours reported by Flanigan et al³⁶ was 9 hours per week. Holcomb and Roush¹⁶ reported faculty with the rank of Professor and Assistant Professor averaged 4.4 hours per week, while faculty at the Associate Professor level spent 4.8 hours, and Instructors spent only 2.4 hours per week. Hassanein⁴³ reported hours spent by faculty on research as well as the number of hours allied health faculty desired to spend. Thirty-eight percent spent 1-9% of their work week on research, 29% did not do research at all, and 40% of this same group reported they wished to spend between 20-29% of their week on research. Waller, et al¹⁰ reported the majority (61%) of deans and directors spent 1-8 hours per week on research. During the seven year study, 86% of the deans and directors published and 96% presented papers at scientific meetings.

Flanigan et al³⁶ and Holcomb and Roush¹⁶ both found research productivity significantly was related to faculty academic rank. Flanigan et al. found that 46.1% of

Professors spent the most time on research and along with Associate Professors published 1-3 articles over a five year period. They also found that 68% of Instructors did not publish at all. Holcomb and Roush showed a higher rate for publication in all faculty except Instructors (less than one article). Professors published one article per year and Associate and Assistant Professors published at a rate of one article every two years. Publication rates found in the recent study of deans and directors was higher than expected. Waller, et al¹⁰ in their seven year study found 50% of this group had published one article per year, and 80% had presented six or more times during seven years. These three authors also reported that publications and presentations are done by a select few rather than the majority of faculty.^{10, 16, 36} Holcomb and Roush¹⁶ reported 61% of articles were published by doctoral faculty, and Waller, et al¹⁰ found that of 73 allied health deans and directors, 8 had done 47% of the publications, and 32% of the presentations.

PHYSICAL THERAPY

In her 1973 study, Conine³⁸ found out of 81% of faculty reporting, 59% held masters degrees and 8% held doctorates. The earliest study reported by the APTA (1983),⁴⁰ reported 73% of physical therapy faculty with masters degrees and 16% with doctorates. In a follow-up study of physical therapy faculty in the southeastern United States, Holcomb and Roush⁴⁰ found a 13% increase in doctoral faculty (29.0%). The percentage of doctorally prepared physical therapy faculty showed another 16.5% increase between 1987 and 1994,⁴⁹ however, the percentage of doctoral faculty increased slowly between 1991 (45.5%) and the present time. Harrison and Kelly's⁴¹ study of pre-

tenured faculty indicated 58% held masters degrees, 29% held doctorates, and in 1996 36% were pursuing higher degrees.

Several of the above authors reported times spent on research by physical therapy faculty. Conine³⁸ reported 95% of the faculty in 1975 spent less than 10% of their time on scholarship. Walker et al¹⁵ reported 50% of faculty were not spending any time on research. The majority of faculty who have spent time on research over the last nineteen years have spent between 1-5 hours per week,^{15, 38, 49} and many have stated the greatest deterrent to research time has been teaching loads.^{15, 39-41}

Results concerning physical therapy faculty publication and presentation rates have varied over the last twenty years but appear to be increasing, at least in the more recent studies. The 1983 APTA study reported by Holcomb showed faculty had published 1-3 articles during their entire careers. Holcomb found faculty were publishing at a rate of 0.9 journal articles every two years, and that more doctoral faculty (73%) than masters faculty (36%) had authored three or more articles (1 per 3 years). Several authors have reported publication rates are significantly related to degree or academic rank.^{15,40} More publications were found in the doctorally prepared faculty^{15,40} and at the rank of Professor.⁴⁰

HELPS AND BARRIERS TO SCHOLARSHIP

An important topic of discussion in medicine, dentistry, nursing, allied health, occupational and physical therapy is the helps and deterrents that affected scholarly productivity among faculty. The same problems were identified by multiple authors and over a period of fifteen years. Deterrents identified most often by faculty include:^{2,3,8,10,14,25,38,40,41}

- 1) A lack of time for research due to heavy teaching loads, university committee work, administrative responsibilities, student advisement.
- 2) A lack of research skills such as grant writing, funding, statistics, research design, and writing for publication felt even by doctorally prepared faculty.
- 3) A lack of clinical populations for clinical research.
- 4) Inadequate institutional or departmental administrative support for protected research time.
- 5) Inadequate research environment including space, equipment, mentoring by more experienced faculty, or opportunity for collaborative studies.
- 6) A lack of clarification of importance of research versus teaching.

Factors reported by allied health and physical therapy faculty that are related to increased scholarly productivity among faculty include:

- 1) Faculty degree, especially doctorates requiring research
- 2) Disciplinary prestige
- 3) Promotion opportunities
- 4) Age at receipt of degree and age of first publication
- 5) Colleague support, through sharing of ideas, mentoring, or collaborative study
- 6) Institutional support and challenge
- 7) Administrative protection of time
- 8) Good research environment. ^{36,38,40,41,42}

Review of the literature indicate that a recent update study identifying the current faculty with doctoral degrees has not occurred since 1996. As new entry-level doctoral programs appear at a rapid rate, it will be important to be prepared as faculty for the increased need for expertise in the specific subjects we teach. It is not enough to be up to

date in theory or the relevant literature, or even clinical skills. As a new generation of physical therapy faculty, it will be necessary to show each DPT student the importance of scholarly activity, and how it is done, to make it easier for the next generation of researchers to become educators in our profession, and to encourage them as clinicians to seek new knowledge and publish new findings whether basic science or clinical. This study profiles the physical therapy faculty in 2001, how we have progressed, and where individual faculty members stand in relationship to others.

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APPENDIX B
SURVEY QUESTIONNAIRE



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Scholarly Productivity Questionnaire

For Research use on.,

Please answer the following questions by filling in the appropriate bubbles. Use black ink or pencil.

1. What is your highest degree?	BA, BS <input type="radio"/>	MA, MS, MPT <input type="radio"/>	DPT <input type="radio"/>	DPTSc <input type="radio"/>	Ed.D. <input type="radio"/>	Ph.D. <input type="radio"/>	
2. Approximately what year was the degree granted?	Before 1980 <input type="radio"/>	1981-1989 <input type="radio"/>	1990-1995 <input type="radio"/>	1996-1998 <input type="radio"/>	1999-2000 <input type="radio"/>		
3. If your degree was a Ph.D., Ed.D, or DPT, what was the focus of your research?	None Required <input type="radio"/>	Basic Science <input type="radio"/>	Clinical <input type="radio"/>	Education <input type="radio"/>	Other <input type="radio"/>		
4. Was your research related to P.T.?	Yes <input type="radio"/>	No <input type="radio"/>					
5. What age group applies to you?	20-29 <input type="radio"/>	30-39 <input type="radio"/>	40-49 <input type="radio"/>	50-59 <input type="radio"/>	60-69 <input type="radio"/>	70 and over <input type="radio"/>	
6. What is your gender?	Female <input type="radio"/>	Male <input type="radio"/>					
7. How many years have you been a physical therapy educator?	Less than 1yr <input type="radio"/>	1-5 <input type="radio"/>	6-10 <input type="radio"/>	11-20 <input type="radio"/>	21-30 <input type="radio"/>	30+ <input type="radio"/>	
8. How many hours per week do you work?	Under 20 <input type="radio"/>	20-30 <input type="radio"/>	31-40 <input type="radio"/>	41-50 <input type="radio"/>	50+ <input type="radio"/>		
9. Do you consider yourself full or part time?	Part time <input type="radio"/>	Full Time <input type="radio"/>					
10. As a core faculty member, what is your present academic rank?	Instructor <input type="radio"/>	Assistant Prof. <input type="radio"/>	Associate Prof. <input type="radio"/>	Professor <input type="radio"/>	Professor Emeritus <input type="radio"/>		
11. How many hours/week do you spend teaching? (Direct Student Contact)	None <input type="radio"/>	1-5 <input type="radio"/>	6-10 <input type="radio"/>	11-15 <input type="radio"/>	16-20 <input type="radio"/>	21-30 <input type="radio"/>	30+ <input type="radio"/>
12. How many hours/week do you spend on your own research?	None <input type="radio"/>	1-5 <input type="radio"/>	6-10 <input type="radio"/>	11-15 <input type="radio"/>	16-20 <input type="radio"/>	21-30 <input type="radio"/>	30+ <input type="radio"/>
13. How many hours/week do you spend supervising student research?	None <input type="radio"/>	1-5 <input type="radio"/>	6-10 <input type="radio"/>	11-15 <input type="radio"/>	16-20 <input type="radio"/>	21-30 <input type="radio"/>	30+ <input type="radio"/>
14. Do you have an administrative position?	Yes <input type="radio"/>	No <input type="radio"/>					
15. If you have an administrative position, what is the title? (Answer only if you answered # 14 yes)	Dean of Allied Health <input type="radio"/>	Dept. Chair <input type="radio"/>	Associate Chair <input type="radio"/>	Program Director <input type="radio"/>	Other <input type="radio"/>		
16. How many hours/week do you spend on administrative tasks?	None <input type="radio"/>	1-5 <input type="radio"/>	6-10 <input type="radio"/>	11-15 <input type="radio"/>	16-20 <input type="radio"/>	21-30 <input type="radio"/>	30+ <input type="radio"/>
17. How many different degrees does your program offer?	1 <input type="radio"/>	2 <input type="radio"/>	3 <input type="radio"/>	4 <input type="radio"/>	5 <input type="radio"/>	6 <input type="radio"/>	7+ <input type="radio"/>
18. What is the highest degree your program offers?	Bachelors <input type="radio"/>	Masters <input type="radio"/>	DPT <input type="radio"/>	DPTSc <input type="radio"/>	Ph.D. <input type="radio"/>	Other <input type="radio"/>	
19. How many students are currently registered in your program	<20 <input type="radio"/>	20-40 <input type="radio"/>	41-60 <input type="radio"/>	61-100 <input type="radio"/>	101-130 <input type="radio"/>	131- 150 <input type="radio"/>	150+ <input type="radio"/>
20. How many full time core faculty does your program have?	1-5 <input type="radio"/>	6-12 <input type="radio"/>	13-20 <input type="radio"/>	21-30 <input type="radio"/>	>30 <input type="radio"/>		

Although completion of this page is optional, your opinion is valuable.

1. How do you personally define scholarly activity?

2. In your opinion, how important is scholarly productivity to the provision of quality graduate education?

3. Do you think scholarly productivity is being over emphasized?

Why or Why Not?

4. In your experience, which of the following have been the greatest deterrents to personal scholarly productivity? (Circle one number for each ; 1=greatest deterrent; 3=least deterrent)

Lack of Time	1	2	3
Lack of Support/Resources/Money	1	2	3
No research experts to consult with me	1	2	3
Do not know how to proceed	1	2	3
Have no idea of what to study or produce	1	2	3
Other _____			

5. What would be the most help to you in increasing your scholarly productivity? (Circle one number for each; 1=greatest help; 3= least help)

Release time	1	2	3
Money	1	2	3
Research design experts	1	2	3
Statisticians	1	2	3
Colleagues interested in sharing projects	1	2	3
Connections with editors/ journals	1	2	3
Other _____			

6. What have we left out in the questionnaire?

7. Comments:

APPENDIX C

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Table 3.1. Profile of All Current Physical Therapy Faculty (TF) Responding to the Survey Questionnaire

	%	(n)
≤ 30 years	1.7	(10)
30-39 years	23.8	(143)
40-49 years*	47.7	(286)
50-59 years	22.2	(133)
60-69 years	4.5	(27)
70 or > years	0.2	(1)
Missing**	1.5	(9)
Gender		
Female*	63.9	(333)
Male	36.1	(188)
Missing***	14.4	(88)
Academic Rank		
Instructor	11.9	(71)
Assistant Professor	45.9	(275)
Associate Professor	28.8	(172)
Professor	13.0	(78)
Professor Emeritus	0.5	(3)
Missing***	1.6	(10)
Highest Complete Degree		
Bachelor's	1.8	(11)
Master	46.9	(284)
Doctorate*	51.3	(311)
DPT	0.8	(5)
DPTSc	0.8	(5)
EdD	6.1	(37)
PhD	43.1	(261)
Other	0.5	(3)
Missing***	0.5	(3)
Year Degree Was Granted		
Before 1980	11.7	(65)
1981-1989	30.9	(172)
1990-1995	36.3	(202)
1996-1998	11.8	(66)
1999-2000	9.3	(52)
Missing***	8.5	(52)
Number of Years In Physical Therapy Education		
< 1 year	2.6	(16)
1-5 years	30.6	(185)
6-10 years	27.8	(168)
11-20 years	25.2	(152)
21-30 years	9.6	(58)
> 30 years	4.1	(25)
Missing***	0.8	(5)

Administration Position		
Yes	34.6	(202)
No*	65.4	(381)
Missing***	4.3	(26)

* Highest percentages

** Percentage calculated based on number of respondents who answered this question

*** Percentage of respondents with missing data

Table 3.1 indicates that the highest percentages of faculty were from 40-49 years of age, female, Assistant Professors, with PhD degrees. They completed their degrees before 1996, and had been in education for ten years or less. Most did not hold administrative positions.

Table 5.1 Comparison of Profiles of Three Faculty Groups: Faculty Teaching Non-Doctoral Degree Programs (NDDF), Faculty Teaching in Doctoral Degree Programs (DDF), and Doctorally Prepared Faculty Teaching in Doctoral Degree Programs (DPDDF)

	Non-Doctoral Program Faculty (NDDF)		Doctoral Program Faculty (DDF)		Doctorally Prepared Faculty/Doctoral Programs (DPDDF)	
	(n=448)		(n=148)		(n=91)	
	%**	(n)	%**	(n)	%**	(n)
Age						
<30 years	2.0	(9)	0.7	(1)	0	(0)
30-39 years	24.0	(106)	24.7	(36)	15.4	(14)
40-49 years*	46.0	(203)	52.1	(76)	54.9	(50)
50-59 years	23.1	(102)	18.5	(27)	24.2	(22)
60-69 years	4.5	(20)	4.1	(6)	5.5	(5)
70 or > years	0.2	(1)	0	(0)	0	(0)
Missing***	1.6	(7)	1.4	(2)	0	(0)
Gender						
Female*	63.9	(244)	65.4	(83)	56.2	(41)
Male	36.1	(138)	34.6	(44)	43.8	(32)
Missing***	14.7	(66)	14.2	(21)	19.8	(18)
Academic Rank						
Instructor	11.4	(50)	14.3	(21)	3.3	(3)
Assistant Professor*	45.0	(198)	48.3	(71)	44.4	(40)
Associate Professor	31.4	(138)	21.8	(32)	31.1	(28)
Professor	11.8	(52)	15.0	(22)	21.1	(19)
Professor Emeritus	0.5	(2)	0.7	(1)	0	(0)
Missing***	1.8	(8)	0.7	(1)	1.1	(1)
Highest Completed Degree						
Bachelor's	2.5	(11)	0	(0)	0	(0)
Masters	50.2*	(224)	38.1	(56)	0	(0)
Doctorate	47.3	(211)	61.9*	(91)	100.0*	(91)
DPT	0.4	(2)	2.0	(3)	3.3	(3)
DPTSc	0.7	(3)	1.4	(2)	2.2	(2)
EdD	5.8	(26)	6.8	(10)	11.0	(10)
PhD	39.9	(178)	51.7	(76)	83.5	(76)
Other	0.4	(2)	0	(0)	0	(0)
Missing***	0.4	(2)	0.7	(1)	0	(0)
Year Degree Was Granted						
Before 1980	12.6	(51)	8.1	(11)	7.7	(7)
1981-1989	32.1	(130)	28.9	(39)	29.7	(27)
1990-1995*	34.3	(139)	43.7	(59)	45.0	(41)
1996-1998	12.3	(50)	11.1	(15)	7.7	(7)
1999-2000	8.6	(35)	8.1	(11)	9.9	(9)
Missing***	9.6	(43)	8.8	(13)	0	(0)

**Number of Years in
Physical Therapy
Education**

< 1 year	2.3 (10)	4.1 (6)	1.1 (1)
1-5 years	32.4* (144)	27.0 (40)	20.9 (19)
6-10 years	26.6 (118)	29.7* (44)	25.3 (23)
11-20 years	25.2 (112)	25.7 (38)	35.2* (32)
21-30 years	9.9 (44)	8.1 (12)	11.0 (10)
> 30 years	3.6 (16)	5.4 (8)	6.6 (6)
Missing***	0.9 (4)	0 (0)	0 (0)

**Administrative
Position**

Yes	33.3 (143)	38.0 (54)	44.8 (39)
No*	66.7 (286)	62.0 (88)	55.2 (48)
Missing***	4.2 (19)	4.1 (6)	4.4 (4)

* Highest percentages

** Percentage calculated based on number of respondents who answered this question

*** Percentage of respondents with missing data

Table 5.1 compares faculty demographics of three faculty groups: NDDF, DDF, DPDDF. The highest percentages of all three groups were between 40-49 years of age, female, and Assistant Professors. The highest percentages of the DDF and DPDDF groups were doctorally prepared, while there were slightly more masters degree faculty in the NDDF group.

Table 5.2. Profile of Current Physical Therapy Programs in the United States

	All Programs (n=609)	
	%**	(n)
Number of Degrees Offered		
1*	57.3	(345)
2	24.4	(147)
3	11.1	(67)
4	3.7	(22)
5	2.0	(12)
6	0.7	(4)
7	0.8	(5)
Missing***	1.1	(7)
Highest Degree Offered		
Bachelor's	1.5	(9)
Masters*	72.9	(439)
Doctoral:	25.7	(154)
DPT	9.0	(54)
DPTSc	2.2	(13)
PhD	13.5	(81)
Other Doctoral Degrees	1.0	(6)
Missing***	1.2	(7)
Number of Students		
< 20	2.1	(13)
20-40	19.4	(118)
41-60	15.4	(93)
61-100*	28.8	(175)
101-130	13.0	(79)
131-150	6.1	(37)
> 150	15.2	(92)
Missing***	0.3	(2)
Number of Core Faculty		
1-5	9.1	(55)
6-12*	71.9	(435)
13-20	15.9	(96)
21-30	2.3	(14)
> 30	0.8	(5)
Missing***	0.7	(4)

* Highest percentages

** Percentage calculated based on number of respondents who answered this question

*** Percentage of respondents with missing data

Table 5.2 profiles the Current Physical Therapy Programs in the United States. The majority of faculty teach in programs offering 1-2 degrees, offering an entry-level masters degree, with 100 students or less, and 6-12 core faculty members.

Table 5.3. Comparison of Non-Doctoral Degree Programs with Doctoral Degree Programs in the United States

	Non-Doctoral Degree Programs (NDDF) (n=448)		Doctoral Degree Programs (DDF) (n=148)	
	%**	(n)	%**	(n)
Number of Degrees Offered				
1	71.9*	(320)	14.4	(21)
2	23.8	(106)	26.0	(38)
3	2.9	(13)	35.6*	(52)
4	1.1	(5)	10.3	(15)
5	0.2	(1)	7.5	(11)
6	0	(0)	2.7	(4)
7	0	(0)	3.4	(5)
Missing***	0.7	(3)	1.4	(2)
Highest Degree Offered				
Bachelor's	3.1	(14)	0	(0)
Masters	96.9*	(434)	0	(0)
Doctoral:	0	(0)	100.0	(148)
DPT	0	(0)	36.5	(54)
DPTSc	0	(0)	8.8	(13)
EdD	0	(0)	0	(0)
PhD	0	(0)	54.7*	(81)
Other	0	(0)	0	(0)
Number of Students Currently Registered				
< 20	2.7	(12)	.7	(1)
20-40	24.2	(108)	5.4	(8)
41-60	15.7	(70)	14.2	(21)
61-100	30.9*	(138)	24.3	(36)
101-130	11.6	(52)	17.6	(26)
131-150	4.9	(22)	9.5	(14)
> 150	10.1	(45)	28.4*	(42)
Missing***	0.2	(1)	0	(0)
Number of Core Faculty				
1-5	11.9	(53)	1.4	(2)
6-12	79.6*	(356)	49.7*	(73)
13-20	8.5	(38)	36.1	(53)
21-30	0	(0)	9.5	(14)
> 30	0	(0)	3.4	(5)
Missing***	0.2	(1)	0.7	(1)

* Highest percentages

** Percentage calculated based on number of respondents who answered this question

*** Percentage of respondents with missing data

Table 5.3 compares the profiles of non-doctoral and doctoral degree programs. The majority of faculty teach in programs offering one degree, the entry level masters degree. The majority contain between 20-100 students and 12 or less core faculty.

Table 6.1. Time Total Physical Therapy Faculty (TF) Spent on Major Duties

Time	Teaching	Research	Administration	Supervising Students
	%** (n)	%** (n)	%** (n)	%** (n)
None	1.2 (7)	23.6 (137)	10.7 (52)	23.5 (143)
1-5 hrs/wk	20.1 (121)	46.7* (271)	40.0* (195)	62.7* (381)
6-10 hrs/wk	40.9* (246)	15.3 (89)	17.0 (83)	9.7 (59)
11-15 hrs/wk	26.3 (158)	5.7 (33)	7.6 (37)	2.3 (14)
16-20 hrs/wk	9.3 (56)	4.3 (25)	10.7 (52)	1.6 (10)
21-30 hrs/wk	1.8 (11)	2.2 (13)	9.0 (44)	0 (0)
30+ hrs/wk	0.3 (2)	2.1 (12)	5.1 (25)	0.2 (1)
Missing***	1.3 (8)	4.8 (29)	19.9 (121)	0.2 (1)
Total	(n=609)	(n=609)	(n=609)	(n=609)

* Highest percentages

** Percentage calculated based on number of respondents who answered this question

*** Percentage of respondents with missing data

Table 6.1 compares the time spent by the total respondents on major duties. The majority of faculty spent 6-10 hours per week or less teaching, 1-5 hours per week on research, administration, and supervising student research; 23.5% of the faculty did not supervise student research at all.

Table 6.2. Time Physical Therapy Doctoral Program Faculty (DDF) Spent on Major Duties

Time	Teaching %** (n)	Research %** (n)	Administration %** (n)	Supervising Students %** (n)
None	1.4 (2)	23.0 (32)	11.4 (14)	24.3 (36)
1-5 hrs/wk	26.9 (39)	38.8* (54)	35.8* (44)	53.4* (79)
6-10 hrs/wk	44.1* (64)	16.5 (23)	24.4 (30)	12.8 (19)
11-15 hrs/wk	17.9 (26)	3.6 (5)	7.3 (9)	6.8 (10)
16-20 hrs/wk	7.6 (11)	9.4 (13)	8.9 (11)	2.0 (3)
21-30 hrs/wk	1.4 (2)	4.3 (6)	4.9 (6)	0 (0)
30+ hrs/wk	0.7 (1)	4.3 (6)	7.3 (9)	0.7 (1)
Missing***	2.0 (3)	6.1 (9)	16.9 (25)	0 (0)
Total	(n=148)	(n=148)	(n=148)	(n=148)

* Highest percentages

** Percentage calculated based on number of respondents who answered this question

*** Percentage of respondents with missing data

Table 6.2 profiles time spent by faculty teaching in doctoral degree programs teaching, on research, administration, and supervising student research. The majority spent 6-10 hours per week teaching, 1-5 hours per week on research, on administration, and supervising student research. Close to one fourth of the faculty did not spend any time on research (23.0%), or supervising students (24.3%)

Table 6.3. Time Non-Doctoral Program Faculty (NDDF) Spent on Major Duties

Time	Teaching %** (n)	Research %** (n)	Administration %** (n)	Supervising Students %** (n)
None	1.1 (5)	23.8 (102)	10.7 (38)	23.5 (105)
1-5 hrs/wk	18.3 (81)	49.5* (212)	42.0* (149)	65.3* (292)
6-10 hrs/wk	40.0 (177)	15.0 (64)	14.1 (50)	8.9 (40)
11-15 hrs/wk	28.7 (127)	6.1 (26)	7.6 (27)	0.7 (3)
16-20 hrs/wk	9.7 (43)	2.6 (11)	11.3 (40)	1.6 (7)
21-30 hrs/wk	2.0 (9)	1.6 (7)	10.1 (36)	0 (0)
30+ hrs/wk	0.2 (1)	1.4 (6)	4.2 (15)	0 (0)
Missing* **	1.1 (5)	4.5 (20)	20.8 (93)	0.2 (1)
Total	(n=448)	(n=448)	(n=448)	(n=448)

* Highest percentages

** Percentage calculated based on number of respondents who answered this question

*** Percentage of respondents with missing data

Table 6.3 compares time spent by faculty teaching in the non-doctoral degree programs teaching, on research, administration, and supervising student research. The majority of the faculty spent between 6-20 hours per week teaching, 1-5 hours per week on research and administration, and supervising student research. A large percentage of faculty in this group did not spend any time on research (23.8%) or supervising students (23.5%).

Table 6.4. Time Doctorally Prepared Faculty (DPDDF) Teaching in Doctoral Programs Spent on Major Duties

Time	Teaching %** (n)	Research %** (n)	Administration %** (n)	Supervising Students %** (n)
None	1.1 (1)	8.2 (7)	8.6 (7)	7.7 (7)
1-5 hrs/wk	30.0 (27)	38.8* (33)	34.6* (28)	57.1* (52)
6-10 hrs/wk	43.3* (39)	21.2 (18)	28.4 (23)	20.9 (19)
11-15 hrs/wk	15.6 (14)	2.4 (2)	8.6 (7)	11.0 (10)
16-20 hrs/wk	7.8 (7)	15.3 (13)	8.6 (7)	3.3 (3)
21-30 hrs/wk	2.2 (2)	7.1 (6)	3.7 (3)	0 (0)
30+ hrs/wk	0 (0)	7.1 (6)	7.4 (6)	0 (0)
Missing***	1.1 (1)	6.6 (6)	11.0 (10)	0 (0)
Total	(n=91)	(n=91)	(n=91)	(n=91)

* Highest percentages

** Percentage calculated based on number of respondents who answered this question

*** Percentage of respondents with missing data

Table 6.4 profiles the time spent on major faculty duties by the doctorally prepared faculty teaching in doctoral degree programs. The majority of faculty spend 6-10 hours per week teaching, and at least 1-5 hours per week on research, administration, and supervising students.

Table 13.1. Profile of the TF Group Who Have Not Published or Presented at Scientific Meetings During the Last Five Years (n=81)

	%**	(n)
Age		
<30 years	3.8	(3)
30-39 years	30.0	(24)
40-49 years*	40.0	(32)
50-59 years	25.0	(20)
60-69 years	1.3	(2)
70 or > years	1.2	(1)
Gender		
Female*	81.6	(62)
Male	18.4	(14)
Missing***	6.2	(5)
Academic Rank		
Instructor	35.4	(28)
Assistant Professor*	50.6	(40)
Associate Professor	6.3	(5)
Professor	7.6	(6)
Professor Emeritus	0	(0)
Missing***	2.5	(2)
Highest Completed Degree		
Bachelor's	6.2	(5)
Masters*	77.8	(63)
Doctorate	16.0	(13)
DPT	3.7	(3)
DPTSc	1.2	(1)
EdD	2.5	(2)
PhD*	8.6	(7)
Other	0	(0)
Year Degree Was Granted		
Before 1980	17.1	(13)
1981-1989	25.0	(19)
1990-1995*	31.6	(24)
1996-1998	14.5	(11)
1999-2000	9.2	(7)
Missing***	8.8	(7)
Number of Years in Physical Therapy Education		
<1 year	8.6	(7)
1-5 years*	48.1	(39)
6-10 years	23.5	(19)
11-20 years	13.6	(11)
21-30 years	3.7	(3)
> 30 years	2.5	(2)

Hours of Teaching Per Week

None	5.1	(4)
1-5	29.1	(23)
6-10*	34.2	(27)
11-15	19.0	(15)
16-20	10.1	(8)
21-30	2.5	(2)
> 30	0	(0)
Missing***	2.5	(2)

Hours of Research Per Week

None	59.2	(45)
1-5*	30.3	(23)
6-10	9.2	(7)
11-15	1.3	(1)
16-20	0	(0)
21-30	0	(0)
> 30	0	(0)
Missing***	6.2	(5)

**Hours of Student Supervision
Per Week**

None	40.7	(33)
1-5*	55.6	(45)
6-10	2.5	(2)
11-15	0	(0)
16-20	0	(0)
21-30	0	(0)
> 30	1.2	(1)

Administrative Position

Yes	32.1	(25)
No*	67.9	(53)
Missing***	3.7	(3)

**Hours Spent per Week on
Administration**

None	16.7	(9)
1-5*	29.6	(16)
6-10	7.4	(4)
11-15	9.3	(5)
16-20	14.8	(8)
21-30	13.0	(7)
> 30	9.3	(5)
Missing***	33.3	(27)

Number of Different Degrees

1	70.4	(57)
2	18.5	(15)
3*	4.9	(4)
4	2.5	(2)
5	1.2	(1)
6	0	(0)
7+	2.5	(2)

Highest Degree Offered

Bachelors	2.5	(2)
Masters*	77.5	(62)
DPT	6.3	(5)
DPTSc	6.3	(5)
PhD	5.0	(4)
Other	2.5	(2)
Missing***	1.2	(1)

Number of Students in Program

< 20	7.4	(6)
20-40	25.9	(21)
41-60	13.6	(11)
61-100*	24.7	(20)
101-130	4.9	(4)
131-150	7.4	(6)
>150	16.3	(13)

Number of Core Faculty

1-5	12.5	(10)
6-12*	68.8	(55)
13-20	16.3	(13)
21-30	2.5	(2)
> 30	0	(0)
Missing***	1.2	(1)

* Highest Percentages

** Percentage calculated based on number of respondents who answered this question

*** Percentage of respondents to questionnaire who have missing data for this question

Table 13.1 profiles the total faculty group who have not published or presented at scientific meetings during the last five years (n=81). The majority of these faculty are between 40-49 years of age (40.0%), female (81.6%), Assistant Professors (50.6%), and hold masters degrees (77.8%). They have been in education for 1-5 years or more, and do not hold administrative positions. They teach in small masters degree programs with fewer than 100 students and 6-12 core faculty members.

Table 13.2. Comparison of NDDF Faculty Who Have Not Published But Have Presented at Scientific Meetings (n=162), With NDDF Faculty Who Have Not Published or Presented (n=64) During the Last Five Years

	NDDF Who Have Not Published But Have Presented—Last Five Years (n=162)		NDDF Who Have Not Published or Presented—Last Five Years (n=64)	
	%**	(n)	%**	(n)
Age				
<30 years	3.7	(6)	4.7	(3)
30-39 years	27.3	(44)	29.7	(19)
40-49 years*	44.7	(72)	42.2	(27)
50-59 years	21.7	(35)	23.4	(15)
60-69 years	2.5	(4)	0	(0)
70 or > years	0	(0)	0	(0)
Missing***	0.6	(1)	0	(0)
Gender				
Female*	78.6	(114)	83.6	(51)
Male	21.4	(31)	16.4	(10)
Missing**	10.5	(17)	4.7	(3)
Academic Rank				
Instructor	20.3	(32)	35.5	(22)
Assistant Professor*	55.1	(87)	53.2	(33)
Associate Professor	15.8	(25)	6.5	(4)
Professor	8.2	(13)	4.8	(3)
Professor Emeritus	0.6	(1)	0	(0)
Missing***	2.5	(4)	3.1	(2)
Highest Completed Degree				
Bachelor's	4.3	(7)	7.8	(5)
Masters*	68.9	(111)	78.1	(50)
Doctorates:	26.6	(44)	14.1	(9)
DPT	1.2	(2)	3.1	(2)
DPTSc	0.6	(1)	1.6	(1)
EdD	3.1	(5)	1.6	(1)
PhD	21.1	(34)	7.8	(5)
Other	0.6	(1)	0	(0)
Missing***	0.6	(1)	0	(0)
Year Degree Was Granted				
Before 1980	15.4	(23)	16.7	(10)
1981-1989	25.5	(38)	25.0	(15)
1990-1995*	34.9	(52)	31.7	(19)
1996-1998	14.1	(21)	13.3	(8)
1999-2000	10.1	(15)	13.3	(8)
Missing***	8.0	(13)	6.3	(4)

Years in Physical Therapy**Education**

> 1 year	3.7	(6)	7.8	(5)
1-5 years*	39.1	(63)	51.6	(33)
6-10 years	25.5	(41)	21.9	(14)
11-20 years	21.1	(34)	15.6	(10)
21-30 years	8.1	(13)	3.1	(2)
> 30 years	2.5	(4)	0	(0)
Missing***	0.6	(1)	0	(0)

Hours of Teaching Per Week

None	1.9	(3)	4.8	(3)
1-5	21.1	(34)	31.7	(20)
6-10*	36.0	(58)	34.9	(22)
11-15	29.8	(48)	17.5	(11)
16-20	8.1	(13)	7.9	(5)
21-30	3.1	(5)	3.2	(2)
>30	0	(0)	1.6	(1)
Missing***	0.6	(1)	0	(0)

Hours of Research Per Week

None	44.1	(67)	58.3*	(35)
1-5	45.4*	(69)	33.3	(20)
6-10	6.6	(10)	6.7	(4)
11-15	3.9	(6)	1.7	(1)
16-20	0	(0)	0	(0)
21-30	0	(0)	0	(0)
> 30	0	(0)	0	(0)
Missing***	6.2	(10)	6.3	(4)

**Hours of Student Supervision
Per Week**

None	35.2	(57)	42.2	(27)
1-5*	59.9	(97)	56.3	(36)
6-10	4.3	(7)	1.6	(1)
11-15	0	(0)	0	(0)
16-20	0.6	(1)	0	(0)
21-30	0	(0)	0	(0)
> 30	0	(0)	0	(0)

Administrative Position

Yes	30.2	(48)	31.1	(19)
No*	69.8	(111)	68.9	(42)
Missing***	1.9	(3)	4.7	(3)

**Hours Spent per Week on
Administration**

None	17.8	(21)	18.6	(8)
1-5*	37.3	(44)	30.2	(13)
6-10	8.5	(10)	7.0	(3)
11-15	6.8	(8)	9.3	(4)
16-20	13.6	(16)	14.0	(6)
21-30	11.0	(13)	14.0	(6)
30+	5.1	(6)	7.0	(3)
Missing***	27.2	(44)	32.8	(21)

Number of Different Degrees				
1*	75.3	(122)	82.8	(53)
2	22.2	(36)	17.2	(11)
3	1.9	(3)	0	(0)
4	0.6	(1)	0	(0)
5	0	(0)	0	(0)
6	0	(0)	0	(0)
7	0	(0)	0	(0)
Highest Degree Offered				
Bachelors	3.1	(5)	3.1	(2)
Masters*	96.9	(157)	96.9	(62)
Doctorate	0	(0)	0	(0)
Number of Students in Program				
< 20	4.3	(7)	9.4	(6)
20-40	25.5	(41)	31.3	(20)
41-60	12.4	(20)	14.1	(9)
61-100*	29.8	(48)	28.1	(18)
101-130	12.4	(20)	3.1	(2)
131-150	4.3	(7)	3.1	(2)
>150	11.2	(18)	10.9	(7)
Missing***	0.6	(1)	0	(0)
Number of Core Faculty				
1-5	13.7	(22)	15.9	(10)
6-12*	76.4	(123)	77.8	(49)
13-20	9.9	(16)	6.3	(4)
> 20	0	(0)	0	(0)
Missing***	0.6	(1)	1.6	(1)

* Highest Percentages

** Percentage calculated based on number of respondents who answered this question

*** Percentage of respondents to questionnaire who have missing data for this

Table 13.2 profiles faculty teaching in non-doctoral degree programs who have not published but have presented at scientific meetings with faculty who have not published or presented during the last five years. They look essentially the same. The majority are between 40-49 years of age, female, Assistant Professors, with masters degrees, and have been in education for 1-5 years. They do not hold administrative positions, but spend 1-5 hours per week on administration. Most do not spend any time on research.

Table 13.3. Comparison of DDF Faculty Who Have Not Published But Have Presented at Scientific Meetings (n=35), with DDF Faculty Who Have Not Published or Presented (n=14) During the Last Five Years

	DDF Who Have Not Published But Have Presented—Last Five Years (n=35)		DDF Who Have Not Published or Presented—Last Five Years (n=14)	
	%**	(n)	%**	(n)
Age				
<30 years	2.9	(1)	0	(0)
30-39 years	38.2	(13)	38.5	(5)
40-49 years*	41.2	(14)	30.8	(4)
50-59 years	14.7	(5)	23.1	(3)
60-69 years	2.9	(1)	7.7	(1)
70 or > years	0	(0)	0	(0)
Missing***	2.9	(1)	7.1	(1)
Gender				
Female*	72.7	(24)	75.0	(9)
Male	27.3	(9)	25.0	(3)
Missing***	5.7	(2)	14.3	(2)
Academic Rank				
Instructor	31.4	(11)	42.9	(6)
Assistant Professor*	62.9	(22)	42.9	(6)
Associate Professor	0	(0)	0	(0)
Professor	5.7	(2)	14.3	(2)
Professor Emeritus	0	(0)	0	(0)
Highest Completed Degree				
Bachelor's	0	(0)	0	(0)
Masters	77.1	(27)	78.6	(11)
Doctorate*	5.7	(2)	21.3	(3)
DPT	0	(0)	7.1	(1)
DPTSc	5.7	(2)	0	(0)
EdD	11.4	(4)	7.1	(1)
PhD*	0	(0)	7.1	(1)
Other	0	(0)	0	(0)
Year Degree Was Granted				
Before 1980	13.3	(4)	15.4	(2)
1981-1989	23.3	(7)	23.1	(3)
1990-1995*	30.0	(9)	30.8	(4)
1996-1998	23.3	(7)	23.1	(3)
1999-2000	10.0	(3)	7.7	(1)
Missing***	14.3	(5)	7.1	(1)

Number of Years in Physical Therapy Education

< 1 years	11.4	(4)	14.3	(2)
1-5 years*	40.0	(14)	42.9	(6)
6-10 years	31.4	(11)	28.6	(4)
11-20 years	8.6	(3)	0	(0)
21-30 years	2.9	(1)	0	(0)
> 30 years	5.7	(2)	14.3	(2)

Hours of Teaching Per Week

None	3.0	(1)	7.7	(1)
1-5	27.3	(9)	23.1	(3)
6-10*	39.4	(13)	30.8	(4)
11-15	15.2	(5)	15.4	(2)
16-20	12.1	(4)	7.8	(3)
> 20	3.0	(1)	7.1	(1)
Missing***	5.7	(2)	0	(0)

Hours of Research Per Week

None*	54.5	(18)	53.8	(7)
1-5	24.2	(8)	23.1	(3)
6-10	18.2	(6)	23.1	(3)
11-15	3.0	(1)	0	(0)
16-20	0	(0)	0	(0)
21-30	0	(0)	0	(0)
> 30	0	(0)	0	(0)
Missing***	5.7	(2)	7.1	(1)

Hours of Student Supervision

None	51.4	(18)	35.7	(5)
1-5*	37.1	(13)	50.0	(7)
6-10	8.6	(3)	7.1	(1)
11-15	0	(0)	0	(0)
16-20	0	(0)	0	(0)
21-30	0	(0)	0	(0)
> 30	2.9	(1)	7.1	(1)

Administrative Position

Yes	26.5	(9)	28.6	(4)
No*	73.5	(25)	71.4	(10)
Missing***	2.9	(1)	0	(0)

Hours Spent per Week on Administration

None	13.0	(3)	12.5	(2)
1-5*	43.5	(10)	37.5	(3)
6-10	13.0	(3)	0	(0)
11-15	0	(0)	0	(0)
16-20	8.7	(2)	25.0	(2)
21-30	8.7	(2)	0	(0)
> 30	13.0	(3)	25.0	(2)
Missing***	34.3	(12)	42.9	(6)

Number of Different Degrees				
1	20.0	(7)	21.4	(3)
2	22.9	(8)	21.4	(3)
3*	28.6	(10)	28.6	(4)
4	8.6	(3)	7.1	(1)
5	11.4	(4)	7.1	(1)
6	2.9	(1)	0	(0)
7+	5.7	(2)	14.3	(2)
Highest Degree Offered				
Bachelors	0	(0)	0	(0)
Masters	0	(0)	0	(0)
DPT*	40.0	(14)	35.7	(5)
DPTSc	17.1	(6)	35.7	(5)
PhD	42.9	(15)	28.6	(50)
Other	0	(0)	0	(0)
Number of Students in Program				
< 20				
20-40	5.7	(2)	7.1	(1)
41-60	17.1	(6)	14.3	(2)
61-100*	28.6	(10)	14.3	(2)
101-130	14.3	(5)	14.3	(2)
131-150	14.3	(5)	21.4	(3)
>150	20.0	(7)	28.6	(4)
Number of Core Faculty				
1-5	0	(0)	0	(0)
6-12*	47.1	(16)	35.7	(5)
13-20	47.1	(16)	50.0	(7)
21-30	5.9	(2)	14.3	(2)
> 30	0	(0)	0	(0)
Missing***	2.9	(1)	0	(0)

* Highest Percentages

** Percentage calculated based on number of respondents who answered this question

*** Percentage of respondents to questionnaire who have missing data for this question

Table 13.3 compares faculty teaching in doctoral degree programs who have not published but have presented at scientific meetings during the last five years and faculty who have not published or presented during the same five year period. The majority are 40-49 years of age or younger, with masters degrees and have been in education for 1-10 years. They teach 6-10 hours per week, and the majority (54.5% or 53.8%) do not spend any time on research.

Table 17.1. Number of Book Reviews or Editorials During the Last Five Years by Degree (n=603)*

	Bachelor's	Masters	DPT	DPTSc	EdD	PhD
Number	%** (n)	%** (n)	%** (n)	%** (n)	%** (n)	%** (n)
None	72.7 (8)	73.4 (204)	80.0 (4)	50.0 (2)	45.9 (17)	52.2 (131)
1	18.2 (2)	8.6 (24)	20.0 (1)	0 (0)	13.5 (5)	14.7 (37)
2-5	9.1 (1)	12.2 (34)	0 (0)	25.0 (1)	29.7 (11)	23.1 (58)
> 5	0 (0)	5.8 (16)	0 (0)	25.0 (1)	10.8 (4)	10.0 (25)
Missing ***	0 (0)	2.1 (6)	0 (0)	20.0 (1)	0 (0)	3.8 (10)
Total	(n=11)	(n=284)	(n=5)	(n=5)	(n=37)	(n=261)

* The data of other doctoral degrees were not included in this table (n=6)

** Percentage calculated based on number of respondents who answered this question

*** Percentage of respondents to questionnaire who have missing data for this question

Table 17.1 profiles the percentages of faculty who published book reviews or editorials during the last five years. The highest percentage of faculty in this category was in the group that did not publish at all, 72.6% of those who answered this question. Of those who did publish book reviews or editorials, the highest percentage of faculty held PhD degrees (47.8%), followed by faculty with Master degrees (26.6%).

Table 17.2. Number of Conferences Attended During the Last Five Years by Degree (n=603)*

Number	Bachelor's	Masters	DPT	DPTSc	EdD	PhD
	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)
None	9.1 (1)	2.8 (8)	0 (0)	0 (0)	0 (0)	1.2 (3)
1	36.4 (4)	3.9 (11)	0 (0)	0 (0)	0 (0)	2.7 (7)
2-5	27.3 (3)	49.1 (139)	60.0 (3)	40.0 (2)	27.0 (10)	32.8 (85)
> 5	27.3 (3)	44.1 (125)	40.0 (2)	60.0 (3)	72.9 (27)	63.3 (164)
Missing	0 (0)	0.4* (1)	0 (0)	0 (0)	0 (0)	0.8* (2)
Total	(n=11)	(n=284)	(n=5)	(n=5)	(n=37)	(n=261)

* The data of other doctoral degrees were not included in this table (n=6)

** Percentage calculated based on number of respondents who answered this question

*** Percentage of respondents to questionnaire who have missing data for this question

Table 17.2 profiles the percentage of faculty who participated in conference attendance during the last five years. All groups showed high attendance to 2-5 or more conferences during the last five years.

Table 17.3. Number of Course Taught During the Last Five Years by Degree (n=603)*

Courses	Bachelor's	Masters	DPT	DPTSc	EdD	PhD
	%** (n)	%** (n)	%** (n)	%** (n)	%** (n)	%** (n)
None	20.0 (2)	2.4 (6)	0 (0)	0 (0)	29.4 (10)	3.1 (7)
1	20.0 (2)	4.4 (11)	0 (0)	0 (0)	20.6 (7)	6.3 (14)
2-5	20.0 (2)	17.5 (44)	75.0 (3)	0 (0)	5.9 (2)	20.5 (46)
> 5	40.0 (4)	75.8 (191)	25.0 (1)	100.0 (4)	44.1 (15)	70.1 (157)
Missing ***	9.1 (1)	11.3 (32)	20.0 (1)	20.0 (1)	8.1 (3)	14.2 (37)
Total	(n=11)	(n=284)	(n=5)	(n=5)	(n=37)	(n=261)

* The data of other doctoral degrees were not included in this table (n=6)

** Percentage calculated based on number of respondents who answered this question

*** Percentage of respondents to questionnaire who have missing data for this question

Table 17.3 compares the number of courses taught by faculty degree, during the last five years. The highest percentage of faculty in all groups except those with DPT degrees taught more than five courses during the last five years. The majority of faculty with DPT degrees taught 2-5 courses.

Table 17.4 Number of Physical Therapy Education Courses Developed or Enhanced During the Last Five Years by Degree (n=603)*

Number	Bachelor's	Masters	DPT	DPTSc	EdD	PhD
	%** (n)	%** (n)	%** (n)	%** (n)	%** (n)	%** (n)
None	18.2 (2)	9.3 (26)	0 (0)	0 (0)	2.8 (1)	7.0 (18)
1	9.1 (1)	12.5 (35)	20.0 (1)	0 (0)	2.8 (1)	12.5 (32)
2-5	54.5 (6)	50.0 (140)	60.0 (3)	60.0 (3)	38.9 (14)	54.3 (139)
> 5	18.2 (2)	28.2 (79)	20.0 (1)	40.0 (2)	55.6 (20)	26.2 (67)
Missing ***	0 (0)	1.4 (4)	0 (0)	0 (0)	2.7 (1)	1.9 (5)
Total	(n=11)	(n=284)	(n=5)	(n=5)	(n=37)	(n=261)

* The data of other doctoral degrees were not included in this table (n=6)

** Percentage calculated based on number of respondents who answered this question

*** Percentage of respondents to questionnaire who have missing data for this question

Table 17.4 profiles development or enhancement of physical therapy courses over the last five years. The number of courses developed by the highest percentages of faculty in every degree group, except the EdD group, was 2-5 courses. For faculty member with EdD degrees the greatest percentage was more than five courses (55.6%).

APPENDIX D
LETTER TO DIRECTOR
LETTER TO FACULTY MEMBERS

Carrie Caron
2014-07-27

LETTER TO DIRECTOR

Nancy R. Robbins, PhD, PT
Director of Physical Therapy Program
Billings University
PO Box 2043
Los Angeles, CA 90024

December 27, 2000

Dear Dr. Robbins:

Physical Therapy faculty face the frustrating dilemma of our present academic demands and, at the same time, the increasing need to participate in "scholarly activity." Scholarly productivity is also an important issue in the accreditation or re-accreditation of our schools, especially the publication of original research. In addition, as entry-level doctoral programs proliferate each year, there is a greater demand for doctoral level faculty who are involved in various forms of scholarship, such as publications, peer presentations, and development of quality continuing education courses. As full time core faculty, we need to consider whether we are ready for the increased demands being placed on us.

We need to know what scholarly work has been completed over the last five to ten years, and who has done it. The information from this survey will be beneficial to all physical therapy programs. It will assist us in recognizing current standards within our profession, allow us to see where we rank in comparison to other allied health and medical professions, provide a foundation for discussion of whether we as educators are prepared for the proliferation of DPT programs. It will also help us speak to administrators concerning reasonable faculty loads.

This study will attempt to answer the question of performance of scholarly productivity among core physical therapy faculty. It will determine:

- a. How many full time core faculty are directly participating in scholarly activity, and to what degree over the last five and ten years versus their entire career?
- b. What prevents us as faculty from engaging in scholarly activity?

Your help as a director is necessary if the results are to be comprehensive and accurate. Enclosed you will find surveys specifically labeled for you and each of your core faculty members named in your school catalogue or taken from your website. Please disseminate them and encourage your faculty to complete them. The questionnaire will take about ten minutes to complete. Each faculty should return their survey directly to me in the stamped self-addressed envelope attached to their survey.

Please take time to fill out your own survey and return it by January 25, 2001. If your faculty members have changed and there are surveys, feel free to give them to other core faculty members. If you need more surveys, please list the number of surveys you still need on the yellow self-addressed postcard included in your packet. I also need to know the number of surveys you have received and the number you have given out. If needed, I will send you additional surveys. A summary of the overall results will be sent to you as well. Thank you for your assistance.

Sincerely,

Ardith Williams-Meyer, MA, PT, PCS

LETTER TO FACULTY MEMBERS

Ardith Williams-Meyer, MA, PT, PCS
Department of Physical Therapy

Assistant Professor
901 E. Alosta Avenue

Azusa Pacific University
Azusa, CA 91702-7000

January 3, 2001

Dear Faculty Member:

As you are probably already aware, the demand for scholarly productivity by physical therapy educators is rapidly increasing, especially publication of original research.

In October, the Education Section of the APTA dispersed a report on PT programs and faculty data at a Physical Therapy Education Administrators' meeting. Although it included topics such as workload, faculty to student ratios, demographics and salaries, it did not include current information on scholarly activity by PT educators. The APTA's last study of this topic was published in 1983.

The responsibility for changing the entry-level degree from a master's to a doctorate has been placed on us, the full time physical therapy educators. Doctoral level programs require doctoral level faculty who are involved in ongoing research. As faculty, we need to be very aware of the demands this will place on each of us.

Like you, I am a full time faculty member in physical therapy education and concerned about the above issues. For this reason I have chosen to examine scholarly productivity within our existing physical therapy education system as my doctoral research topic. This study will determine:

- a. How many full time core faculty are directly participating in scholarly activity, and to what degree over the last 10 years versus their entire career?
- b. What prevents us, as faculty, from engaging in scholarly activity?

The information from this survey will be beneficial to all physical therapy programs. It will assist us in recognizing current standards within our profession, allow us to see where we rank in comparison to other allied health professions, provide a foundation for discussion of whether we are prepared for the proliferation of DPT programs, and determine if current physical therapy educators are prepared to provide the level of education required for doctoral programs. It will also help us speak to administrators concerning reasonable faculty loads. As a core faculty member in a physical therapy program, your input and feedback is critical to this study and the future of our profession. It will take about ten minutes to complete the survey. Please return it by January 25, 2001.

By completing the attached survey you acknowledge your voluntary consent to participate in the study. Enclosed is a stamped, self-addressed envelope for your convenience. It is coded by state and school only. If you do not return your cover letter with your survey, your response will be anonymous within your school. If you have any questions, please call me at: (626) 815-5023 or e-mail at ameyer@apu.edu. You may also contact my committee chair, Everett Lohman, DPTSc,

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PT, OCS at Loma Linda University: (909) 558-4632, ext. 83171, or e-mail him at: elohman@sahp.llu.edu. Your assistance is necessary for the accuracy of this study and greatly appreciated. Thank you for your help.

Ardith Williams-Meyer, PT, PCS
Assistant Professor