

A Needs Assessment for an External Doctor of Pharmacy Degree Program

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A needs assessment was conducted in the Fall of 1994 among a stratified random sample of North Carolina pharmacists in order to: (i) determine the level of interest of North Carolina pharmacists in obtaining a doctor of pharmacy degree through an external format; (ii) examine reasons for interest in an external doctor of pharmacy program; and (iii) evaluate program design strategies for an external doctor of pharmacy curriculum. Among the 917 respondents (62.9 percent of those surveyed) were 389 pharmacists (42 percent) who were interested in obtaining a PharmD degree on a part-time basis through an external program; 173 (19 percent) who indicated interest at a later time; and 355 (38.7 percent) who indicated no interest. The most important reasons given for seeking a doctor of pharmacy degree were: (i) increased knowledge and skills, and (ii) personal satisfaction.

INTRODUCTION

The most recent survey results regarding interest in a non-traditional program were published during 1994 in this journal(1). Data for this survey was collected during 1991 prior to the voting by the American Association of Colleges of Pharmacy (AACP) House of Delegates to move to the entry level PharmD degree. Other survey results were published during the 1980s(2-5).

Nontraditional doctor of pharmacy programs have been available to limited numbers of pharmacists for the last decade. Some early curricula expected pharmacists to, in effect, forego their careers and personal lives while meeting curricular requirements. Greater numbers of nontraditional programs are emerging, and many are utilizing creative curricular strategies to better facilitate pharmacists' participation. Principles of adult education teach that adult students differ in more than age from their younger counterparts. They have self-defined goals, desire immediate relevancy and have many potentially competing roles. Adult

students bring a wealth of experience to the learning activity, and instruction can be designed to take advantage of an adult's life experiences and expertise(7).

In structuring program delivery strategies, the educator strives to select delivery methods that relate to specific needs and preferences of a targeted audience. When planning programs for the adult student, flexible and varied alternatives in terms of time and place must be considered. In addition, the unique needs of the adult student must be considered when developing admissions criteria, orientation processes and advising activities(8).

Belsheim emphasized the importance of market assessment by schools and colleges of pharmacy before beginning external doctor of pharmacy programs (PharmD). He suggested that it is important to investigate the motivations, likely deterrents, and degree of respondent commitment in order to determine the potential success of such programs. A nontraditional program will have sufficient participation, if the program requirements and instruction match the

Table I. Demographic characteristics and interest in external PharmD program

Characteristic	Interest in an external PharmD program ^a					
	Yes	Percent	Yes, later	Percent	No	Percent
Age (Years) ^b	389	(100.0)	173	(100.0)	355	(100.0)
23-29	85	(21.9)	31	(17.9)	47	(13.2)
30-39	155	(39.8)	79	(45.7)	94	(26.5)
40-49	99	(25.4)	42	(24.3)	84	(23.7)
50+	50	(12.9)	21	(12.1)	130	(36.6)
Gender ^c	368	(100.0)	161	(100.0)	344	(100.0)
Male	179	(48.6)	63	(39.1)	207	(60.2)
Female	189	(51.4)	98	(60.9)	137	(39.8)

^aSome respondents failed to answer every question.

^b $\chi^2 = 80.24$; $df = 6$; $P < 0.05$.

^c $\chi^2 = 21.43$; $df = 2$; $F < 0.05$.

Table II. Practice site and interest in external PharmD program

Practice site ^b	Interest in an external PharmD program ^a					
	Yes	Percent	Yes, later	Percent	No	Percent
	356	(100.0)	160	(100.0) ^c	325	(100.0)
Chain	131	(36.8)	59	(36.9)	143	(44.0)
Independent	70	(19.7)	39	(24.4)	104	(32.0)
Hospital	155	(43.5)	62	(38.8)	78	(24.0)

^aSome respondents failed to answer every question.

^b $\chi^2 = 32.1$; $df = 4$; $P < 0.05$.

^cTotal does not equal 100 percent because of rounding.

reasons for participation(2).

A plan was formulated to determine the extent of interest among North Carolina pharmacists in obtaining a doctor of pharmacy degree in an external format, to examine their reasons for wanting to enroll, and to make recommendations regarding program design and delivery for an external doctor of pharmacy degree program.

METHODS

A survey instrument¹ was developed to address interest in an external doctor of pharmacy degree program, motivations, program design and delivery, and demographics. A pilot test of the instrument was conducted using a convenience sample of 20 North Carolina community and hospital pharmacists. Items were revised based on the results of the pilot test.

In September 1994, the survey was mailed to a stratified random sample of 1,459 North Carolina pharmacists. The sample was selected from among the 4,528 community and hospital pharmacists residing in North Carolina identified by the North Carolina Board of Pharmacy. Stratification was designed to ensure that gender and practice setting were adequately represented in the sample. A sample size of 1,459 would assure that responses would, with 95 percent certainty, fall within an error range of five percent, based upon a return rate of 50 percent. The study sample included 289 male chain pharmacists, 272 female chain pharmacists, 269 male independent pharmacists, 152 female independent pharmacists, 231 male hospital pharmacists, and 246 female hospital pharmacists. Reminder post cards were mailed at two week and one month intervals to those who had not responded.

¹A copy of the survey instrument may be obtained from the corresponding author.

Frequency analysis and the chi-square statistic were used for data analysis. Kendall coefficient of concordance was used to determine the association of rankings among the chain, independent and hospital respondents.

RESULTS

Of the 1,459 surveys mailed, 917 (62.9 percent) were returned. Data describing the demographic characteristics for respondents are presented in Table I. Forty-two percent (389) of the respondents indicated interest in obtaining a PharmD degree on a part-time basis through an external program. Nineteen percent (173) indicated they might be interested at a later time. A total of 355 pharmacists (38.7 percent) indicated they were not interested and would not be interested in the program.

Among the 389 respondents who indicated interest, the mean age was 37 years with no significant difference between males and females. Though not reported in Table I, the greatest number of respondents in this category were "married with children."

As shown in Table II, the largest percentage of the 356 respondents indicating interest in the external doctor of pharmacy program identified themselves as hospital pharmacists (43.5 percent). Chain pharmacists were the second largest group, 36.8 percent of those expressing interest. Chain pharmacists represented the largest proportion of respondents who indicated no interest in obtaining a doctor of pharmacy degree in an external format (44.0 percent).

Respondents who indicated either interest now or at a later time were asked to identify the importance of each of eight reasons for seeking a PharmD degree (Table III). They were asked to rate the importance of each reason on a five-point Likert scale. The two most important reasons for seeking a PharmD degree by this group were "increased

Table III. Reasons for pursuing an external PharmD degree

Reason	Mean score ^a	SD
Increased knowledge and skill	1.33	0.63
Personal satisfaction	1.74	0.84
Career advancement	2.51	1.19
Job mobility	2.53	1.25
Job security	2.64	1.24
Potential for increasing income	2.94	1.18
Job requirement	3.68	1.24
Status of doctoral title	3.83	1.13

^aA Likert scale of 1 (very important) to 5 (not important) was used for this question.

knowledge and skills” and “personal satisfaction.” Approximately 80 percent (310) who answered this question ranked increased knowledge and skill as very important. Among 386 respondents, 204 (52.8 percent) indicated personal satisfaction as very important. The least important reason identified for pursuing an external PharmD degree was status of a doctoral title.

The Kendall coefficient of concordance was used to determine the strength of association among three types of pharmacy practice settings in rankings of the three most important reasons for seeking a doctor of pharmacy degree in an external format. The results showed that chain, independent and hospital pharmacy respondents were not statistically different from each other with respect to their reasons for seeking a PharmD degree. Increased knowledge and skill was ranked as most important by all three groups of pharmacists. Personal satisfaction was ranked second, and job mobility was third.

The survey asked respondents to select the method of instruction preferred for core courses in an external PharmD program. The majority of the respondents (69.4 percent) selected a combination of self-study and scheduled classes. Self-study alone was selected by 24.8 percent of the pharmacists. Respondents were asked to rank order their preference for self-study methods (Table IV). Forty-eight percent of the pharmacists ranked printed material as most preferred. Videotape was ranked as most preferred by 39.3 percent. Only 1.3 percent ranked audiotape as most preferred. The Kendall coefficient of concordance was used to determine the strength of association between rankings of self-study methods by chain, independent and hospital pharmacists. Chain, independent and hospital pharmacists were not statistically different with respect to preference for self-study methods. All three groups ranked printed material as most preferred. Videotape was ranked second, and audio-

tape was least preferred by all three groups.

When asked to rank order class styles for classes conducted off-campus at regional sites throughout the state, the majority of the respondents (79.4 percent) selected “lecture, on site” as most preferred. There was little difference between the preferences for interactive teleconference and videotape with discussion as shown in Table IV. Interactive teleconference was ranked most preferred by 10.2 percent, while videotape with discussion was ranked most preferred by 10.9 percent. Chain, independent and hospital pharmacists all ranked lecture on site as most preferred. Interactive teleconference was least preferred by both chain and independent respondents, while videotape with discussion was least preferred by respondents working in hospitals.

When respondents were asked about their preference regarding how to complete full-time clerkships, 59.8 percent indicated a preference for completing a one-month rotation twice each year until all clerkships are completed. Chain, independent and hospital pharmacists all expressed a preference for completing one, one-month rotation twice each year until all are completed as shown in Table V.

For part-time clerkships, 53.6 percent indicated a preference for a schedule of four to five hours on scheduled days until objectives are completed. Chain, independent and hospital respondents all expressed a preference for a schedule of four to five hours per day on scheduled days until objectives are completed (Table VI).

Respondents were asked if a total tuition cost of \$12,000 would prohibit their participation in an external doctor of pharmacy degree program. One hundred forty-five of the 553 respondents (26.2 percent) indicated that a tuition cost of \$12,000 would prohibit their participation. Three hundred respondents (54.2 percent) indicated that a \$12,000 tuition would not prohibit their participation, but would make it difficult. About one-third (197; 31.7 percent) suggested their employer would pay the entire cost of tuition. Most of the survey participants (68.3 percent) did not know what percentage would be paid by their employer.

Respondents were also asked if their employer would allow time off for them to pursue a PharmD degree. Respondents included 34 (6.6 percent) who indicated that their employer would allow time for them to pursue the PharmD degree on a part-time basis. About 18 percent (94) replied that their employer would not allow time. Two hundred and ninety-eight of the 518 respondents (57.5 percent) indicated that they did not know if their employer would allow time off for them to pursue the degree.

Table IV. Ranks assigned to teaching learning preferences of respondents (1 = most preferred)

	Self-study ^a			Class style ^b			
	Printed material	Videotape	Audiotape	Computer assisted instruction	Lecture on site	Interactive teleconference	Videotape with discussion
Chain	1	2	4	3	1	3	2
Independent	1	2	4	3	1	3	2
Hospital	1	2	4	3	1	2	3

Kendall coefficient of concordance (W)

^aW = 1.0; *P* < 0.05.

^bW = 0.78; *P* < 0.05.

Table V. Ranks assigned to preference for completing full-time clerkships (1 = most preferred)

	Complete all clerkships in one block	Complete two one-month rotations every summer until all are completed	Complete one, one-month rotation twice each year until all are completed
Chain	2	3	1
Independent	3	2	1
Hospital	2	3	1

Kendall coefficient of concordance (W)

^aW = 0.78; P < 0.05.

DISCUSSION

These results are similar to the results of surveys conducted in Pennsylvania, Kentucky, and previously in North Carolina. Of the 278 evaluable surveys returned in a 1991 study in Pennsylvania (1), the level of interest in a nontraditional PharmD program indicated that 38 would enroll (13.7 percent) and 83 probably would enroll (29.9 percent) for a potential total of 43.6 percent. A 1979 Kentucky study (3) found 47 percent of the 202 pharmacists surveyed were interested in an external PharmD program. A 1993 unpublished survey conducted by the North Carolina Society of Hospital Pharmacists² found 48 percent of the 138 respondents were interested in an external PharmD program. Surveys in Illinois and South Carolina found, respectively, 62 percent (547 respondents) and 49.7 percent (654 pharmacists responding) of pharmacists were interested (2,5).

Hospital pharmacists comprise the largest group (43.5 percent) interested in an external PharmD degree. Previous studies have shown that hospital pharmacists have been the largest group interested in obtaining a doctor of pharmacy degree in an external format. Piascik and Lubawy(6) indicated that 79 percent of the off-campus PharmD students came from hospital practice.

The results of this study have shown that the "typical" North Carolina pharmacist interested in obtaining a doctor of pharmacy degree in an external format is married with children, employed full-time, and in the age range 30-39. Piascik and Lubawy(6) described the typical off-campus doctor of pharmacy student at Kentucky as married with children, with an average of five years invested in a career (usually in hospital practice). The typical nontraditional student enrolled in the University of Illinois at Chicago was characterized as a 34-year-old full-time hospital pharmacist(6).

The results of this study with regard to motivation are similar to results from previous surveys. The 1993 unpublished survey of North Carolina hospital pharmacists demonstrated that increased knowledge and skill was the most important reason for seeking a PharmD degree through an external program. Personal fulfillment and preparation for a future position tied for second and third places. In Kentucky (3), pharmacists listed "increased knowledge in order to help patients" as a reason for wanting to pursue a doctor of pharmacy degree through an external program. Belsheim(2) found: (i) increased knowledge and skills; (ii) a desire to better serve patients; and (iii) an opportunity for career advancement as the most important reasons for wanting to obtain a doctor of pharmacy degree in an external format. The status of a doctoral title was least important.

Since 339 of the 378 pharmacists who responded "yes" when asked about interest in obtaining a PharmD degree in an external program are employed full-time, it is not surprising to see a desire for self-study materials. Furthermore, with the success of the North Carolina Area Health Education Centers in providing continuing education for pharmacists, it is not surprising that the respondents' preference includes a combination of self-study and scheduled classes. Lubawy, *et al.*(3) found that Kentucky pharmacists had a preference for correspondence courses as a delivery format for an external PharmD program. Videotaped lectures viewed at students' convenience ranked a close second, while live lectures in Lexington were least preferred.

Results of the survey clearly signal the Planning Committee, the Pharmacy faculty, and the University administration that there is strong interest and commitment among North Carolina pharmacists for an accessible, flexible external PharmD degree. Whether these findings may be extrapolated to other states and schools of pharmacy is uncertain. Since this study is one of the most recent, the results may be more predictive. Practitioner interests in external professional programs may be stimulated by continuing redefinition of the profession's central mission. Pharmacists are most interested in enhancing their knowledge and skill and presumably their service to the patients for whom they care. Degree title does not appear to be a strong motivation. Thus, schools of pharmacy are faced with an ideal opportunity to partner with the profession in developing nontraditional curricula that meet the needs of pharmacists interested in extending their knowledge. Their challenge will be to continue integrity and quality in curricula delivered whether by mail, e-mail, video, or computer.

²William L. Harris, Duke University Medical Center, Durham, North Carolina, February 5, 1993 (personal communication).

Table VI. Ranks assigned to preference for completing part-time clerkships (1= most preferred)

	Method for completing part-time clerkships ^a			
	8-10 hrs/day, 5-7 days/week, 4 non-consecutive weeks	4-5 hrs/day, 5-7 days/week, 8 consecutive weeks	4-5 hrs/day on scheduled days until objectives completed	8-10 hrs/day on weekends
Chain	3	4	1	2
Independent	3	4	1	2
Hospital	4	3	1	2

Kendall coefficient of concordance (W)

^aW = .91; P < 0.05.

Self-study may offer a viable alternative to the traditional classroom. Study material will require careful preparation to assure equivalent educational outcomes to instruction offered in traditional formats. Practice experiences and clerkships, under the tutelage of an experienced practitioner, which have long been a critical element in professional doctoral programs represent still greater challenges. Flexible scheduling, carefully planned and conducted practice projects, and clear definition of clerkship outcomes will address some of that challenge. There will be those detractors who will doubt that the products of external curricula are equivalent to traditional classroom and clerkship instruction. There is every likelihood that the adult learner with personal motivation and practice experience will achieve more.

On the basis of its planning and the results of this survey, the School of Pharmacy at the University of North Carolina at Chapel Hill in January, 1996, invited 70 North Carolina pharmacists to matriculate in its external doctor of pharmacy curriculum. Those 70 pharmacists were chosen from among the 159 applicants for the first class. An additional 54 North Carolina pharmacists were admitted into the second class during the summer of 1996. These 54 pharmacists were selected from an applicant pool of 93 pharmacists. Their course work is offered through videotape and print media. Live interaction is conducted via a teleconference network,

the North Carolina Research and Education network (NC-REN), during faculty visits to AHEC (regional) centers, via toll-free telephone conversations, through an Internet discussion board, and through occasional assembly in Chapel Hill.

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