

# Preceptor and Site Characteristics That Affect Extern and Site Evaluation

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**ABSTRACT.** The objective of the study was to determine preceptor and site characteristics that affect how a pharmacy student and site are evaluated during a paid externship. During academic years 1989 to 1992, preceptor and extern evaluations were used as source data. Sites were coded by type of pharmacy. Preceptors were coded by gender, age, position, and year started as preceptor. Site and student total scores were tested for differences by one-way analysis of variance among preceptor demographic variables and pharmacy type. Student and preceptor total scores tested for predictability with regression analysis. Student and preceptor elements were factor-analyzed for underlying influences and factors tested for differences by demographics. Statistical assessment was evaluated by SPSS at  $p = .05$  or less. A total of 281 students, 77 different preceptors, and 53 different pharmacies were included in the study. Findings showed that preceptor gender, age, and pharmacy type affected evaluation scores earned by externs. Pharmacy type and preceptor age affected how externs evaluate sites. Business focused objectives were minimally achieved by interns and discussed by preceptors.

## INTRODUCTION

Externship is a planned program of supervised professional training under the guidance of a pharmacist preceptor in a practice

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setting (1). The program is under the overall direction and control of the school of pharmacy for which academic credit is granted to the extern and sanctioned by the state board of pharmacy for internship credit. The externship includes a spectrum of structured experiences in drug distribution and patient-oriented tasks in pharmacy. The structure is based upon behavioral objectives which serve to guide the extern and preceptor throughout the externship. The extern is a pharmacy student, usually in the last professional year of college, who attempts to complete the practicum experience. The preceptor in the practice setting serves both as a practitioner and as a teacher and acts as a role model to the extern.

Despite the structure and stated objectives, the externship presents unique problems for evaluation due to variables inherent in the program (1,2). The variety of environments to which externs are exposed is the first variable which makes a uniform externship experience difficult. The second variable is the diversity among preceptors, each with their own unique approach to achieving the stated objectives. Preceptors also vary in other ways such as management style and personality. The third variable is the extern who enters into the program with different knowledge and skill levels. Externs also differ in personality, self-learning, and problem solving capabilities.

The distributive and patient-oriented experiences needed in the training of a professional implies a participatory process. Externs should be able to develop practice skills, apply knowledge, and reach a level of professional competence. For optimal learning, an extern should have periodic feedback on progress made toward stated objectives as well as a final assessment as to practice skills mastered and knowledge attained (3). The preceptor, externship director, and extern should all have active roles in the evaluation.

Schools of pharmacy and preceptors use a variety of methods to evaluate externs for their personal and professional characteristics (3,4,5,6). Methods include: behaviorally anchored rating scales (BARS), Likert-type rating scales, simulated experiences, written exams, written projects, log/diaries, and other means. Performance rating scales are the most common instrument used for the assessment of practical experience programs. Such scales express quality of performance in numerical terms or in overall performance terms.

Accurate evaluation of externs includes a number of potential errors (1,3,5,7). For the performance description approach, if the rating scales do not adequately describe practice behaviors, the preceptor's observations will be deficient. Included in this source of error could also be a problem with the validity and reliability of the evaluation instrument (8). The instrument may not be accurately measuring what is intended or it may not be consistently measuring what is intended. Second, and a more common source of error, is rater indifference. An indifferent rater does not value the rated performance areas and is likely to be uncooperative and avoid rating responsibilities. A third source of error involves the use of rating scales. A major drawback to rating scales is rater bias which includes central tendency, leniency, and halo effect errors. In the central tendency effect, the rater simply completes all types of rating scales in about the same way. The rater tends to rate everyone above average. In the leniency effect, the rater only writes nice things about everyone. The rated person always receives uniformly high ratings. In the halo effect, the rater, in filling out the rating forms, makes an overall evaluative judgment about the rated person and then guided by this judgment, rates the person with good sounding or bad sounding ratings, irrespective of the actual performance of the student.

Another problem in the interpretation of rating scales is that the rater has no uniform basis or anchor with which to judge the extern's performance. The rater should be assisted in anchoring the rating scale by referring in the scale instructions to some external standard of performance: for example, the highest rating might mean that the extern exhibits the same level of proficiency as an experienced staff pharmacist.

Information about preceptors and training sites should be used to make decisions about continuing relationships with sites and preceptors. Preceptors and externs agree that the preceptor, rather than the site alone, "makes" the rotation (9). Most schools require the extern to evaluate preceptors and sites. The benefit of such evaluations occurs through repeated assessments of the same site over a period of time, which when reviewed can identify strengths and weaknesses in the educational value of the site. Most schools will also depend on the college's externship director to evaluate sites

(3,5,6,10). Student evaluations of sites and preceptors generally make use of open-ended questions or use rating scales. Externship director site assessments are mostly informal based on observations during the site visits. Other issues associated with site evaluation include, extern's personality conflict with the preceptor, reluctance to rate the preceptor, and rating the site and preceptor too high.

Northeastern University is a cooperative (co-op) education institution in which all students, (including pharmacy) alternate academic quarters of classroom instruction with paid work experience in their chosen majors. The co-op program is administered by the University's Cooperative Education Department. The bachelor of science pharmacy program is accredited by the American Council for Pharmaceutical Education (ACPE). In the past, pharmacy students had one co-op quarter during their senior year. With the advent of an externship requirement for ACPE accreditation, the senior co-op was modified to become a formal externship. Since the summer of 1982, senior students participate in a 40-hour-per-week paid community pharmacy externship for 13 weeks during one of the four quarters of the senior year. About 25 percent of the seniors are assigned to externship each of the four quarters. Externship sites are located primarily close to the University and are selected because of their high standards of pharmacy practice. Students must be interviewed and approved by the potential preceptor/employer prior to extern assignment to a site. At the beginning of the externship, students undergo an orientation program at the College and return to the College about midway through the externship for a day-long session on pharmacy law and other ambulatory practice topics. The extern is graded based on a completed daily log book (15%), a special project consisting of a written report on a pharmacy practice issue of interest to the student or a formal presentation (15%), an end-of-externship test on the top 100 drugs (15%), a preceptor evaluation at the end of the externship (50%), and an externship director evaluation (5%). In addition, the extern is informally evaluated for progress by the preceptor at the midpoint of the externship using the same final evaluation form. The externship director also visits the site one to two times during the externship period to evaluate the progress of the extern. The extern is asked to provide comment on the quality of the site and the preceptor. The

extern also evaluates the preceptor and site at the end of the externship.

The extern, site, and preceptor are evaluated using a combination of several methods. The primary objective of this study, however, was to determine how the final preceptor evaluations of externs and extern evaluations of preceptors and sites are influenced by preceptor and pharmacy site characteristics.

## METHODOLOGY

During the academic years 1989 through 1992, routine preceptor ratings of externs and extern ratings of preceptors and sites, at the end of the externship, were used as data (comments were not included). In addition to the information provided by the evaluation documents (copies available from authors), for each preceptor and pharmacy, unique codes were assigned and recorded as well as the preceptor's gender, position, year of birth, year started as a preceptor, and type of pharmacy. The academic year and the quarter of the year were also recorded. Total scores for externs and preceptor/sites were expressed as a percent of maximum possible score. Externs could earn a maximum of 52 points from 13 evaluative elements worth 1-4 points each. Preceptor/sites could earn a maximum of 75 points from 15 evaluative elements worth 1-5 points each. For both evaluations, if an element was marked non-applicable, it was given a score of zero because it made no contribution to educational objectives. However, for student grading purposes, such an element was exempted from the grading process and grades were determined by the remaining elements. Data were summarized and total scores for preceptors and students were subjected to one-way analysis of variance (ANOVA, Scheffe range), or t-test (two-tailed or paired-t) by demographic variables for differences. Total earned scores of externs and preceptor/sites were subjected to a regression analysis for any predictive demographic variables. Site and extern evaluation elements were subjected to a factor analysis to determine any major underlying influences in the rating process. Derived factors were subjected to one-way ANOVA (Scheffe range) by demographic variables for differences. The data were analyzed by the

Statistical Package for Social Sciences (SPSS) and tests for differences were made at the  $\leq .05$  level of significance (11).

## RESULTS

### *Demographics*

A total of 281 students were included in the study from Fall Quarter, 1988 through Spring Quarter, 1992 (an average of 14 students per quarter). This number of students permitted detecting a difference of 5 points between means of total earned scores for two groups of students at a power of 99.5%. Students were evaluated by 77 different preceptors in 53 different pharmacies. Preceptors had served a mean of 3.65 times in the program and a mean of 3.42 years. Men represented 72.9% of the preceptors ( $n = 280$  externships). Owners represented 19% of preceptors, managers 62%, and staff pharmacists 19% (Table 1). Pharmacists in independent pharmacies represented 43.6% of the preceptors; preceptors in chain pharmacies were second (40.0%), and HMO pharmacies were last with 16.4%. Almost half (46.8%) of the preceptors were in the 30-39 age group, which was the largest group. The mean age was 37.8 years for all preceptors.

### *Element Means*

When students rated sites, achievement of "accounting" and "parapharmaceuticals" objectives had the two lowest ratings of 2.35 and 2.54, respectively (Table 6). The highest rating for the site was the "dispensing" objective (4.39). The highest rating for the preceptor was the rating of the preceptor "as a quality pharmacist" (4.39). When preceptors evaluated externs, "parapharmaceutical" and "accounting" knowledge had the lowest mean ratings of 2.38 and 3.00, respectively (Table 6). The highest score was 3.69 for "attitude."

TABLE 1. Percent of Preceptors by Demographics

Preceptor			Pharmacy			Preceptor		
Position	No.	Percent	Type	No.	Percent	Age Group	No.	Percent
Owner	53	19.0	Independent	122	43.6	< 29	51	19.4
Manager	173	62.0	Chain	112	40.0	30-39	123	46.8
Staff	53	19.0	HMO	46	16.4	40-49	40	15.2
Total N	279		Total N	280		> 50	49	18.6
						Total N	263	
						Mean age = 37.8 years		
						SD = 10.05, range 6-22		

**Site/Extern Evaluation Total Scores**

Externs gave sites an average score of 77.0% (Cronbach's  $\alpha = 0.9429$ , a rating of internal consistency for additive items) while preceptors gave externs an average score of 85.9% (Cronbach's  $\alpha = 0.8873$ ) (Table 2). Extern assessment of preceptor/site scores were almost equally distributed among score ranges with the largest percentage (28.0%) in the 80-89 range. Preceptor assessment of extern scores were highly clustered in the 80-89 and  $> 90\%$  score ranges with the  $> 90\%$  score range containing 49.6%.

Preceptors who were women ( $n = 74$  externships) gave externs a mean total score of 81% while men ( $n = 194$  externships) gave a mean score of 87.8% (t-test, two-tailed,  $t$  value = 3.39,  $p = .001$ ). The 40-49 age group gave externs the highest mean score of 91.5% while the 50+ gave 83.7%, which was the lowest mean score (Table 3).

Mean scores earned by externs did not differ by preceptor position, years as a preceptor, academic year, quarter, and pharmacy type. By pharmacy type, externs gave independent pharmacies the highest mean score of 79.0% while chain and HMO pharmacies were given 77.4% and 70.9% ratings, respectively. Sites were given mean scores that did not differ by preceptor gender, age, position, academic year, quarter, and years as preceptor. Total scores earned by externs correlated with the total scores given to sites (Pearson's correlation,  $r = .2304$ ,  $p = .01$ ). The two mean scores were subjected

TABLE 2. Percent of Total Score Ranges Earned by Sites and Students\*

Score Ranges	Site Percent	Student Percent
< 69	26.3	14.2
70-79	23.7	10.8
80-89	28.0	25.4
> 90	22.0	49.6
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Min.	32.0	34.0
Max.	100.0	100.0
Mean	77.0	85.9
SD	14.5	13.1
Total N	232	268

\*Earned points expressed as percent of maximum.



**TABLE 3. Mean Student Earned Scores by Preceptor Age Groups and Mean Site Earned Scores by Pharmacy Type\***

<b>Preceptor Age Group</b>	<b>Student Earned Score</b>	<b>#</b>	<b>Site Pharmacy Type</b>	<b>Earned Score</b>	<b>#</b>
< 29	86.9	47	Independent	79.0	104
30-39	84.2	121	Chain	77.4	92
40-49	91.5	38	HMO	70.9	35
> 50	83.7	46	Total N		231
Total N		252	F = 4.27, p = .015		
F = 3.58, p = .014					

\* Scores expressed as percent of maximum score.

to a paired t-test ( $n = 220$  externships); externs earned a mean score (86.8%) which was significantly different to the site mean score (77.6%) with a mean difference of 9.14 points ( $t$  value = 8.09, 2-tailed,  $p = .0000$ ).

### ***Regression Analysis (stepwise method)***

Men preceptors were the strongest predictor of extern earned scores and accounted for 6.5% of the variance (Table 4). The three other significant predictors accounted for another 6.35% of the variance. The only significant site predictor was chain pharmacies but only accounted for only 1.9% of the variance. The slope (B) of the significant variables showed that, on the average, men rated externs higher (7.8 points) than women. Age groups  $> 50$  and 30-39 rated externs lower than other age groups by 7.5 and 4.1 points, respectively, and preceptors in chains rated externs lower (3.7 points) than preceptors in other types of pharmacies. No predictability was noted by preceptor position, years as preceptor, and pharmacy type.

HMO pharmacies were the strongest predictor for site earned scores accounting for 3.33% of the variance. However, the other two significant predictors were almost as strong with the 30-39 and 40-49 age groups accounting for 2.26% and 3.22% of the variance, respectively. The slope (B) of the significant variables showed that, on the average, HMO pharmacies received 10.27 points less than other pharmacies, and preceptor age groups 30-39 and 40-49 received 6.94 and 8.22 points more than other age groups, respectively. No predictability was noted by preceptor gender, position, years as preceptor, and pharmacy type.

### ***Factor Analysis***

The factor analysis included a listwise exclusion of missing variables, PC extraction, Kaiser normalization, and varimax rotation. A factor analysis of evaluation of site elements (KMO measure of sampling adequacy = .9258) grouped elements into three factors (Table 5). The factors were labeled Preceptor (Factor 1 consisting of five elements), Practice (Factor 2 consisting of six elements), and

TABLE 4. Regression Predictors of Student and Site Earned Scores\*

Student Earned Scores				Site Earned Scores			
Significant Predictor	Rsq	RsqCh	B	Significant Predictor	Rsq	RsqCh	B
Men	.0650	.0650	7.83	HMO Pharmacy	.0333	.333	-10.27
> 50 age group	.0900	.0250	-7.60	30-39 age group	.0559	.0226	6.94
30-39 age group	.1095	.0195	-4.16	40-49 age group	.0881	.0322	8.22
Chain Pharmacy	.1285	.0190	-3.73	Constant			74.03
Constant			85.13				

\* Significance of all Fs and Ts less than .05.

TABLE 5. Factors and Loadings of Student Evaluation of Site Elements\*

Elements	Loading	Mean
<b>Factor 1 (Preceptor)</b>		
Preceptor as Role Model	.87	4.00
Preceptor as Teacher	.86	3.96
Preceptor Overall Rating	.86	4.11
Preceptor as Pharmacist	.80	4.39
Preceptor Help Meet Learning Objective	.72	3.89
Mean of elements		4.07
<b>Factor 2 (Practice)</b>		
Learn Dispensing	.82	4.39
Site Overall Rating	.68	4.03
Experience Value	.67	4.04
Learn Overall Operations	.66	4.00
Learn Communication Skills	.65	4.25
Learn Pharmacy Laws	.64	3.64
Mean of elements		4.06
<b>Factor 3 (Business)</b>		
Learn Accounting/Bookkeeping	.82	2.35
Learn Parapharmaceuticals	.70	2.54
Learn Purchasing/Inventory Skills	.69	2.89
Learn OTC Medications	.59	3.73
Mean of elements		2.88

\*Factor 1: Eigenvalue = 7.82, % Var = 52.1

Factor 2: Eigenvalue = 1.45, % Var = 9.7

Factor 3: Eigenvalue = 1.14, % Var = 7.6

Business (Factor 3 consisting of four elements). The Preceptor factor accounted for 52.1% of the variance and had the highest mean score of 4.07 for the elements in the factor. The Practice factor accounted for 9.7% of the variance and had a 4.06 mean value. The Business factor accounted for the least amount of variance and had the lowest elemental mean scores.

A factor analysis of evaluation of extern elements (KMO measure of sampling adequacy = .93181) grouped elements into two factors which were labeled Practice (Factor 1) and Business (Factor

2) (Table 6). The Practice factor (consisting of ten elements) accounted for 52.5% of the variance and had a 3.61 elemental mean value. The Business factor (consisting of four elements) accounted for 9.5% of the variance and had a 2.97 elemental mean value.

### *One-Way ANOVA (Scheffe Ranges) of Factors*

A test of extern earned Business factor scores (maximum = 16) showed that scores earned in independent pharmacies (13.1) were significantly higher than scores earned in chain pharmacies (11.4) (Table 7). Preceptors in the age groups < 29 and 40-49 also gave significantly higher Business scores (13.0 and 13.8, respectively) than other age groups (11.5 and 11.1). Men gave higher scores than women for both the Business (12.5 vs. 11.07) and Practice factors (33.11 vs. 31.12). The Practice factor had a maximum possible

TABLE 6. Factors and Loadings of Preceptor Evaluation of Student Elements\*

Elements	Loading	Mean
<b>Factor 1 (Practice)</b>		
Student Confidence	.81	3.62
Dispensing Knowledge	.81	3.60
Operations Understanding	.80	3.58
Student Dependability	.77	3.68
Student Organization	.75	3.51
Communication Skill	.77	3.68
Student Initiative	.74	3.60
Student Attitude	.74	3.69
Understanding of Pharmacy Law	.65	3.55
Mean of elements		3.61
<b>Factor 2 (Business)</b>		
Purchase/Inventory Control Knowledge	.81	3.06
Accounting Knowledge	.81	3.00
OTC Knowledge**	.55	3.42
Parapharmaceutical Knowledge	.54	2.38
Mean of elements		2.97

\* Factor 1: Eigenvalue = 6.82, % Var = 52.5

Factor 2: Eigenvalue = 1.24, % Var = 9.5

\*\* Also loaded on factor 1 at .53

TABLE 7. Significant Differences of Preceptor Evaluation of Student Factor Mean Scores

Item	Mean	N	F	P
<b><u>Business by Pharmacy Type<sup>1</sup></u></b>				
Independent	13.1	102	9.55	.0001
Chain	11.4	124		
HMO	12.0	46		
Total N		272		
Maximum score	16.0			
<b><u>Business by Preceptor Age Groups<sup>2</sup></u></b>				
< 29	13.0	48	9.26	.0000
30-39	11.5	122		
40-49	13.8	39		
> 50	11.1	47		
Total N		256		
Maximum score	16.0			
<b><u>Business by Gender</u></b>				
Men	12.5	197	12.92	.0004
Women	11.1	75		
Total N		272		
Maximum score	16.0			
<b><u>Practice by Gender</u></b>				
Men	33.1	194	6.11	.0016
Women	31.1	74		
Total N		268		
Maximum score	36.0			

<sup>1</sup>Independent pharmacies significantly different from chain pharmacies.

<sup>2</sup>< 29 and 40-49 age groups significantly different from 30-39 and > 50 age groups.

score of 36 points. The Business factor showed no differences by preceptor position and years as a preceptor. The Practice factor showed no differences by demographic variables other than by gender.

A test of site earned Business factor scores (maximum = 20)

showed that owners received higher scores (14.2) from externs than staff pharmacists (12.2) (Table 9). Externs also rated HMO pharmacies significantly lower in the Business factor (10.5) than the other two practice sites (13.9 and 12.8). Externs rated the Preceptor factor (maximum = 25) in the age groups 30-39 significantly higher (21.2) than the > 50 age group (18.8). The Business factor showed no differences by preceptor gender, age, and years as preceptor. The Preceptor factor showed no difference by preceptor gender, position, years as preceptor, and pharmacy type. The Practice factor

TABLE 8. Significant Differences of Student Evaluation of Site Factor Mean Scores

Item	Mean	N	F	P
<b><u>Business by Pharmacy Type<sup>1</sup></u></b>				
Independent	13.9	93	13.08	.0000
Chain	12.8	106		
HMO	10.5	38		
Total N		234		
Maximum score	20.0			
<b><u>Business by Position</u></b>				
Owner	14.4	44	3.79	.0239
Supervisor	12.7	102		
Staff	12.2	48		
Total		194		
Maximum score	20.0			
<b><u>Preceptor by Age Group<sup>2</sup></u></b>				
< 29	19.8	42	3.25	.0226
30-39	21.2	102		
40-49	20.4	32		
> 50	18.8	43		
Total N		219		
Maximum score	25.0			

<sup>1</sup>HMO pharmacies significantly different from independent and chain pharmacies.

<sup>2</sup>30-39 age group significantly different from > 50 age group.

showed no difference by preceptor gender, age, position, years as preceptor, and pharmacy type.

### DISCUSSION

The range of total scores given to preceptors/sites by externs showed that externs were willing to rate preceptors/sites according to their own experiences and were not inclined to automatically give high scores as one previous study suggested (6). The total preceptor/site score average of 77.02% appeared low when compared with a prior study where community pharmacy preceptors were given an average of 90.0% (2). Students in this study were assigned on a one-on-one ratio to preceptors as in the prior study which should have permitted development of a strong personal relationship between the preceptor and extern (2). In this study, we would expect a strong positive personal relationship to result in higher preceptor/site scores. The average score of 77.02 is thought to be due to our College's externship of 13 weeks which is longer than most other programs which are usually five to six weeks in duration. The extern may have been able to observe more of the "flaws" in the preceptor. The effect of a paid externship must also be considered. There may have been a negative influence of the employer/employee relationship that was present in addition to the student/preceptor relationship. An earlier publication advocated that an extern should only receive credit for the experience and no pay (1). This was founded on the premise that externs should have the opportunity to explore and to try new things while they are students and not be constrained by the demands placed upon them by receiving compensation for their experience.

On the other hand, in our study, preceptors tended to rate externs high. Preceptor ratings may have been higher than expected because externs had 13 weeks to complete the learning objectives. Preceptor ratings may also have been high because preceptors were subject to either the leniency or central tendency errors (or both) as referred to earlier (1,3,5,7). Because preceptor ratings of externs were uniformly high among demographic variables, this might imply that most preceptors rated most externs the same way each time they served as a preceptor.



The one-way ANOVA, t-test, and the regression analyses supported each other relative to preceptor gender and age making a difference as to how externs are rated by preceptors. The major contributor was gender. In addition, regression analysis also identified "site" as making a difference (but small) as to how externs are rated by preceptors. The one-way ANOVA and the regression analyses supported each other relative to pharmacy type making a significant difference as to how externs rate sites. In addition, regression analysis also identified preceptor age as making almost as significant a difference as to how externs rate sites.

Externs and preceptors have both stated that the preceptor, not the site "made" the externship which was supported by this study (9). Based on a factor analysis of site rating elements, the strongest factor was the preceptor which also had the highest overall mean scores for the various rating elements. The second strongest factor was the practice site. This finding also speaks well of the rating form which generates extern responses that separate out assessments of the preceptor from the site. Results of our study, relative to factor analysis of site rating elements, also agreed with prior findings which identified a preceptor factor as well as a factor associated with externship confidence and practice (12). This prior study also showed that experiences were perceived similarly in all environments which was in basic agreement with our study results where minimal differences were shown. In contrast, factor analysis was unable to differentiate between extern skills and extern personal traits as rated by preceptors. This may have been a problem with the rating form or as previously discussed a result of some other rating problem.

Achievement of "business" objectives were rated low by preceptors and externs and factor analysis of both ratings grouped the business elements into a weakly influencing factor. Of the several factors, the business factors showed the greatest number of differences among the demographic variables for both site and extern evaluations. Overall total score differences among demographic variables could have been caused primarily by the business factor differences because other factors showed little or no differences.

The low ratings of the business elements by both preceptors and externs in our study agreed with findings of other studies where the

attainment of business skill objectives were less important than other objectives such as communicating with patients and monitoring and evaluating therapy (13,14). Women pharmacists also rated the business objectives as less important than men which agreed with the results of our study. At the same time, in the prior study, faculty members thought that the business objectives were as important as others for extern competency development. In one study, most students aspired to managerial positions and thus would be in need of the business skills. Another group of Pharm.D. graduates, working in a variety of settings, surveyed several years after graduating, reported that they were surprised by their need for business skills (15,16). However, a survey of pharmacists who had graduated within the last three years and working in a variety of settings, showed that they were still oriented towards development of drug monitoring skills and communication skills more so than towards development of administrative (business) skills (14). This orientation could have been influenced by the fact that most of these pharmacists had not yet moved into administrative positions. Lastly, a survey of practitioners in independent pharmacies found that most respondents thought pharmacy school graduates should be better prepared to assume management responsibilities in community pharmacies (17).

Our study did not include the informal midpoint of externship rating of students which might give some insight into the effect of the 13-week externship. Our study also did not include demographic variables about externs which also might affect how externs and preceptors are rated. This study is ongoing and a future focus on these two aspects is planned. In addition, future studies need to address the influence that paying the extern might have on the relationship between the extern and the preceptor.

## CONCLUSIONS

Preceptor gender, age, and pharmacy type affect how an extern will be rated. Type of pharmacy and preceptor age affect how externs rate sites. In the rating process, preceptors are influenced by extern performance in practice situations; externs are influenced by preceptor performance as well as practice situations. Both precep-

tors and externs are minimally influenced by business related activities. Sites need to emphasize the importance of and improve their teaching of business techniques.

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