

## RESEARCH ARTICLES

### Pharmacists' Perceptions of Facilitators and Barriers to Lifelong Learning

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**Objectives.** To reevaluate facilitators of and barriers to pharmacists' participation in lifelong learning previously examined in a 1990 study.

**Methods.** A survey instrument was mailed to 274 pharmacists who volunteered to participate based on a prior random sample survey. Data based on perceptions of facilitators and barriers to lifelong learning, as well as self-perception as a lifelong learner, were analyzed and compared to a similar 1990 survey.

**Results.** The response rate for the survey was 88%. The top 3 facilitators and barriers to lifelong learning from the 2003 and the 1990 samples were: (1) personal desire to learn; (2) requirement to maintain professional licensure; and (3) enjoyment/relaxation provided by learning as change of pace from the "routine." The top 3 barriers were: (1) job constraints; (2) scheduling (location, distance, time) of group learning activities; and (3) family constraints (eg, spouse, children, personal). Respondents' broad self-perception as lifelong learners continued to be highly positive overall, but remained less positive relative to more specific lifelong learning skills such as the ability to identify learning objectives as well as to evaluate learning outcomes.

**Conclusions.** Little has changed in the last decade relative to how pharmacists view themselves as lifelong learners, as well as what they perceive as facilitators and barriers to lifelong learning. To address factors identified as facilitators and barriers, continuing education (CE) providers should focus on pharmacists' time constraints, whether due to employment, family responsibilities, or time invested in the educational activity itself, and pharmacists' internal motivations to learn (personal desire, enjoyment), as well as external forces such as mandatory CE for relicensure.

**Keywords:** continuing education, lifelong learning, continuing professional development, facilitators, barriers

## INTRODUCTION

Providers of continuing pharmacy education strive to design, develop, and conduct programs that meet the "needs" of their target audience. Such needs may be associated with program content (ie, topics, subject matter) or related to delivery (format, scheduling, and learning style). Motivations for assessing the needs of the target audience are both internal and external. Internally, providers seek to do what is best for the profession of pharmacy, their target audiences, and to attract a sufficient number of attendees to offset program expenses. Externally, providers strive to meet the mission of their organization, and to distinguish their programs from others with whom they compete in the business of providing continuing pharmacy education. In addition, providers

are expected to assess the needs (content and delivery) of their target audience as a requirement of their accredited provider status through the Accreditation Council for Pharmacy Education (ACPE).<sup>1</sup>

The most frequent type of needs assessment is focused on program topics and/or content of interest to pharmacists conducted through ongoing program evaluations and, less frequently, in-depth surveys of interests. The potential downfall is that this singular approach may result in an educational program that has excellent content but less than ideal participation and/or impact because of non-content related factors such as delivery. One delivery factor which encompasses many potential delivery issues is access, which includes, but is not limited to, program characteristics such as format (live versus home study), scheduling, and location. A second delivery factor is simply time; does the individual have the time to devote to learning endeavors? A third delivery factor is learner characteristics such as learning style, motivation, and learning skills. According to Hanson and DeMuth, these characteristics are requisites to lifelong learning (LLL)

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and learning skills (ie, determining learning needs, developing learning plans, evaluating learning plans) that when brought to the learning environment by the individual, may, in time, affect the learning outcome.<sup>2</sup>

While learner characteristics have current relevance in the CE and/or LLL environment, they may become increasingly important as the profession of pharmacy in the United States explores the relative merits of continuing professional development (CPD) as a learning model to enhance continuing education. CPD has been defined by Hanson as “post-graduate professional education, involving a cycle by which individual practitioners assess their learning needs, create a personal learning plan, implement the plan, and evaluate the effectiveness of the educational intervention as it applies to their pharmacy practice.”<sup>3</sup> Rouse has provided an extensive overview of CPD, including its relationship to LLL and CE, and he has articulated a 5-step CPD model derived and adapted from the CPD models of others.<sup>4</sup> His model includes the following steps: reflect; plan; act; evaluate; and record.<sup>4</sup> Austin has described specific, distinctive features of CPD to include the importance of self-identified learning needs and that CPD is self-directed, requiring learners to demonstrate motivation and responsibility for their learning.<sup>5</sup> Integral to the CPD model is the responsibility placed on the individual learner to be actively involved in this 5-step process.

Regardless of the educational model (ie, CPD, LLL, or even CE as a component of the prior 2 models) utilized to address the content needs of pharmacists in the design and development of educational programs, learner characteristics, and delivery factors are important design/development issues as well. Thus, it is incumbent upon providers of continuing pharmacy education to assess the extent to which these learner characteristics are perceived by their target audience as facilitators and/or barriers as they make decisions to participate in educational programs. Awareness of these perceptions by the provider can be utilized in the design and development of educational programs. Likewise, pharmacists’ awareness of such perceptions and their ability to overcome personal barriers and optimize facilitators to LLL may be an important step in optimizing self-assessment and thus reflection as it applies to self-directed learning activities in the LLL and/or CPD models. Hanson and DeMuth developed a survey instrument to assess pharmacists’ perceptions of the extent to which many of these delivery-related needs (ie, format, time, learner characteristics) impact upon their participation in continuing education, acknowledged as a component of the broader concept of lifelong learning activities.<sup>2</sup> This survey instrument was deemed to be relevant for use in an updated examination

of facilitators and barriers to lifelong learning affecting pharmacists.

The purpose of this study was to reevaluate facilitators and barriers to pharmacists’ participation in lifelong learning to determine primary facilitators and barriers in an effort to assist in developing strategies to address non-content-related needs in the design and development of continuing education programs (as components of LLL and CPD).

## **METHODS**

Selection of the target audience was a multi-step process. First, as part of the ongoing efforts at the University of Wisconsin to monitor the continuing education needs of its primary clientele (ie, Wisconsin pharmacists), a preliminary survey instrument was developed, pretested, and distributed by first class US mail to 5,699 pharmacists licensed in Wisconsin. The primary focus of this preliminary survey was the acceptability of various delivery methods for continuing pharmacy education.<sup>6</sup> Nine hundred ninety-one usable responses were obtained (17.4% response rate). Included in this preliminary survey was an invitation to pharmacists to volunteer to participate in a follow-up survey that was designed to obtain more in-depth information regarding lifelong learning perceptions. Such information presumably would assist the University of Wisconsin to better serve the continuing professional education needs of its target audience. Two hundred seventy-four pharmacists from the 991 initial respondents to the preliminary survey agreed to participate in this follow-up survey to assess pharmacists’ perceptions to facilitators and barriers to participation in lifelong learning.

A survey instrument, originally developed by Hanson and DeMuth for the 1990 study on facilitators and barriers was modified for use in the current study.<sup>2</sup> The original instrument was developed through a process (it was first developed using an expert panel; then pretested on a sample of Wisconsin pharmacists; and finally sent to a random sample of all licensed US pharmacists on the National Association of Boards of Pharmacy licensure list), which identified factors perceived to affect pharmacists’ participation in lifelong learning. These factors were then classified as facilitators and barriers to lifelong learning. The instrument that resulted from this process included 12 facilitators and 16 barriers to learning.

The modified instrument used for the current study listed the same 12 facilitators as the preexisting survey. However, the original list of 16 barriers was modified by excluding 2 barriers: negative exposure with prior learning at the K-12 level, and lack of confidence. These barriers were among the lowest ranked barriers in the original

study and for the current study were perceived to have minimal practical importance. One new barrier, lack of computer access, was added. Three other questions from the 1990 survey instrument were included, focusing on the individual pharmacist's perception of him- or herself as a lifelong learner. To avoid confusion or misunderstanding of the term "lifelong learning," the following definition was included in the survey preceding the LLL questions:

Lifelong learning can be described as a philosophy recognizing that learning occurs throughout one's life-span by participation in a variety of planned or deliberate learning endeavors such as degree programs, professional continuing education, pursuit of a hobby or reading for pleasure, just to name a few. Included in this philosophy is a recognition not only of the importance of the individual in making learning decisions but also the unique skills, motivations, goals, and learning preferences that each person brings to the learning environment. Within this context, a lifelong learner can be described as one who is conscious of him/herself as a learner throughout life, sees new learning as the logical way to handle problems, is highly motivated to carry out learning throughout life, and welcomes change/challenge throughout life as providing opportunities for new learning.<sup>2</sup>

The revised survey instrument was sent by first-class US mail to the 274 volunteers. Data were evaluated and compared with data from the 1990 survey using Minitab Software, version 14 (Minitab, Inc, State College, Penn, 2004). Unless otherwise specified, all tests were performed with a 95% level of confidence ( $p \leq 0.05$ ). The research plan and all survey instruments were reviewed and granted exempt status by the University of Wisconsin Health Sciences Institutional Review Board. The original, raw data from the 1990 study was lost; thus, comparisons between the current survey and the 1990 data are made based on published reports of the findings in the 1991 manuscript by Hanson and DeMuth.<sup>2</sup>

## RESULTS

Two hundred forty-two usable survey instruments were returned (88% response rate). Demographic characteristics of participants are reported in Table 1. Demographics of participants in the 1990 survey are included for comparison purposes. The demographics for the current study represent pooled information to include data collected from the preliminary survey instrument regarding CE delivery methods as well as data from the more specific follow-up survey instrument focusing on facilitators and barriers. The majority of respondents in the current study were male (59.2%), and had earned a bachelor of science in pharmacy degree (85.1%) as their terminal professional degree. The average number of years

Table 1. Demographics of Pharmacists Participating in 1990 and 2003 Surveys to Determine Their Perceptions of Facilitators and Barriers to Lifelong Learning

	2003, No. (%)	1990, No. (%)	<i>p</i>
Gender			
Females	97 (40.8)	140 (35.6)	0.189
Males	141 (59.2)	254 (64.4)	
Degree			
BS	206 (85.1)	343 (87.5)	<0.001
PharmD	26 (10.7)	17 (4.3)	
Other	10 (4.1)	32 (8.2)	
Age (in years)*			
Less than 30	...	63 (16.4)	
30-39	...	137 (35.7)	
40-49	...	88 (22.9)	
50 or more	...	96 (25.0)	
Years of Practice*			
1-11	47 (19.6)	...	
11-20	65 (27.1)	...	
21-30	77 (32.1)	...	
More than 30	51 (21.3)	...	
Practice Setting			
Hospital/institutional	80 (33.1)	115 (29.4)	0.498
Retail	110 (45.5)	196 (50.1)	
Other	52 (21.5)	80 (20.4)	
Position			
Management	48 (25.3)	90 (29.2)	0.338
Staff	142 (74.7)	218 (70.8)	
Employment			
Full-time (≥37 hours)	158 (68.7)	307 (84.8)	<0.001
Part-time	72 (31.3)	55 (15.2)	

\*2003 survey asked for years of practice while 1990 survey asked age

in pharmacy practice for all respondents was 21.9. More pharmacists worked in retail pharmacy (45.5%) than in institutional practice (33.1%). The majority reported working in staff positions (74.7%) versus management positions, and 68.7% reported they worked full-time (defined as equal to or greater than 37 hours per week).

In the 2003 sample, males reported working an average of 39.5 hours per week while their female colleagues reported working an average of 34.1 hours per week ( $p = 0.001$ ). Furthermore, male respondents had over 26 years experience in pharmacy practice while their female colleagues had over 16 years experience in pharmacy practice ( $p < 0.001$ ).

Table 1 reports demographic characteristics from the 1990 study which utilized the nearly identical survey

instrument on a random national sample of pharmacists. The only findings of significance with respect to allowable demographic comparisons are the increased percentage of those having earned a PharmD degree in the current study sample (10.7%) versus the 1990 sample (4.3%). When the 1990 sample and 2003 sample are compared, there is a significantly greater proportion of those reporting part-time employment in the current study sample (31.3%) than in the 1990 sample (15.2%).

Data for pharmacists' perceptions of the importance of facilitators for LLL are shown in Table 2. Based on responses to the 2003 survey, facilitators are listed in ranked order of perceived importance (ie, based on a 7-point Likert scale ranging from 7 = always to 1 = never) from most important to least important. In this latter study (Wisconsin sample), the 3 most important facilitators for LLL were: (1) personal desire to learn; (2) requirement to maintain professional licensure; and (3) enjoyment/relaxation provided by learning as change of pace from the "routine." Female respondents indicated a greater personal desire to learn than their male counterparts ( $p = 0.007$ ). The response to "requirement to maintain professional licensure" was ranked higher by pharmacists who had been in practice more than 30 years

( $p = 0.046$ ); in addition, pharmacists practicing in retail settings ranked this same facilitator higher than those in institutional practice ( $p = 0.018$ ). The third most important facilitator "enjoyment/relaxation provided by learning as change of pace from the routine" showed no statistical significance when analyzed by demographic factors.

Side-by-side comparisons of rankings from both the current study and the 1990 study are also provided in Table 2. The top 3 ranked facilitators to LLL are identical in both studies as are the bottom 3 ranked facilitators to LLL. No significant differences in the mean score for the top 3 facilitators were found between the 1990 study and the current study. There were differences in the specific ordering of these 12 facilitators from 1990 to the current survey. The facilitator "ease of access to learning opportunities" had a higher mean score ( $p < 0.001$ ) and was ranked higher by respondents to the 2003 survey than the 1990 national sample, reversing fourth and fifth rankings.

Data for pharmacists' perceptions of the importance of barriers for LLL are shown in Table 3. Barriers are listed in ranked order of perceived importance ranging from most important to least important based on the 2003 results. In the 2003 study, the 3 most important

Table 2. Facilitators to Lifelong Learning Ranked by Pharmacists

	<b>2003 Rank</b>	<b>2003* (n = 239)</b>	<b>1990 Rank</b>	<b>1990* (n = 393)</b>	<b>p</b>
Personal desire to learn	1	5.8 (1.0)	1	5.8 (1.2)	0.911
Requirement to maintain professional licensure.	2	5.0 (1.7)	2	5.2 (1.7)	0.221
Enjoyment/relaxation provided by learning as change of pace from the "routine"	3	4.8 (1.3)	3	4.9 (1.3)	0.712
Ease of access to learning opportunities	4	4.8 (1.2)	5	4.4 (1.5)	<0.001
Opportunity to meet/interact/exchange ideas with others.	5	4.8 (1.3)	4	4.8 (1.4)	0.719
Affordable learning opportunities	6	4.4 (1.5)	6	4.4 (1.4)	0.866
Fear of obsolescence	7	3.9 (1.7)	7	3.8 (1.7)	0.943
Encouragement through an external source (eg, employer, professional organization)	8	3.3 (1.5)	9	3.6 (1.6)	0.042
Assistance of a CE provider to offer advice and/or counseling relative to learning opportunities, issues or problems.	9	3.2 (1.6)	8	3.7 (1.8)	<0.001
Opportunity to increase recognition from and ability to serve the community.	10	3.1 (1.5)	10	3.4 (1.6)	0.018
Professional/career advancement with potential for financial reward.	11	2.6 (1.4)	11	3.3 (1.9)	<0.001
Encouragement through family.	12	2.5 (1.4)	12	3.3 (1.8)	<0.001

\*Based on a 7-point Likert Scale (7 = always, 1 = never) and presented as mean  $\pm$  standard deviation  
Comparisons between the two years were performed using two-sample t-tests. Since an ordinal scale was used, a nonparametric test should have been used, but the only data from 1990 were the means, standard deviation, and sample size, thus the parametric t-test was used to accommodate the data available

barriers for LLL were: (1) job constraints; (2) scheduling (location/distance/time) of group learning activities; and (3) family constraints (eg, spouse, children, personal). The response for highest-ranked barrier, “job constraints,” was significantly higher for pharmacists employed full-time versus those employed on a part-time basis ( $p < 0.001$ ) and for those pharmacists working in retail pharmacy versus institutional practice settings ( $p = 0.024$ ). Results for the second greatest barrier, “scheduling of group learning activities,” was similar for all demographics, except that pharmacist owners considered this a significantly higher barrier than their non-owner colleagues ( $p = 0.041$ ). “Family constraints” was a greater barrier for females ( $p = 0.007$ ) and for pharmacists in practice for 30 years or less versus those in practice for more than 30 years ( $p < 0.001$ ). The 3 least important barriers for LLL in the 2003 sample were: (1) lack of computer access; (2) negative experience with prior learning at the college level; and (3) negative experience with prior learning within pharmacy CE.

Side-by-side comparisons of rankings from both studies are also provided in Table 3. Although the top 3 ranked barriers to LLL are identical in both studies, there are significant differences in the mean score with lower scores (ie, less important) in 1990 for “scheduling of group learning activities” ( $p = 0.011$ ) and for “family

constraints” ( $p = 0.024$ ). The 3 lowest-ranked barriers were the same in both studies. “Negative experience with prior learning within pharmacy CE” had a significantly higher mean score (ie, greater importance) in 1990 ( $p = 0.010$ ). There are differences in the specific ordering of the 14 barriers common to each study. For example, the barrier “lack of information about available learning opportunities” was ranked lower (ie, seventh) in the current study than in the 1990 study (ranked fifth), with a significantly different mean score between the 2 samples ( $p < 0.001$ ).

Table 4 lists the 3 statements specific to pharmacists’ perception of themselves as lifelong learners: (1) I consider myself a lifelong learner; (2) I am able to identify goals in my pursuit of learning; and (3) I am successful in achieving my lifelong learning goals. In the 2003 survey, those pharmacists whose practice setting was reported as “other” had a higher mean score for the first 2 statements. There were no other significant differences in pharmacists’ perception of themselves as lifelong learners based on the demographics in the 2003 study.

Table 4 also shows the comparative mean scores for the current study and the 1990 study. The general pattern of decreasing scores as statements proceed from general (ie, first statement) to more specific (ie, second and third statements), holds true for both samples. The mean scores

Table 3. Barriers to Lifelong Learning Ranked by Pharmacists

	<b>2003 Rank</b>	<b>2003* (n = 239)</b>	<b>1990 Rank</b>	<b>1990* (n = 393)</b>	<b>p</b>
Job constraints	1	4.3 (1.5)	1	4.3 (1.5)	0.746
Scheduling (location/distance/time) of group learning activities.	2	4.2 (1.1)	2	4.0 (1.4)	0.011
Family constraints (eg, spouse, children, personal)	3	3.8 (1.5)	3	3.5 (1.7)	0.024
Lack of relevant learning opportunities known to be available.	4	3.2 (1.3)	4	3.3 (1.3)	0.348
Cost of participation in learning.	5	3.2 (1.3)	6	3.1 (1.5)	0.553
Low personal priority of learning in relation to other activities.	6	3.0 (1.2)	7	3.0 (1.4)	0.401
Lack of information about available learning opportunities.	7	2.7 (1.2)	5	3.2 (1.4)	<0.001
Professional burnout	8	2.7 (1.4)	8	3.0 (1.5)	0.030
Lack of career advancement opportunities as a result of participating in learning activities.	9	2.6 (1.6)	11	2.6 (1.7)	0.660
Lack of learning opportunities to match your learning style.	10	2.5 (1.1)	10	2.9 (1.5)	<0.001
Lack of quality of learning activities.	11	2.5 (1.2)	9	2.9 (1.3)	<0.001
Lack of recognition for participating in learning activities.	12	2.3 (1.4)	12	2.5 (1.6)	0.202
Negative experience with prior learning within pharmacy CE.	13	2.1 (1.1)	13	2.4 (1.4)	0.010
Negative experience with prior learning at the college level.	14	1.8 (1.0)	14	1.8 (1.2)	0.596
Lack of computer access. <sup>†</sup>	15	1.7 (1.2)	...	...	...

\*Based on a 7-point Likert Scale (7 = always, 1 = never) and presented as mean  $\pm$  standard deviation

Comparisons between the two years were performed using two-sample t-tests. Since an ordinal scale was used, a nonparametric test should have been used, but the only data from 1990 were the means, standard deviation, and sample size, thus the parametric t-test was used to accommodate the data available

<sup>†</sup>Lack of computer access was a barrier added to the 2003 study survey. It was not included in the 1990 study thus there is no data for comparison

Table 4. Lifelong Learning Perceptions of Pharmacists

Statement	2003* (n=240)	1990* (n=394)	p <sup>†</sup>
I consider myself a lifelong learner.	6.4 (1.0)	6.2	0.014
I am able to identify goals in my pursuit of learning.	5.7 (1.0)	5.5	0.011
I am successful in achieving my lifelong learning goals.	5.5 (1.0)	5.3	0.067

\*Based on a 7-point Likert scale (7 = strongly agree, 1 = strongly disagree)

†Standard deviation information for 1999 was not available; p value estimated using same SD as 2003

for the first (I consider myself to be a lifelong learner) and second statements (I am able to identify goals in my pursuit of learning) are significantly higher in the current study when compared to the 1990 survey results.

## DISCUSSION

For the 2003 sample, there is nothing remarkable about the demographic characteristics relative to what one would expect based on common knowledge of general workforce trends. The finding that female pharmacists worked fewer hours per week on average and that male pharmacists have more years of experience in pharmacy practice than female pharmacists is consistent with other independent findings from research focusing on pharmacist workforce trends in Wisconsin and/or nationally.<sup>7,8</sup> Further, there appear to be no glaring discrepancies when the 2003 Wisconsin data are compared, from a general perspective, to 2004 national data.<sup>9</sup> Despite the difference in sample origin for the surveys (randomized national sample in 1990 versus a self-selected sample of Wisconsin pharmacists for the current 2003 study), demographic characteristics are quite comparable between the 2 studies. The only findings of significance are the increased proportion of pharmacists with a PharmD degree in the 2003 study, a finding that is consistent with the evolution over the last decade from the BS in pharmacy to the PharmD degree as the single entry-level professional degree for pharmacy. The greater proportion of 2003 respondents who were employed only part time is also consistent with the “national” trend of increased part-time employment among both males and female pharmacists as reported by Mott et al.<sup>9</sup>

This study had several limitations. One is that the 2003 study is based on a self-selected group from a random sample of pharmacists licensed in Wisconsin, whereas data from the 1990 survey is based on a random sample of pharmacists licensed in the United States. Further, direct age comparisons between the 1990 and 2003 samples was not possible because the 2003 study reported years in practice, whereas the 1990 study reported years of age. In part, the decision to record years in practice for the 2003 study was the recognition that pharmacy school enrollments (and subsequent graduation) are trending

towards increasing numbers of students with prior degrees, resulting in some concern of whether age or years of practice is a more appropriate demographic criterion for purposes of comparison. Unfortunately, the change in criterion used resulted in an inability to make appropriate comparisons.

The 2003 ranking of facilitators to learning essentially mirrors and validates the 1990 findings. Two of the top 3 ranked facilitators focus on personal desire to learn and enjoyment associated with that learning. The high ranking for these 2 facilitators of learning is consistent with the general philosophy of lifelong learning as well as a central theme that learning is personally driven. In sharp contrast is the high ranking awarded to licensure requirement, a facilitator that is externally driven. While this may be seen by some as a contradiction and/or obstacle to the evolution from continuing education to lifelong learning to continuing professional development, it represents the reality of mandatory continuing education for relicensure. Pharmacists in practice for more than 30 years ranked “relicensure” higher than younger pharmacists. This may reflect a scenario in which older pharmacists (ie, as reflected by more years in practice) no longer practice or practice on a limited basis, and thus take part in CE to maintain their license rather than because of a desire to learn. Pharmacists practicing in a retail setting ranked “relicensure” higher than those practicing in institutional settings. This may be reflective of the perception (based on anecdotal evidence) that pharmacists practicing in institutional settings have greater options (some of which are paid for by their employer) to participate in CE programs (eg, in-services) than do their counterparts in retail.

As stated previously, when the 1990 and 2003 findings relative to facilitators to lifelong learning are compared, they provide essentially the same results with minor variations seen in facilitators ranked in the middle third and thus more neutral in response based on the 7-point Likert scale. There is no difference in the mean score for the top 3 facilitators. Of some practical interest is the facilitator “ease of access to learning opportunities” which is ranked fourth in the 2003 study versus fifth in the 1990 study, and which has a significantly higher mean score. This reinforces the importance of “ease of access”

as a factor that potential program participants take into consideration while serving as lifelong learners. The 3 least important facilitators of lifelong learning are the same in both the 1990 and 2003 findings. All 3 of these lowest-ranked facilitators relate to external influences (community and family) and/or financial reward through career advancement.

While little has changed relative to pharmacists' rankings of facilitators to learning from 1990 to 2003, results provided here can be utilized by CE providers to facilitate the participation by pharmacists in CE activities. Data suggest that providers should focus on pharmacists' internal motivations to learn (personal desire, enjoyment) as well as external forces such as mandatory CE for relicensure. Pharmacists' interest in CE programs can be enhanced by (1) paying careful attention to relevant and timely program content, as determined by needs/interests analyses; (2) taking advantage of pharmacists' need to fulfill CE requirements for relicensure through enhanced access; (3) actively promoting lifelong learning and continuing professional development to the target audience by building upon the CE requirements for relicensure; and (4) addressing the personal desire to learn and enjoyment through learning by developing/marketing programs to niche groups/select audiences.

Similar to the findings relative to facilitators of lifelong learning, the 2003 ranking for barriers to learning essentially mirrors and validates the 1990 findings. The 3 top-ranked barriers all relate to the time that a pharmacist has available to participate in learning activities. Whether it is time available due to work, the time involved to participate in a learning activity (actual duration of the activity, time to travel to and from the activity), or time away from family, there is little doubt as to what is the primary barrier to participation in learning activities. When the 2003 data are examined, findings showing that there is a significantly higher score for job constraints based on full-time versus part-time employment are consistent with expectations. Similarly, higher scores for family constraints as a barrier for female versus male pharmacists and for those pharmacists who are younger (ie, in practice less than 30 years versus those with more practice experience and thus older) are not unexpected due to child-rearing years or perhaps that women are more likely to be the major caregivers for younger children. Pharmacists employed in institutional settings who ranked job constraints lower than those in retail settings may have more learning opportunities available within the institution as suggested earlier, thereby partially negating job constraints as a barrier. The finding that the 2003 sample indicated "lack of computer access" as the lowest-ranked barrier negates the relevance of reports by

pharmacists who, through the provider's prior and unpublished program evaluation process, have previously identified computer-based programming as problematic. Thus, CE providers need not consider computer access as a barrier when planning lifelong learning activities available on the computer. However, it is possible that the interpretation of this survey question for barriers did not match the actual problem pharmacists were attempting to articulate on these prior program evaluations.

Similar to the facilitator comparisons between the 1990 and 2003 findings, a comparison of barriers to lifelong learning provides essentially the same results for ranking with minor variations in barriers ranked in the middle third. However, there is a difference in the mean score for the second- and third-ranked barriers, ie, scheduling and family constraints, with a higher mean score for both in the 2003 sample. This may suggest that these 2 time constraints are becoming increasingly problematic. If so, this would certainly warrant the attention of CE providers in the design and development of traditional CE programming and give greater consideration to the design and development of activities related to the CPD process, thereby assisting pharmacists in implementing their individual CPD cycle of learning and personal improvement.

It is in the best interest of the CE provider (and ultimately the profession of pharmacy) to develop a strategy to address pharmacists' perceptions of learning barriers. A CE provider's efforts should focus on pharmacist time constraints, whether these constraints are due to employment, family, or the time required for the educational activity itself, as an attempt is made to meet the non-content-related educational needs of the target audience of pharmacists; this might also be labeled as "access." Access to programs can be enhanced through: (1) careful planning of the day of the week, time of day, duration of the program, and repeat offerings of the identical program (for live face-to-face offerings); (2) increased availability of mediated/distance education/home study programs for which the participant can dictate the schedule; (3) repurposing or recycling a live program by capturing the initial live event on media (audio and/or video electronic files) and releasing it as a "home study" program; and (4) providing child-care at live programs.

In the 2003 survey, there was a statistical difference in mean score of the 3 statements pertaining to lifelong learning perceptions based on practice setting. Those pharmacists whose practice setting was reported as "other" had a higher mean score for the first 2 statements. The "other" category included 11 individuals who indicated they were inactive as pharmacists with the remainder self-selecting the "other" category. Based on prior

experience, those who self-select the “other” category are likely to include those practicing in long-term care pharmacy as well as those in academia and/or employed by the pharmaceutical industry. The practical relevance of this difference is open to interpretation. One might speculate that the individuals comprising the “other” category have, as part of their professional roles, a different perspective of criteria by which they evaluate their achievement of lifelong learning goals.

When the 2003 data are compared with the 1990 data, there is a similar response pattern to the lifelong learning statements and the self-perception of pharmacists as lifelong learners. Within each sample (ie, separately for 2003 and 1990), pharmacists have the highest mean-score reflecting their self-perception to the statement, “I consider myself a lifelong learner.” This is a general, non-committal statement for which one would have no reason to expect anything other than a highly confident response. However, when the statements became more specific and outcomes focused (Statement #2: I am able to identify goals in my pursuit of learning; and Statement #3: I am successful in achieving my lifelong learning goals), the mean scores became respectively lower. In both studies, as the level of accountability for lifelong learning outcomes increased (ie, identification and achievement of learning goals), the perception of oneself as a lifelong learner decreased.

In another comparison between the responses of the 1990 and 2003 samples, the mean values for the first 2 statements are significantly higher in the 2003 sample than in the 1990 sample. The interpretation or explanation of this is unclear as there are no statistically significant relationships between mean responses to lifelong learning perceptions and demographic factors within these samples. Further, age comparisons between the 2 samples are not possible. However, one might speculate that the change in 2003 represents the beginning of a shift in lifelong learning perceptions. A potential contributor to this shift may be the gradual impact that education is having on both undergraduate pharmacy students and practicing pharmacists. For a number of years, undergraduate curricula in pharmacy schools have been providing sensitization to and skills for lifelong learning (eg, problem solving, self-directed learning, portfolios/documentation) to pharmacy students. The revised PharmD standards, adopted January 16, 2006, by the Accreditation Council for Pharmacy Education, which address the responsibility of schools relative to continuing professional development (with inherent skills for lifelong learning), can only enhance this process.<sup>9</sup> Increasingly, CE providers have been offering programs to practicing pharmacists that incorporate these same lifelong learning skills as

currently addressed in undergraduate curricula. CE providers can continue to have an impact on lifelong learning skills and perceptions by promoting lifelong learning and continuing professional development in their marketing and programming efforts, as well as by serving as learning facilitators in addition to their current roles as providers of educational programming. From a personal perspective as a CE provider, these educational endeavors are showing fruition as one can observe the lifelong learning skills of younger pharmacists and the increased willingness of older pharmacists to acquire/practice/utilize these same skills.

## CONCLUSIONS

The primary purpose of this study was to reevaluate facilitators and barriers to participation in lifelong learning as well as perceptions to lifelong learning by comparing results to those previously reported by Hanson and DeMuth.<sup>2</sup> Little has changed relative to how pharmacists view themselves as lifelong learners, as well as what they perceive as facilitators and barriers to lifelong learning. The 3 top-ranked facilitators to learning continue to be related to pharmacists’ internal motivations to learn (personal desire, enjoyment), as well as the external force of mandatory CE for relicensure. The 3 top-ranked barriers to learning continue to be related to the time a pharmacist has available to participate in learning activities. With regard to their perceptions of LLL, pharmacists are more confident in their view of themselves as lifelong learners than they are in their ability to perform specific tasks associated with being a lifelong learner (ie, identification and achievement of learning goals). This suggests that CE providers have an opportunity to positively impact LLL among pharmacists by designing CE programs that address the facilitators, barriers, and perceptions to LLL, with a specific focus on pharmacists’ time constraints as well as their internal and external motivations to learn.

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