

Pharmacy Students' Perceptions of Their Curriculum and Profession: Implications for Pharmacy Education

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Abstract

Objective: This qualitative study described and analyzed pharmacy students' perceptions of their major and profession.

Methods: One hundred and forty-seven students responded to an open-ended question asking them to state their least appealing reason for majoring in pharmacy. The sample consisted of undergraduate freshmen and sophomore pharmacy majors enrolled in a speech course.

Results: Comments reflecting the least appealing reason for majoring in pharmacy were grouped into two major themes. Seventy six percent of student comments related to the Degree/Pharmacy Curriculum, and 24% to Beyond Degree/Pharmacy Profession. The first theme was divided into four sub-themes: Heavy Workload (55%); Time Constraints (42%); Expense (13%); and General Curriculum Issues (9%). The second theme included the following sub-themes: Negative Work Environment (49%); Boring (32%); Not Quite an MD (14%); and Lack of Empathy (11%).

Conclusion: Findings of this study provide further recommendations for making adjustments in pharmacy education/curriculum as well as insight into more effective recruiting strategies and retention.

Keywords: *Pharmacy majors; Pharmacy curriculum; Pharmacy Profession; Qualitative study; Student perception*

Introduction

Beginning in the late 20th Century, the focus of pharmacy education and profession has evolved from being product-centered to patient-centered placing more emphasis on pharmacist-patient relationship and communication (Aita et al., 2004). The pharmacy profession is still in transition. The mission of the Accreditation Council for Pharmacy Education (ACPE) "is to assure and advance quality in pharmacy education." The mission calls for:

The development of students who can contribute to the care of patients and to the profession by practicing with competence and confidence ... the development of the student as a professional and lifelong learner ... the development of students' professional knowledge, skills, attitudes, and values, as well as sound and reasoned judgment and the highest level of ethical behavior. (ACPE Accreditation Standards, 2006)

To assure that students who select pharmacy as a major of study will exemplify these standards and become competitive professionals, it is important for pharmacy schools and programs to know about students' attitudes and motivations in choosing the major as well as their perceptions of the curriculum and profession. Yet, these themes have been largely overlooked. This study was designed to enhance our

understanding of issues related to pharmacy curriculum and professional development.

Literature Overview

Past research studies have shown that students choose pharmacy as a major for a variety of reasons. These may include an interest in chemistry, science, or math; wanting to earn a high salary; a desire to help people; gaining job or economic security; obtaining a prestigious career; and the influence of individuals such as a family member, pharmacist, relative, or friends (see Anderson, Shaffield, Massey Hill, & Cobb, 2008; Burlage, 1963; Lobb, Shah, & Kolassa, 2004; Pratt, 1965; Rascatti, 1989; and Willis, Shannon, & Hassell, 2007). Recent related studies have also indicated that female pharmacy students tend to be more highly motivated than males to help others (Keshishian, Brocavich, Boone, & Pal., 2010) and that Asian students tend to have lower anticipatory socialization than other students (Keshishian, 2010). Anticipatory socialization, also known as "pre-arrival" stage (Porter, Lawler, & Hackman, 1975), provides students with the knowledge and learning that help them to become professionals (Brim & Wheeler, 1966; Clausen, 1968; Van Maanen, 1975).

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Studies have also been conducted of pharmacy students' perceptions of the profession. In 1997, Collins and colleagues surveyed 389 first-through third-year students in 4-year pharmacy programs: 216 from the University of Queensland, Australia, and 173 from the Queen's University of Belfast, Northern Ireland (Collins et al., 1999). The purpose of the study was to evaluate students' perceptions of the seven health professional groups: dentist, general medical practitioners (GPs), medical specialists, nurses, pharmacists, physiotherapists, and social workers. On a measure of overall professional status, and in comparison with their Australian counterparts, students from Northern Ireland rated pharmacists significantly higher, and GPs, medical specialists, physiotherapists, and social workers significantly lower. For a professional potency dimension (i.e., power), participants also rated pharmacists significantly higher, and GPs, physiotherapists and social workers significantly lower. On a receptivity dimension (approachability and sympathy), however, both student groups ranked pharmacists first, meaning that they perceived pharmacy as an empathetic profession. Student groups rated medical specialists highest on potency and lowest on receptivity measures. The study did not provide any demographic information other than academic standing.

In 2004, Kirby-Smith, Portlock and Brown conducted a qualitative study in the United Kingdom to determine final-year pharmacy students' views on industrial pharmacy (Kirby-Smith, Portlock, & Brown, 2008). Of the 219 participants who had been recruited from five schools, 157 were female and 62 male. One-hundred and fifty (69%) of the total participants reported to have little interest in pharmaceutical science. Some of the responses included statements such as work would be uninteresting, hard, and laboratory-oriented. The investigators associated the findings to the participants' lack of knowledge about industrial pharmacy. The only demographic information provided in the study was the participants' sex.

While many studies have focused on perceptions held of the pharmacy profession, few have addressed and integrated the topic of the curriculum. One such study was conducted in 2001 by Sansgiry and Sail (2006). They surveyed 198 first-through fourth-year undergraduate pharmacy students at the University of Houston (Texas) to examine the connection between students' perception of course load, their time management ability, and test anxiety. Their results indicated a significant association between participants' perception of course load and their ability to manage time with course work, and test anxiety. The study provided demographic information including gender, age, and racial/ethnic background, but no analyses about any association between students' demographic backgrounds and their responses.

Pharmacy students' perceptions of their curriculum and profession may change during the course of their studies and with work experience. However, considering the vital role of pharmacy in public health (Capper & Sands, 2006) and the shortage of pharmacists (Kenreigh & Wagner, 2008), an understanding of students' perceptions of the curriculum and their preconceived notions of the profession will help pharmacy programs and schools to better prepare future pharmacists.

Study Purpose

The purpose of the present qualitative study was to provide a descriptive analysis of freshman and sophomore pharmacy majors' perceptions of one open-ended question: "What is the least appealing reason for majoring in pharmacy?" This question was drawn from a larger study which examined pharmacy vs. non-pharmacy students' motivations in selecting their majors of study (Keshishian et al., 2010). The reason for asking the question was twofold: the responses to the question can help pharmacy programs with marketing strategies and student retention; such responses can also advance educators' conceptual understanding of the issues around pharmacy students' perceptions of their curriculum and future practice environment, leading them to a specific set of strategies to address student perceptions.

From the survey question, the following research questions were derived:

- 1) What are the patterns in the students' responses?
- 2) Are there any associations between students' demographic background factors and their perceptions?
- 3) What are the implications for pharmacy education and communication?

Methods

To answer these research questions, a qualitative approach was used. As Pope, Van Royan and Baker noted, "qualitative studies are designed to yield detailed and holistic views of the phenomena under study. The aim of qualitative research is not therefore to identify a statistically representative set of respondents or to produce numerical predictions" (Pope, Van Royan, & Baker, 2002, p. 148). Qualitative studies are more exploratory and heuristic in their value, and not driven by statistically significant results. Thus, while findings of such studies may not be generalized to other contexts, they can provide ideas for further quantitative research.

The survey was conducted at a large Catholic university with an enrollment of over 20,000 students. They were drawn from an area which, according to U.S. Census Bureau, is one of the most culturally diverse in the United States. In the College of Pharmacy and Allied Health Professions at the University the pharmacy degree is configured as a 0-6 program. Admission to the program is highly competitive. Applicants are accepted based on their high school average and SAT scores. Although the open-ended survey question was applicable to all participants, only 25 non-pharmacy students responded to it and were therefore excluded from the analysis for being an insufficient number.

Survey Instrument

The instrument titled "St. John's Students' Choices of Majors" was broadly applicable to students of any major, but the focus of the larger study was to compare pharmacy vs. non-pharmacy majors. The instrument was made up of 72 questions divided into seven sections. Section VII consisted of an open-ended question asking the participants to state their least appealing reason to major in pharmacy. Because it required a separate qualitative analysis, the question was not included in the

previous analyses (Keshishian et al., 2010; Keshishian, 2010) and is the focus of the present study.

The participants were enrolled in either of the two core speech courses: "Interpersonal Communication for the Pharmacist" which is required for all Pharmacy majors, or "Public Speaking" for all other majors. Both of these courses are routinely taken during students' freshman or sophomore year. Verbal permission from the faculty members teaching these classes was obtained prior to conducting the survey. The study was approved by the University's Institutional Review Board prior to the recruitment of any subject. Oral Informed Consent from the students was obtained in the class.

The survey was administered during the spring and fall semesters of 2006 either by faculty members in their Speech classes or by a designated student aide. Those who agreed to participate in the survey were given a numbered questionnaire and a matching envelope. After completing the survey, students placed their responses in the envelope, sealed and returned it to the proctor. Participation in the study was anonymous and strictly voluntary. The procedure took 10-15 minutes in each class. All completed surveys were returned to the primary investigator who kept them under locked conditions. Subjects who chose not to participate in the survey or failed to complete 75% of any section of the survey were excluded from the analysis.

Themes and Subthemes

In reading over the responses to the question "What is the least appealing reason for majoring in pharmacy?" a clear pattern emerged with two major themes. Within each theme over-arching subthemes also were apparent. Themes and subthemes were labeled to capture the essence of the students' responses. It was decided that no further insight would be forthcoming from using qualitative software. Student replies in response to the open-ended question were grouped into two major themes: Degree/Pharmacy Curriculum and Beyond Degree/Pharmacy Profession. The first theme related to obtaining the pharmacy degree and its required curriculum. The second theme related to issues beyond the degree and perceptions of the profession and practice of pharmacy. Each theme was further defined by four sub-themes. Themes and sub-themes were detected by looking for key terms in the participants' responses. Some key words, such as Heavy Workload or Boring, were self-evident. Other themes were more broadly defined to capture phrases that fit within the larger categories.

Under Degree/Pharmacy Curriculum, sub-themes included: Heavy Workload (e.g., perceptions of general workload or specific courses), Time Constraints (perceptions of how long it takes to graduate), Expense (perceptions of the cost of program), and General Curriculum Issues (perceptions of non-pharmacy courses students are required to take and other general concerns about curriculum or schoolwork). Subthemes under Beyond Degree/Pharmacy Profession were: Negative Work Environment, Boring, Not Quite an MD, and Lack of Empathy. Under Negative Work Environment were included comments that take place in the work environment (e.g., interacting with patients, dealing with insurance companies and Medicare). The theme Boring included comments that referred to the pharmacy profession as dull

and uninteresting. Perceptions that considered Pharm.D. not as reputable as an MD were placed under Not Quite an MD, whether they reflected students' own perceptions or those of others' about the reputation of pharmacy profession. The last theme, Lack of Empathy, included comments that emphasized the significance of service and caring of the profession. In this case, students took a perceived negative aspect of the profession and turned it into a positive reflection on their own views of the profession.

Since the majority of the participants were female and Asian, we decided to run statistical analyses to determine if themes and subthemes were in anyway correlated to sex and ethnicity. Descriptive statistics were compiled by sex and ethnicity for each of the themes and subthemes. In addition, chi square tests were performed to determine if there were any statistically significant patterns by sex and ethnicity for each of the themes and subthemes.

Findings

It is important to note that the pharmacy majors' responses to what they find least appealing mostly refer to their perceived negative characteristics of the major and the profession. Of 215 pharmacy majors who participated in the study, 147 responded to the question. Of these, 76% provided comments that reflected the least appealing reason for the major being linked to factors that were part of the degree and established curriculum. The other 24% gave responses that focused on least appealing factors they expected after the degree while working in the profession (see Table I). Subtheme differences in the total number of responses and percentages are a byproduct of some students providing responses that fit into more than one subtheme. It is important to note that only 1 out of 148 surveys provided responses that overlapped the two major themes. For this reason, that survey was removed from the analysis.

Table I. Results of Aggregate Student Perceptions of Degree/Pharmacy Curriculum and Beyond Degree/Pharmacy Profession Themes for "Least appealing reason for majoring in pharmacy" by Sex and Ethnicity

	Degree/Pharmacy Curriculum		Beyond Degree/ Pharmacy Profession	
	N	%	n	%
Sex				
Female (n=77)	55	71	22	29
Male (n=68)	53	78	15	22
Total (n=145)	108	74	37	26
Ethnicity				
Asian (n=81)	60	74	21	26
Caucasian (n=37)	30	81	7	19
Under-rep† (n=5)	1	20	4	80
Other ‡ (n=24)	18	75	6	25
Total (n=147)	109	74	38	26

† "Under-represented" refers to students who self-identified themselves as African-American or Hispanic.

‡ "Other" refers to students who chose multiple ethnic categories, did not provide a clear self-identification category, or did not respond.

In the *Degree/Pharmacy Curriculum* theme it is unclear if responses were completely related to perceptions about coursework they had taken, were currently taking, future curriculum, or a combination of all of these.

Results corresponding to participants' sex and ethnicity mostly paralleled the overall pattern for the entire sample. A chi square test of the relationship of themes and subthemes by Sex and Ethnicity were not statistically significant ($p < 0.05$) (see Table I).

Given the small number of individuals in the underrepresented category (African-American and Hispanic, $n=5$), and the difficulty in defining the "Other" category, even with a significant number of responses ($n=24$), no further analysis was done of these subgroups.

The breakdown of the subthemes for *Degree*-related responses listed in descending order in Table II, are as follows: *Heavy Workload* (53%); *Time Constraints* (42%); *Expense* (13%); and *General Curriculum Issues* (11%). In addition, some individuals did not identify their sex and/or ethnicity. The reported percentages reflect the total number of student responses for each subtheme. These findings were taken from the Sex category since they represented the minimum number of comments by 1 case when compared to the Ethnicity category (see Table II).

Table II. Results of Aggregate Student perceptions of Degree/Pharmacy Curriculum Subthemes for "Least appealing reason for majoring in pharmacy" by Sex and Ethnicity

	Degree/Pharmacy Curriculum							
	Heavy Workload		Time Constraint		Expense		General Curriculum	
Sex	N	%	n	%	n	%	n	%
Female (n=55)	28	51	26	47	8	15	4	7
Male (n=53)	29	55	19	36	6	11	8	15
Total (n=108)	57	53	45	42	14	13	12	11
Ethnicity								
Asian (n=60)	30	50	23	38	8	13	8	13
Caucasian (n=30)	18	60	14	47	3	10	2	7
Under-rep† (n=1)	1	100	0	0	0	0	0	0
Other‡ (n=18)	10	56	8	44	3	17	1	6
Total (n=109)	59	54	45	41	14	13	11	10

† "Under-represented" refers to students who self-identified themselves as African-American or Hispanic.

‡ "Other" refers to students who chose multiple ethnic categories, did not provide a clear self-identification category, or did not respond.

The breakdown of the subthemes for *Beyond Degree/Pharmacy Profession* related responses, listed in descending order in Table III, (see below) are as follows: *Negative Work Environment* (49%); *Boring* (32%); *Not Quite an MD* (14%); and *Lack of Empathy* (11%).

Table III. Results of Aggregate Student Perceptions of Beyond Degree/Pharmacy Profession Subthemes for "Least appealing reason for majoring in pharmacy" by Sex and Ethnicity

	Beyond Degree/ Pharmacy Profession							
	Negative Work Environment		Boring		Not Quite an MD		Lack of Empathy	
Sex	N	%	n	%	n	%	n	%
Female (n=22)	11	50	5	23	4	18	3	14
Male (n=15)	7	47	7	47	1	7	1	7
Total (n=37)	18	49	12	32	5	14	4	11
Ethnicity								
Asian (n=21)	10	48	7	33	3	14	2	10
Caucasian (n=7)	3	43	2	29	1	14	1	14
Under-rep† (n=4)	2	50	1	25	0	0	1	25
Other‡ (n=6)	3	50	3	50	1	17	0	0
Total (n=38)	18	47	13	34	5	13	4	11

† "Under-represented" refers to students who self-identified themselves as African-American or Hispanic.

‡ "Other" refers to students who chose multiple ethnic categories, did not provide a clear self-identification category, or did not respond.

Discussion

This study used a qualitative approach to determine what freshman and sophomore year pharmacy students found least appealing about the major. As noted before, qualitative studies are more exploratory and heuristic in their value, and not driven by statistically significant results (Pope, Van Royan, & Baker, 2002, p. 148).

The present study was also based on one open-ended question asking for inherently "negative" responses from the participants. However, rather than viewing them as just negative opinions, we believe that it is best to look at this collective set of individual student perceptions as challenges and concerns that can only help enhance pharmacy education and the quality of pharmacy practice. The participants perceived pharmacy curriculum as difficult, the course load heavy, and pharmacy profession uninteresting.

Degree/Pharmacy Curriculum

More than half (53%) of the students had comments under this theme related to *Heavy Workload*. This theme reflected perceived amount and difficulty of coursework exemplified in comments such as: "Heavy workload," "Tons of semester hour," "Intense schooling," "School only gets more difficult and we don't have lives outside of studying very soon," "It is an extremely difficult major to maintain grades high enough to stay in program," "Difficult," "Tough courses," and "It's a lot of hard work." These comments are not surprising. After all, college workload for freshmen and sophomores is not comparable to that of high school.

Heavy Workload also included perceptions of specific courses such as chemistry, which received ten comments, including: "Too much chemistry," "Lots of chemistry," "Chemistry classes," and "Organic chemistry." Further, pharmacy programs can aid students with time management skills. A previous study showed a positive association between students' perception of course load, time management, and test anxiety (Sansgiry & Sail, 2006). Schools and colleges of pharmacy ought to provide introductory courses to provide students with a realistic picture of the curriculum and the reason behind the "heavy" workload.

Forty-two percent of the participants under the *Degree/Pharmacy Curriculum* category made comments related to *Time*. They included the following: "6 years over five," "Long years in school," "Studying as long as I would've in a BS...with less of a degree in some ways," "The length of schooling," "Long schooling," and "The fact that you cannot graduate early if you want to." During orientation, pharmacy programs can further help students understand and articulate why the program takes as long as it does.

Thirteen percent of the students had comments related to *Expense*, including: "Having to pay several thousand (twenty something) to be sent off to work for free Rotation. It should not be as expensive to work for free," "cost of program," "costly," "tuition!" and "amount of money one needs to pay 3rd-6th year." There were 4% more such comments by females and 3% more by Asians. Further studies are needed to explore the association of gender, ethnicity, and socioeconomic backgrounds.

Eleven percent of the students made comments related to *General Curriculum*. They included: "Taking speech for pharmacist" (i.e., Interpersonal Communication for the Pharmacist), "All the courses that are not related to pharmacy," "In this university you have to take 3 philosophies and 3 theologies—B.S.—2 at most per each," and the "Courses in college." These comments indicate students' lack of understanding how non-pharmacy courses fit into a major that has traditionally been known to be only about science and clinical knowledge. Course information should include a brief explanation as to how each course is designed to prepare students for the profession. In addition, pharmacy orientation programs can reinforce the critical role of non-pharmacy courses in pharmacy education. Further, faculty teaching non-pharmacy courses (e.g., English, interpersonal communication, philosophy) which pharmacy students may perceive as irrelevant or unnecessary, ought to clearly make the link between these courses and the pharmacy profession; that is, the link between the humanities and sciences. Use of literary stories in such courses is one of the many effective approaches in making such a link (Bumgarner, Spies, Asbill, & Prince, 2007).

Other comments under *General Curriculum* were related to competition: "The large competition between students," "Big competition," and "It's a tough and competitive course"; and two other comments, which reflected student uncertainty about the choice of major: "It's boring," "Not knowing what else to do." Rigorous interviews that are now becoming required by accreditation bodies should help pharmacy programs identify students who have doubts about their choice of major as well as those who are suitable for the profession.

Beyond Degree/Pharmacy Profession

In the *Beyond Degree/Pharmacy Profession* theme it is clear that the responses were focused on future expectations and already developed perceptions and attitudes about the profession. Their comments related to *Negative Work Environment* included: "Long hours of work at one period," "Interaction with patients," "The idea of wearing a lab coat," "Retail pharmacy which currently is the biggest demand area is also the most stressful," "I've heard stories of how you are forced to do things you don't want to do, like being forced not to give patients counseling," "My least appealing reason for majoring in pharmacy was to work with old people," "Communication skills," "The stress that pharmacists have to deal with," "It is stressful at times and the hours are long," "Having to deal with issues such as insurance," "The ignorance of patients when discussing the topic of healthcare costs," and "Medicare part D." It is especially important to highlight that almost 1 out of 4 respondents (24%) had focused on "least appealing" perceptions about the *Beyond Degree/Pharmacy Profession* category.

Thirty-two percent of the students had comments related to the theme Boring. They included: "Boring job," "Stuck in the store whole day," "It is boring and not simulating job," "The routine work if you work in retail," "Boring profession," "Can be monotonous job," and "Lack of novelty in the job." These comments are supported by previous studies conducted of high school students (Jessen et al., 2008) as well as third-year pharmacy students who spent most of their time on dispensing drugs (Siracuse, Schondelmeyer, Hadsall, & Schommer, 2008). Such perceptions are quite crucial in that they can have tremendous impact on their pharmacy practice. Our findings indicated that 24% more males and 4% more Asians perceived the profession as boring. Additional investigations may help clarify these distinctions.

Under *Not Quite an MD*, we included comments that were related to perceived status of the profession. They included the following: "Regarded as lower/inferior to MD by some," "Pharmacy tends to be seen as a fall back for aspiring doctors," "Being known as a certified drug dealer," "Lesser reputation than MD," and "Put in the time and love and ample amount of knowledge yet still in the shadow of the MD." These findings support a previous study in which females pharmacy students favored medicine over pharmacy, or considered pharmacy as good for entry level (Ferguson, Roller, & Wertheimer, 1986). They are indicative of an incomplete understanding of the profession, what it entails, and the significant role it plays in public's health. That there was no difference between the two groups (Asian and Caucasian respondents) related to the theme may indicate the reverence of medicine across cultures.

Comments placed under *Lack of Empathy* were the following: "The least appealing reason for majoring in pharmacy is for the high salary," "Corporations tend to regard making money making higher than caring for their patients," or "To get lots of money; people with this motivation seem less likely to actually help patients." It is important to note that, although the participants were asked to ponder on the least appealing aspects of their major, a few of them found a way to highlight the significance of the service component of the profession in responses such as, "I think it's wrong for people to base their choice of major solely on the fact that they will make a lot of money" and "You have to have the heart for the job as well,

otherwise, you're wasting your own time." These statements, which stress altruism/caring, support previous research indicating a desire to help as a motivation for students to choose the major (Anderson et al., 2008; Lobb, Shah, & Kolassa, 2004). Altruism/service has been identified as one of the core elements of pharmacy professionalism (Hammer, 2000).

To understand the aggregate student perceptions, it is imperative that cohorts of students are closely tracked and monitored to determine if coursework and clinical experience related to their future pharmacy practice address their concerns. The 7% difference between males and females may indicate a trend that female perceptions are more concerned with *Beyond Degree/Pharmacy Profession* factors relative to males. A similar trend might also be noted in relation to Ethnicity with 7% more Asians than Caucasians expressing concerns related to beyond the degree.

In reviewing the comments under both themes it was again difficult to differentiate any clear pattern for the eight sub-themes by Sex or Ethnicity. Perhaps the most important observation made is that the overall concerns appear to cross-cut all of the sub-themes, regardless of sex or ethnicity, demonstrating some universality of shared perceptions and concerns. However, minor differences should still be noted and trends may emerge in this cohort or future ones. In sum, more males (by percentage) perceived as least appealing themes related to *Heavy Workload*, *General Curriculum*, and *Boring*; whereas more females (by percentage) found as least appealing themes related to *Time Constraints*, *Expense*, *Negative Work Environment*, *Not Quite an MD*, and *Lack of Empathy*. One theme that should be highlighted is that 24% more males than females (by percentage) responded to the theme *Boring*. Further studies are needed to identify any correlations between such perception and gender. In relationship to the two largest ethnic categories, all differences were less than 10%. However, more Asians (by percentage) noted least appealing themes linked to *Expense*, *General Curriculum*, *Negative Work Environment*, and *Boring*; whereas more Caucasians (by percentage) reported as least appealing the themes of *Heavy Workload*, *Time Constraints* and *Lack of Altruism*. There was no difference between the two groups related to the theme of *Not Quite an MD*.

These comments may be indicative of students' work experiences, which the present study did not take into consideration; be based on hearsay or observations they made of pharmacists; or be due to a lack of work experience, which has been positively associated with student image of pharmacy (see Thomas, Beck, & Janer, 1997). These comments also concur with the results of a related research study (Keshishian, 2010), in which Asian students tended to have lower anticipatory socialization than other students. That is, students' comments related to the category point to a need to incorporate ways that will socialize students better into the profession. As noted in Keshishian (2010), regardless of the reasons behind them, these perceptions can be changed. Students learn the "culture" of the pharmacy profession through socialization (Feldman, 1977). Once they choose the major, students begin the process of professional socialization—a "process by which people selectively acquire the values and attitudes, the interests, the skills and knowledge—in short, the culture—current in the groups of

which they are, or seek to become a member" (Merton, Reade, & Kendall, 1957, p. 287).

Prior to employment, the educational process plays a significant role in helping students to learn about the culture of their profession, or to acquire these norms and expectations as well as learn the knowledge and skills required in their profession (Miller & Wager, 1971). Academic service-learning (AS-L), especially when it occurs early on in the curriculum, has also been found to have a positive influence on pharmacy students (Nickman, 1998; Barner, 2000; Ellwell, Manley, & Bailie, 2003). Pharmacy programs, many of which already have incorporated AS-L into their curricula, can make its integration mandatory in many non-pharmacy required courses which students take as freshmen and sophomores. In addition, other experiences such as orientation sessions, outreach programs, internships, attending symposia, and increasing opportunities for students to interact with faculty and professionals.

This type of rethinking depends on the input and efforts of pharmacy programs, practitioners, and students (AACP Task Force, 2000; Hammer, 2001). Since the survey was conducted, several programs have been implemented to address developing a student's sense of professionalism, empathy and a patient-centered ethic. They include credit and non-credit introductory seminars and overviews of the practice of pharmacy for freshmen pharmacy or pre-pharmacy majors. Nonetheless, it would be helpful to pharmacy programs to maintain an awareness of students' apprehensions about their chosen major and future career, especially through the mandated interview process for acceptance into their first professional year (the third year of the 0-6 program).

Although not statistically significant, the small differences should be noted by educators as they may provide foundations for further studies. Follow-up similar studies are needed of a larger population and from different institutions. Further studies are also needed to examine any correlations between students' comments and their motivations in choosing the major, work experience, if any. Longitudinal studies are also needed to indicate changes, if any, in students' perceptions of pharmacy curriculum and profession.

Conclusion

Results of this pilot study can serve as a foundation for further investigation about pharmacy students' perceptions of the curriculum and the profession. Based upon the total number of responses, workload and program length were the key negative perceptions of students. It is important to note that, despite the nature of the survey question, a few emphasized the significance of altruism as a necessary motivation for students to pursue the profession. Similar qualitative studies and assessments are recommended to obtain an ongoing account of pharmacy students' perceptions of the curriculum and the profession to further enhance pharmacy education programs.

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