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Abstract: Objectives. An AACP task force was appointed to identify barriers to scholarship among "practice faculty" and to develop recommendations to overcome them.

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Results. Between 312 and 340 faculty responded to questions to identify barriers to scholarship and to recommended corrective strategies. The most common global barrier was insufficient time (57%), and the most common global recommendation was for help to "identify a research question and how to answer it". Sixty percent reported that scholarship was required for advancement but only 32% thought scholarship should be required.

Conclusions. These survey results provide guidance to improve the quantity and quality of scholarship for faculty who wish to pursue scholarship, but many practice faculty who responded to this survey do not regard scholarship as a priority.



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Barriers to Scholarship and Research among Pharmacy Practice Faculty: Report from the
Scholarship/Research Faculty Development Task Force, Section of Teachers of Pharmacy Practice.

Dear Joe,

We are submitting our revised manuscript, "Barriers to Scholarship and Research among Pharmacy Practice Faculty: Report from the Scholarship/Research Faculty Development Task Force." We have addressed your comments and those of the reviewers in the attached file.

Best wishes,

A handwritten signature in black ink that reads "Ron E. Polk".

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Perceived Barriers to Scholarship and Research among Pharmacy Practice Faculty:

Survey Report from the AACP Scholarship/Research Faculty Development Task Force.

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Key words: Scholarship, Research, Barriers

A preliminary report of this survey was presented at the 2007 AACP annual meeting.

ABSTRACT:

Objectives. An AACP task force was appointed to identify barriers to scholarship among “practice faculty” and to develop recommendations to overcome them.

Methods. Department chairs were asked to forward a web-based survey to their faculty. Global responses and responses stratified by demographics were summarized and analyzed.

Results. Between 312 and 340 faculty responded to questions to identify barriers to scholarship and to recommended corrective strategies. The most common global barrier was insufficient time (57%), and the most common global recommendation was for help to “identify a research question and how to answer it”. Sixty percent reported that scholarship was required for advancement but only 32% thought scholarship should be required.

Conclusions. These survey results provide guidance to improve the quantity and quality of scholarship for faculty who wish to pursue scholarship, but many practice faculty who responded to this survey do not regard scholarship as a priority.

INTRODUCTION

Academic pharmacy organizations have consistently identified scholarship as an important activity for pharmacy faculty, including the 1980 Argus Commission report, the 1992 American Association of Colleges of Pharmacy (AACP) Commission to Implement Change in Pharmaceutical Education, the 2003-04 AACP Research and Graduate Affairs Committee report, and the ACPE 2007 Standards and Guidelines for the Professional Program in Pharmacy Leading to Doctor of Pharmacy Degree.¹⁻⁴ However the reality exists that pharmacy practice faculty find it challenging to be productive in scholarship and a number of surveys, review articles and opinion pieces have identified barriers to scholarship and have suggested solutions.⁵⁻¹¹ Many of these reports were published 10 or more years ago, and since then the demographics of practice faculty in Schools of Pharmacy and their expectations towards scholarship may have changed.

In October 2006, Dr. Raylene Rospond, then chair of the AACP Section of Teachers of Pharmacy Practice, formed the Scholarship/Research Faculty Development Task Force. The committee was charged to “assess the status of scholarship/research among clinical practice faculty and to make recommendations based on its findings to AACP leadership.” The four specific committee charges included:

1. Identify faculty development needs of pharmacy practice faculty related to scholarship and research.
2. Identify resources already available to address these development needs.
3. Develop recommendations for the Section and for AACP leadership for programming related to the development of research and scholarship in pharmacy practice faculty.
4. Develop recommendations for Colleges and Schools of Pharmacy on the development of research and scholarship of pharmacy practice faculty.

The committee consisted of Drs. Ron Polk (chair), Debbie Byrd and Sharon Youmans. This is the committee’s report based upon the results of a survey conducted to address the committee charges. A second report with a detailed “content analysis” of the free-text responses to the survey is in preparation.

METHODS

Construction of the survey instrument.

The committee decided that a survey of practice faculty would be an appropriate strategy to obtain broad input to the committee's charges. The committee drafted a questionnaire with three goals: (1) to obtain demographic information of the respondents; (2) to ask faculty to directly respond to the 4 committee charges listed above and (3) to obtain information regarding faculty attitudes towards scholarship including the importance of scholarship to advancement at their institutions. Respondents were informed, "For purposes of this survey, "Scholarship/research" is considered to be that defined by Boyer and includes the Scholarship of Discovery ("research"), the Scholarship of Teaching and the Scholarship of Integration.¹² Book chapters, review articles and case reports were also considered "scholarship." This definition is implied in all references to scholarship or research in this report.

An experienced survey researcher reviewed the first draft of the questionnaire and his suggestions were incorporated into the next draft of the questionnaire. The draft questionnaire was then piloted with 6 clinical practice faculty at Virginia Commonwealth University to determine if the questionnaire was clear and free of ambiguities. Additional suggestions from the pilot were incorporated into the final questionnaire. The committee obtained IRB approval from all three of the respective IRB committees (UCSF, VCU and UT). The final survey containing 30 questions, three of which were open-ended question requesting free-text responses. The questionnaire is available from the corresponding author. The questionnaire was placed into "Survey Monkey" (www.surveymonkey.com). An e-mail with an introduction and statement of purpose along with the survey uniform resource locator (URL) was sent to an AACP list of Department of Pharmacy Practice chairs on May 15, 2007. Department chairs were asked to forward the email to their faculty. Faculty were informed that responses to the questionnaire would be anonymous; there were no individual identifiers in the data. A second request identical to the first was sent to increase the sample size. The final survey results were downloaded from Survey Monkey on June 17, 2007.

Statistical analysis

Survey Monkey provides summary statistics of survey results as well as individual-level data. We have analyzed global responses (all evaluable responses), and have stratified individual-level responses by selected demographic variables (below).

Most of the questions required quantitative responses and these were of two types: priority ranks and numerical answers. These responses were reported as means and standard deviations and the differences between groups were estimated using a non-parametric test of differences between the means (Wilcoxon/Mann-Whitney test). Priority rank scores are within-respondent orders generated from the highest priority (1) to the lowest priority (5) for each respondent. These orders require a complex multivariate analysis. However, to keep the analysis at the minimum of statistical complexity, a combination of between-group and within-subject analysis is presented.

For contingency table data, standard tests of independence were performed using the Pearson test. A multivariate analysis for binary outcomes used a logit model, and

parameters were estimated using a Generalized Linear Model with binomial reference distribution and logistic link function. All statements that report or describe differences refer to statistically significant differences ($p < 0.05$).

Selected demographic variables were used to stratify the analysis of responses including gender, age (above/below the median), tenure/tenure eligibility (yes/no), clinical teaching/service load (“light”=less than 6 months/year, “heavy”=6 months or more/year), and school type (public/private). Other possible stratification variables were not used because the distribution was skewed (e.g., 94% of the respondents had a Pharm.D. degree) or because they were redundant with respect to other variables already selected (e.g., faculty rank gave almost identical stratification to age groups). The selected stratification variables were used both for the cross-tabulations and the mean difference tables.

RESULTS:

Survey sample

A total of 343 respondents completed question number one and the number of respondents declined so that 299 faculty completed the final question. We report here all responses to the questions that directly addressed the four committee charges ($n = 340$ who responded to the question addressing charge number 1, declining to $n = 312$ who responded to charge number 4). However, we parsed the remaining analysis by eliminating respondents with more than 50% missing answers (by filtering questionnaire completion time less than 4 minutes). This reduced the analysis to 308. Furthermore, since we were most interested in assessing the perceived needs and attitudes of “practice faculty”, we parsed the remaining responses to focus on that group. Specifically, among the 308 respondents who responded to a question that asked for the number of months that they were “on service”, 55 (18%) reported that they had no clinical service responsibilities/year. We eliminated these respondents from additional analysis and all of the results reported below—exclusive of responses to the 4 main committee charges described above-- consist only of responses from the ~250 faculty who actually reported having a clinical practice (≥ 1 month/year) and who completed the questionnaire. The actual number of faculty who completed each of the questions that are reported here are included in the summary tables (below).

Demographics

Demographics collected by the questionnaire included age (mean=38.0 years, SD=9.7, median=35), gender (65% female, 35% male), academic rank (Professor = 11%, Associate Professor = 29%, Assistant Professor = 56%, Instructor = 4%), type of school (69% Public, 31% Private) and academic degree (94% Pharm.D.). Additional demographic variables, including salary support and teaching responsibilities stratified as described above, are included in Table 1.

Responses to the Four Committee Charges:

Charge 1: Faculty Development Needs. (Table 2) The priority rank order for the 4 main options was, from the most important to the less important: More time to do research > Collaborators > Funds > Didactic Courses. “More time to do research” was first priority (mean rank 1.71, significantly lower than the second option $p < 0.001$), and this first priority status was consistent across strata with no significant differences between groups. Stratification affected other rank scores. Female respondents considered the need for collaborators more important than males, while male respondent assigned more priority to the need for funds than did females. Faculty with age above 35 years assigned more priority to the need for funds than did faculty of lower age. Other significant differences include the need for didactic courses which was assigned a higher priority by non-tenured faculty and faculty with higher clinical service responsibilities. In terms of need for funding, tenured/tenure eligible faculty and respondents with lighter clinical responsibilities assigned higher priority.

Charge 2: Identify resources already available. (Table 3) For the global results, the three proportions of availability of resources were significantly different from each other ($p < 0.01$). Collaborators/mentors were the resource considered available by most respondents (72.3%), while the less available resource was funding (30.9% availability). Only two significant associations with stratification variables were found, one on availability of didactic courses and one on availability of funds. Respondents with age below 35 years considered that didactic courses were less available than respondents 35 years or older ($p < 0.05$). Regarding availability of funds, 28% of faculty with heavy clinical load considered funds to be available compared with 45% of faculty with light clinical load ($p < 0.05$). Faculty with less clinical teaching/service were more likely to identify funds as an available resource.

Charge 3. Recommendations for the Section and AACP Leadership. (Table 4) There were 3 recommendations in a virtual tie for the first priority: “Grant writing courses”, “Keys to successful funding” and “How to identify a research question and then how to answer it” (average ranks of 2.82, 2.83 and 2.86, respectively). “Study design courses” and “Biostatistics courses” were secondary priorities, with no significant differences between them. However, the order of these priorities was affected by stratification. “Keys to successful funding” is the highest priority for male faculty, respondents’ age 35 or more, and faculty with lighter clinical service load, with statistically significant differences across all these strata. For respondents age < 35, the first priority was, “How to identify a research question and then how to answer it”. Other significant between group differences are: gender, females prioritizing “Study design courses” more than males, tenured faculty prioritizing “Grant writing courses” more than non-tenured faculty, and assigning less priority to “Study design courses” and “Biostatistics courses” than non-tenured faculty. Finally, faculty with heavier clinical service/teaching loads assigned higher priority to “Biostatistics courses” than faculty with lighter clinical service/teaching responsibilities.

Charge 4. Recommendations for Schools of Pharmacy. (Table 5) There's a virtual statistical tie for the global priority between “How to identify a research question and then how to answer it” and “Grant writing courses”, and these two options are

statistically different from the rest ($p < .01$). Female respondent assigned a higher priority to “How to identify a research question and then how to answer it”, over males. While male faculty assigned a higher priority to “Grant writing courses” over females, and tenured/tenure eligible faculty differed from non-tenured in the same sense.

Perceived importance of scholarship. (Table 6 and Figure 1)

This variable was assessed by questions 8 (“How important is scholarship to your advancement?”) and 9 (“How important should scholarship be to your advancement?”). The responses to both questions are seen in Figure 1. Sixty percent of all respondents (154 of 255) indicated scholarship *was required* for advancement at their institution (Figure 1). In marked contrast, only 82 respondents (32%) believed scholarship *should be required* for advancement, and the most common response was that scholarship should be “Somewhat important” to advancement. Faculty with “lighter” teaching responsibilities (defined as < 6 months/year of clinical service activity per year), and faculty in a tenureable position were more likely to believe scholarship should be required for promotion compared to faculty with greater clinical service responsibility or those in a non-tenureable position. (Table 6)

To expand the analysis of this issue, a discrepancy score was computed by computing Q9-Q8 (the numerical difference between an individual’s response to question 9 and question 8). A positive value of this score indicates that scholarship is underemphasized (the respondent believes that scholarship should be more important than it currently is), a negative score indicates that scholarship is overemphasized (scholarship is currently more important than it should be) and a zero score indicates there is no discrepancy between the expectations for scholarship for advancement between the institution and the respondent. The results indicate that 51% of respondents see no discrepancy between institutional expectations and their own assessment of the importance of scholarship, 8% of respondents indicate that scholarship is underemphasized while 41% of responses believe that scholarship expectations are overemphasized for career development.

To further analyze the explanatory factors of this perception of the importance of scholarship, a multivariate model was created including several factors recorded by the questionnaire. To create a model appropriate to the multivariate nature of the process but at the same time accommodate the sample size and the distribution of the scores, the importance score was recoded as a binary variable, with the two categories being no discrepancy/underemphasis as a single group, and overemphasis as a second group. This binary variable results in percentages (59%/41%) that are manageable for multivariate modeling.

The results of the logit model show that the only factor that determines the perception that scholarship is overemphasized is the perception of preparation for research. In other words, respondents who think that their training has prepared them for research moderately well or well are less likely to think that the role of scholarship is overemphasized. The other factors considered in the model are age, gender, type of school, clinical service load, number of student/residents, number of papers published in

the last 5 years and percentage of salary paid by the school. None of these additional factors have a significant effect indicating that the perception that scholarship is overemphasized is a general opinion of 41% of the respondents.

Numbers of annual publications for advancement.

For all respondents, the modal value was one publication/year, but respondents listed 0.5 publications/year nearly as often (Figure 2). When stratified, faculty with “heavy” clinical teaching/service responsibilities (>6 months/year) were significantly more likely to regard fewer publications, such as 0.5 publications/year, as acceptable when compared with faculty who had lighter clinical service responsibilities. And undoubtedly a related finding, tenure-eligible faculty were significantly more likely to regard a larger number of publications/year as acceptable in comparison to non-tenureable faculty (Table 7). Nearly 30% of respondents stated that the number of expected annual publications was not explicitly stated.

Private versus public schools of pharmacy

Scholarship was required for advancement among respondents from both public and private Schools of Pharmacy at a similar frequency, approximately 60% for both. However, faculty employed by private schools regarded significantly fewer publications per year as “acceptable” compared with faculty employed by public schools of pharmacy. (Table 7)

DISCUSSION/CONCLUSIONS

Previous Literature

Many responses to this survey are consistent with observations and recommendations from previous investigations published 10 or more years ago.^{1, 2, 8-11} Four recent reports are noteworthy and relevant to the current investigation.

Pickard conducted a Web-based survey of 82 clinical track practice faculty at the University of Illinois in November 2005 and received a responses from 39 (48% response rate).⁶ He reported that a majority of respondents were “interested in being [a] co-investigator or lead investigator on a research grant proposal” and that most had “interest in receiving methodological guidance and administrative support in order to pursue research interests.” Furthermore, respondents identified a number of issues where additional resources could be helpful including statistical support and grant writing advice and mentorship. The barriers to scholarship included a lack of confidence in the research skills that are needed be successful, as well as the difficulty of balancing other responsibilities and the need for receiving reward for the effort. The authors acknowledged that the sample size was relatively small and may lack generalizability.

A second relevant report is a 2006 “White Paper”, *The State of Science and Research in Clinical Pharmacy* prepared by the Research Affairs Committee of the American College of Clinical Pharmacy (ACCP).² The committee conducted an e-mail survey of all 7,757 members of ACCP and received a response from 780 members (10.1% response rate). The White Paper examined the history of research training in pharmacy as well as the current state and trends in

research training. The committee identified changes that would have to occur and barriers to be overcome in order to realize an advanced vision of pharmacy-directed research by the year 2030. The White Paper made nine recommendations to the “Profession of Pharmacy” and seven recommendations to ACCP that would be needed or advisable to meet the vision of 2030. This report focused on the changes needed to prepare future scientists among pharmacy practice faculty rather than to assess what can be done to help current clinical practitioners. Nevertheless, many of the committee’s recommendations echo the needs described by many respondents in this survey including the need for protected time, mentorship and formal training in research methodology.

A third report published in 2007 on this topic was a survey of the existing literature that described barriers to scholarship among practice faculty in schools of pharmacy, medicine, nursing and dentistry.⁵ The authors found that many of the barriers to scholarship for clinical pharmacy faculty were also problematic for the other disciplines. The discussion was comprehensive and emphasized that pharmacy faculty are not very different from other health-care clinical faculty. Recommended solutions mirror many of those that have been proposed by others (above and below).

A fourth report from 2007 reviewed published “scholarly works” by pharmacy practice faculty for years 2001 – 2003.¹³ Nearly 2000 publications were generated by 2374 practice faculty, but a small proportion of faculty (2.1% of the total) published nearly 31% of all papers. The authors concluded, “Pharmacy practice departments need to provide support and incentives so that a greater proportion of pharmacy practice faculty members contribute to their department’s scholarly totals.”

The Current Investigation

The current investigation is the largest analysis of attitudes and beliefs of practice faculty toward scholarship to date. The 340 respondents represent 15.7% of the 2170 membership of “pharmacy practice” faculty as identified in the 2006-2007 AACP “Profile of Pharmacy Faculty”.¹⁴ The subgroup of 255 respondents represents 11.7% of the population. Despite the limitations of survey data in general, and the current instrument itself (below), there are a number of observations that stand out.

First, and perhaps most interesting, there appears to be a large gap between expectations for scholarship by the faculty members’ administration and the faculty members’ attitude toward the importance of scholarship. While clear expectations when faculty are hired should be able to narrow this gap, it will not address the current problem—the disconnect for many faculty between perceived administration expectations and individual faculty attitudes. Practice faculty who believe that scholarship is overemphasized, such as the 41% of the respondents in this survey, may not be motivated to participate in grant writing seminars, research methods courses and the like, especially if they believe they have insufficient time. Their priorities appear to lie elsewhere.

Second, faculty attitudes that the importance of scholarship is overemphasized for advancement would appear to be counter to ACPE requirements for accreditation.⁴ Specifically the following ACPE statements address scholarship:

- Faculty must possess the required professional and academic expertise, have contemporary knowledge and abilities in current educational philosophy and techniques, and be committed to the advancement of the profession *and the pursuit of research and other scholarly activities*. (Standard No. 25, emphasis added).
- Faculty should generate and disseminate knowledge through scholarship. Scholarship, including the scholarship of teaching, should be evident and demonstrated by productive research and other scholarly activities, such as contributions to the scientific, professional, and educational literature; publication of books and review articles; and successes in securing extramural funding to support research and other scholarly activities. The college or school must foster an environment that encourages contributions by the faculty to the development and transmission of knowledge....(Guideline 25.8).

It is not clear if these statements are intended to apply to all faculty at all schools of pharmacy. One may also infer from the responses summarized earlier, that if ~60% of employers require scholarship for advancement, it follows that scholarship is *not required* for advancement at 40% of the respondent institutions. The implications of this observation with respect to ACPE accreditation standards would appear to require further investigation and discussion among pharmacy organizations and accreditation associations.

Third, insufficient time to engage in scholarship was described as the main obstacle to greater participation, perhaps not surprising given the heavy clinical teaching/service responsibility of most respondents to the survey. It is not possible to determine from these data if faculty in fact do not have sufficient time for scholarship, or whether they choose to spend their time in teaching and other activities instead of scholarship. Perhaps not surprising, faculty with heavy clinical service/teaching responsibility (≥ 6 months/year) were significantly less likely to regard scholarship as important for advancement. And the heavy didactic and clinical teaching/service responsibilities reported by many respondents to this survey tends to support the argument that it is difficult to find time for scholarship, especially if one is not academically prepared, has little support, and/or not inclined.

Fourth, it also seems clear that even if additional time were available for scholarship to the motivated faculty member, additional resources will be needed for faculty to use this time productively. The most common recommendation from faculty to Schools of Pharmacy and to AACP leadership was to provide assistance to, “identify a research question and how to answer it”. Unfortunately this question may have been ambiguous as it addresses two somewhat unrelated issues: *identification* of a research problem and *how to answer it*. Consequently it is not clear if the respondents wished assistance in one or both of these areas. Nevertheless, the committee is of the opinion that simply identifying an appropriate research question is a substantial barrier to research for many practice faculty. Identifying a research question, including the research opportunities within a clinical practice setting or in the classroom may require experienced mentors as these opportunities may not be immediately obvious. Formal coursework in study design, biostatistics and grant writing were all identified with similar frequency as

desired by clinical faculty, at least among those who desire to become more productive in scholarship.

Fifth, there was narrow range in the number of annual publications that practice faculty believed were a reasonable expectation. Between 0.5 and 1 publications per year was considered reasonable by 200 of 255 respondents (78%), and much of the variability in responses could be explained by tenure status and clinical teaching/service responsibilities. These data may provide guidance to schools and department chairs who are interested in quantifying publication numbers and setting guidelines and expectations.

Finally, there were a number of potentially important issues that are “buried” in the responses to various questions that appear in Tables 2-7. Many of these “statistically significant differences” may be worth additional investigation to gain insight into attitudes toward scholarship that are of long term relevance to the academy.

Limitations of the Survey

These data suffer from all of the limitations and potential biases of most surveys, including: (1) *Undercoverage*, the population that is actually sampled is not as broad as the population that we desired to sample (the target population), (2) *Selection bias/Non-response bias*, respondents tend to be those who feel most strongly, (3) *Untruthful answers* (4) *Statement of questions*, subtle differences in phrasing of the question may make large differences in the results.¹⁵ It is worth considering how these limitations have likely affected the current survey.

With respect to *undercoverage* a recent “best practices” document for survey investigations recommended that the response rate should be at least 50% of the target population to avoid response bias and nonresponse error.¹⁶ Although the survey sample in this investigation is relatively large, *selection bias* in responses is very likely. That is, the respondents to this survey very likely care about this issue to a greater extent than those who did not respond and consequently the survey responses are not likely to accurately reflect the population of practice faculty. The degree of this bias however is unknown. As a related limitation, we also do not know the number or characteristics of the schools of pharmacy that are represented by this survey, a product of protecting the anonymity of the survey respondents.

Another limitation regarding *statement of questions* reflects the suboptimal wording of some questions that became apparent in hind-sight. For example, responses to the question, “Approximately how many hours of lectures and/or classroom instruction do you give in the School each year?” probably resulted in responses that reflect a mix of lecture hours, conferences and small group discussions. This question could have been phrased more narrowly and the observed results are likely to overstate the actual number of lecture hours given by practice faculty.

Similarly, we purposefully defined scholarship and research broadly, expanding on Boyer’s approach, because we believe that this definition is in greatest use in pharmacy practice departments.¹² By doing so however, we have likely influenced the survey

results. For example, a faculty member who is expected to publish review articles or book chapters as evidence of scholarship may not need or want grant writing courses or funding opportunities, although they would have ranked these items in the survey because these were the available choices. This faculty member will perceive a lack of time as the main barrier and there is little that AACP or the pharmacy profession can do to remedy this. In contrast, the faculty member who wishes to engage in practice-based research may see very different obstacles to scholarship and have different recommendations to overcome these barriers. Whereas insufficient time may still be identified as a barrier, this faculty member may also wish access to collaborators with outcomes experience, or they may need courses in outcomes research and statistical methods unique to these investigations. Consequently the heterogeneity of faculty attitudes and perceived needs in this survey is likely to be partly responsible for the heterogeneity of responses to questions that attempt to identify barriers to scholarship as well as recommendations to overcome these barriers found in Tables 2 – 5. Although this survey attempted to assess “practice faculty” perceived barriers to scholarship and their perceived needs, clearly there is much heterogeneity in “practice faculty” attitudes towards scholarship, their perceived barriers and their needs, in part because of the broad definition of scholarship used in this survey.

Finally, because respondents did not come from a random sample of schools of pharmacy, one cannot conclude that the comments are an accurate measure of the proportion of all Schools of Pharmacy. For example, 60% of respondents stated that scholarship was required for advancement *at their institutions*, but this cannot be taken as a reflection the proportion of schools of pharmacy that require scholarship for advancement. There are undoubtedly other threats to internal and external validity in the responses that are less obvious.

Recommendations

The committee believes that the survey responses speak broadly to the 4 committee charges and these responses provide a reasonable set of recommendations to address the current perceived needs of practice faculty. However, there appears to be substantial heterogeneity among practice faculty with respect to individual needs and recommendations, and faculty will likely be best served at the local level by their Department Chairs who will tailor opportunities for scholarship based on each faculty member’s unique background, training and aspirations. Training and certificate programs, such as those described below, may meet the needs of many faculty, as will local programs in grant writing and other scholarship skills.

Additional recommendations to Schools of Pharmacy that derive from the survey results include: (1) clarity of scholarship expectations when hiring practice faculty, (2) explicit statements of scholarship expectations to current practice faculty and (3) providing the infrastructure to support scholarship, including protected time when appropriate, starter funds for good scholarship ideas, (4) mentors and research-support personnel such as biostatisticians, and (5) funds needed to achieve scholarship goals. In addition, there appears a strong desire, especially among younger faculty, for help and guidance to simply identify a research question. Early education in “scholarship thinking”, including how to identify a research question, should receive increased emphasis during training,

including residency training. The ASHP “Accreditation Standards for PGY1 Pharmacy Residencies” (effective July 2008) regard training in research as an elective activity.¹⁴ On the other hand, the ACPE requirement for increased emphasis in research and scholarship in the professional program suggests that in the near future a student entering a PGY1 residency will have more training and scholarship experience than current graduates. Therefore expectations for a more demanding scholarship experience than an elective option will provide may become a characteristic of future PGY1 residents.⁴

There are a number of developments among pharmacy organizations that give greater attention to the scholarship and research needs of clinical practice faculty. For example, the American Society of HealthSystems Pharmacists (ASHP) has recently announced a “Research Boot Camp”.¹⁵ Likewise, the ACCP has announced availability of a research certificate program through the ACCP Academy.¹⁶ AACP leadership may wish to consider either a partnership with these organizations to expand these opportunities or they may wish to develop an independent program(s).

The committee also believes that previous task forces have made sound recommendations that deserve repeating. The ACCP Research Affairs Committee identified the following steps needed to increase the numbers of qualified research pharmacy faculty by the year 2030: (1) adequate and protected time and resources for faculty, (2) mentorship, (3) critical mass of research faculty within each institution and (4) support for multidisciplinary collaboration. In addition, nine recommendations were made to the “Profession of Pharmacy” including two that address the needs of practice faculty, (1) “Provide adequate resources within academic pharmacy practice departments to develop a critical mass of clinical pharmacy scientists.” and (2) “Develop mentoring programs within colleges of pharmacy that provide junior faculty with the necessary infrastructure and research support to foster their success.” In addition the Research Affairs Committee had seven recommendations to ACCP, all of which appear relevant to this committee’s charges: (1) promote accreditation of research programs to increase quality and decrease variability, (2) partner with residency programs to increase fellowship recruitment, (3) support training programs for junior and mid-career investigators, (4) develop a research mentor network, (5) support clinical pharmacy centers of excellence, (6) promote and support sabbaticals and (7) monitor the state of clinical pharmacy research over time.

The preceding comments and recommendations assume that increased scholarship is a desired outcome of all schools of pharmacy, but there appear to be schools where scholarship has a low or even nonexistent priority. The committee believes that this issue should be taken up by the national organizations and debated. Guidelines from such organizations could go a long way toward providing needed clarity in what appears to be a murky and confusing issue for many schools and their faculty.

Conclusion

The survey sample of approximately 250 pharmacy practice faculty identified a lack of sufficient time as the major obstacle to scholarship, consistent with previous surveys.

There were no demographic differences among respondents on this perceived barrier to scholarship. A lack of collaborators was also perceived as a barrier, as was a lack of funds and coursework in scholarship, but these were less important than lack of time. Global recommendations from respondents to AACP leadership and to Schools of Pharmacy were similar and included grant writing courses, how to identify and answer research questions and how to identify funding sources. However, the perceived barriers to scholarship and the recommendations to overcome these barriers were different, depending on the demographics of the respondent and their attitude toward the importance of scholarship. While 60% of respondents reported that scholarship was required for advancement at their institutions, only 32% believed that scholarship should be required. Programs to improve training and to provide mentorship and funding opportunities for scholarship are likely to be helpful for some faculty. However these programs are not likely to help address the lack of time or motivation for scholarship among many practice faculty who responded to this survey.

Acknowledgements: Dr. Norman Carroll, Professor of Pharmacy at Virginia Commonwealth University reviewed the draft questionnaire and provided valuable insights.**References**

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Table 1. Global and subgroup demographics of respondents (n = 255). Bolded cells are significantly different within the subgroups.

Global and Subgroups	Salary*		Number of students personally precepted each year at practice site				Classroom Teaching and Scholarship			
	Mean (SD)	p-value	PharmD Students Mean (SD)	p-value	Fellow/Resident Students Mean (SD)	p-value	Teaching (hours/year) † Mean (SD)	p-value	Scholarship (%)‡ Mean (SD)	p-value
Global	92 (16)		13 (7)		2.0 (1.8)		39 (22)		19 (22)	
Female	92 (16)		13 (7)		1.9 (1.8)		38 (23)		18 (21)	
Male	91 (16)	0.76	13 (7)	0.57	2.3 (1.8)	0.10	40 (21)	0.36	21 (24)	0.21
AGE<35	93 (15)		14 (6)		2.1 (1.7)		36 (23)		19 (24)	
AGE>35	90 (18)	0.16	13 (8)	0.19	2.0 (1.9)	0.18	42 (22)	0.05	19 (19)	0.10
Non-Tenured	90 (18)		13 (6)		2.1 (1.8)		38 (22)		13 (12)	
Tenured	97 (8)	0.01	14 (7)	0.76	1.8 (1.7)	0.15	42 (21)	0.19	29 (31)	<0.001
Heavy Clinical Load	91 (17)		14 (7)		2.0 (1.8)		39 (22)		15 (17)	
Light Clinical Load	98 (7)	<0.001	11 (7)	0.01	2.1 (1.7)	0.45	40 (22)	0.61	35 (31)	<0.001
Private School	98 (8)		14 (7)		1.5 (1.2)		39 (22)		16 (19)	
Public School	90 (18)	<0.001	13 (9)	0.16	2.2 (2.0)	<0.001	39 (22)	0.98	20 (23)	0.33

* Salary: Percentage of salary paid by the College/School of Pharmacy
† Teaching: Hours of lectures and/or classroom instruction in the College/School of Pharmacy each year
‡ Scholarship: Percentage of time devoted to scholarship/research

Table 2. Global and subgroup responses to the committee charge number 1 (n = 249): “Identify faculty development needs of pharmacy practice faculty related to scholarship and research.” Bolded cells are significantly different within the subgroups.

Scholarship/research development needs

	"More time"			"Didactic courses"			"Collaborators"			"Funds"		
	Mean	SD	p-value	Mean	SD	p-value	Mean	SD	p-value	Mean	SD	p-value
Global	1.71	0.94		3.11	1.12		2.33	0.97		3.00	1.04	
Female	1.77	0.96		3.01	1.15		2.22	0.95		3.12	0.99	
Male	1.59	0.87	0.150	3.30	1.06	0.074	2.50	0.98	0.035	2.81	1.09	0.028
AGE<35	1.78	0.95		3.02	1.13		2.26	0.94		3.10	1.10	
AGE>35	1.62	0.93	0.110	3.28	1.13	0.113	2.41	0.99	0.315	2.87	0.96	0.040
NO PharmD	1.80	1.01		3.13	1.19		2.40	1.12		2.80	1.08	
PharmD	1.70	0.94	0.712	3.11	1.12	0.986	2.33	0.97	0.805	3.02	1.04	0.444
Non-Tenured	1.75	0.95		2.96	1.12		2.26	0.99		3.18	1.00	
Tenured	1.63	0.92	0.288	3.41	1.07	0.002	2.47	0.93	0.098	2.65	1.03	<0.001
Heavy Clinical Load	1.71	0.92		3.03	1.12		2.30	0.99		3.12	1.01	
Light Clinical Load	1.71	1.04	0.742	3.50	1.04	0.010	2.45	0.89	0.304	2.45	0.99	<0.001
Private School	1.67	0.92		3.23	1.17		2.23	0.91		3.00	0.97	
Public School	1.73	0.95	0.692	3.05	1.10	0.180	2.37	1.00	0.293	3.01	1.07	0.878

Table 3. Global and subgroup responses to the committee charge number 2 (n = 249): “Identify resources already available to address these development needs.” The survey asked the question, “Please identify the “*resources that are already available to address these development needs.*” at your institution. The available options included: Didactic courses (e.g., statistics, study design, etc); Collaborators or mentors; Funds; Other (write in). Bolded cells are significantly different within the subgroups.

	<i>Availability of Resources for Scholarship</i>		
	"Didactic courses"	"Collaborators/mentors"	"Funds"
	"YES"	"YES"	"YES"
Global (n = 249)	122	180	77
Global (%)	49.00	72.29	30.92
Female (%)	49.69	72.33	32.70
Male (%)	45.35	73.26	29.07
AGE<35 (%)	40.65	71.54	26.83
AGE>35 (%)	56.64	75.22	34.51
Non-Tenured (%)	45.18	74.70	28.92
Tenured (%)	56.63	67.47	34.94
Heavy Clinical Load (%)	47.34	72.46	28.02
Light Clinical Load (%)	57.14	71.43	45.24
Private School (%)	43.59	66.67	30.77
Public School (%)	51.46	74.85	30.99

Table 4. Recommendations to AACP: development of scholarship/research. Global and subgroup responses to the committee charge number 3 (n = 248): “Develop recommendations for the Section and for AACP leadership for programming related to the development of research and scholarship in pharmacy practice faculty.” Bolded cells are significantly different within the subgroups.

	Study design courses			Biostatistics courses			Grant writing courses			Keys to successful funding			How to identify a research question and then how to answer it		
	Mean	SD	p-value	Mean	SD	p-value	Mean	SD	p-value	Mean	SD	p-value	Mean	SD	p-value
Global	3.14	1.33		3.65	1.24		2.82	1.23		2.83	1.42		2.86	1.69	
Female	3.02	1.30		3.54	1.26		2.89	1.23		3.03	1.48		2.75	1.69	
Male	3.35	1.38	0.05	3.85	1.18	0.07	2.67	1.22	0.17	2.49	1.24	0.01	3.08	1.67	0.16
AGE<35	3.00	1.34		3.51	1.27		2.90	1.28		3.28	1.38		2.57	1.67	
AGE>35	3.32	1.33	0.07	3.81	1.20	0.07	2.70	1.17	0.24	2.37	1.31	<0.001	3.16	1.64	0.01
NO PharmD	2.60	1.45		3.87	1.13		2.93	0.80		2.47	1.36		3.13	1.88	
PharmD	3.18	1.32	0.12	3.63	1.25	0.53	2.81	1.25	0.66	2.85	1.43	0.31	2.85	1.68	0.49
Non-Tenured	2.96	1.37		3.49	1.25		2.98	1.22		3.10	1.47		2.73	1.69	
Tenured	3.51	1.19	<0.001	3.96	1.18	<0.001	2.51	1.19	0.01	2.29	1.16	<0.001	3.12	1.66	0.09
Heavy Clinical Load	3.09	1.35		3.57	1.26		2.88	1.23		2.93	1.44		2.80	1.69	
Light Clinical Load	3.39	1.26	0.18	4.02	1.11	0.03	2.52	1.21	0.09	2.31	1.20	0.01	3.17	1.65	0.18
Private School	3.24	1.43		3.69	1.27		2.72	1.25		2.90	1.35		2.77	1.66	
Public School	3.09	1.29	0.39	3.62	1.24	0.60	2.87	1.22	0.36	2.79	1.46	0.53	2.91	1.70	0.57

Table 5. Global and subgroup responses to the committee charge number 4 (n = 246): “Develop recommendations for Colleges and Schools of Pharmacy on the development of research and scholarship of pharmacy practice faculty.” Bolded cells are significantly different within the subgroups.

	Study design courses			Biostatistics courses			Grant writing courses			Keys to successful funding			How to identify a research question and then how to answer it		
	Mean	SD	p-value	Mean	SD	p-value	Mean	SD	p-value	Mean	SD	p-value	Mean	SD	p-value
Global	3.10	1.34		3.67	1.23		2.89	1.18		3.01	1.42		2.79	1.71	
Female	3.01	1.32		3.59	1.26		2.99	1.22		3.15	1.42		2.61	1.69	
Male	3.27	1.39	0.16	3.81	1.16	0.20	2.70	1.12	0.05	2.78	1.41	0.05	3.11	1.69	0.03
AGE<35	2.98	1.29		3.44	1.23		2.99	1.27		3.25	1.42		2.61	1.75	
AGE>35	3.27	1.39	0.10	3.92	1.19	<0.001	2.74	1.11	0.16	2.77	1.40	0.01	2.96	1.63	0.06
NO PharmD	2.60	1.30		4.07	1.03		2.73	0.80		2.60	1.45		3.07	1.94	
PharmD	3.13	1.34	0.15	3.64	1.24	0.21	2.90	1.20	0.53	3.04	1.42	0.25	2.77	1.70	0.55
Non-Tenured	2.97	1.33		3.47	1.24		2.99	1.20		3.17	1.45		2.79	1.75	
Tenured	3.37	1.34	0.03	4.06	1.12	<0.001	2.67	1.12	0.05	2.69	1.32	0.01	2.78	1.63	0.88
Heavy Clinical Load	3.07	1.34		3.57	1.26		2.94	1.19		3.05	1.42		2.79	1.74	
Light Clinical Load	3.24	1.38	0.48	4.12	0.99	<0.001	2.62	1.15	0.10	2.81	1.44	0.32	2.76	1.59	0.94
Private School	3.18	1.37		3.64	1.31		2.96	1.21		2.96	1.35		2.68	1.70	
Public School	3.06	1.34	0.52	3.68	1.20	0.99	2.85	1.17	0.56	3.04	1.46	0.70	2.83	1.72	0.53

Table 6. Importance of scholarship/research for career advancement (n=249). Global and stratified responses to questions, “How important IS scholarship for advancement in your current position” and “How important SHOULD scholarship be for advancement in your current position?” Scoring: 1 = Not important, 4 =Required .

	IS			SHOULD BE		
	Mean	SD	p-value	Mean	SD	p-value
Global	3.35	0.91		2.85	0.93	
Female	3.38	0.86		2.84	0.91	
Male	3.31	0.96	0.81	2.88	0.96	0.65
AGE<35	3.37	0.88		2.80	0.92	
AGE>35	3.29	0.93	0.63	2.88	0.95	0.55
Non-Tenured	3.27	0.95		2.70	0.90	
Tenured	3.51	0.80	0.06	3.14	0.93	0.00
Heavy Clinical Load	3.28	0.95		2.72	0.92	
Light Clinical Load	3.69	0.56	0.02	3.48	0.74	0.00
Private School	3.33	0.95		2.79	0.97	
Public School	3.35	0.89	1.00	2.87	0.92	0.62

Table 7. Publications. The table provides summary and subgroup analysis of responses to three questions regarding publications,
 1. “What do you consider to be a reasonable number of peer-reviewed, primary authorship publications per year from practice faculty to receive an evaluation of “acceptable” for scholarship during annual review? [Primary authorship is considered either first author or the author most responsible for the conduct and publication of the investigation.] “ ;
 2. “What is the number of primary authored publications expected of practice faculty at your institution? “ and
 3. “How many peer-reviewed papers have you had published as the principle author in the 5 years?”

	Reasonable to expect per year (n=249)			Currently Required Per year (n = 178)			Published last 5 years (n = 249)		
	Mean	SD	p-value	Mean	SD	p-value	Mean	SD	p-value
Global	0.94 (0.71)	0.71		1.27	0.82		1.19	1.25	
Female	0.83	0.55		1.21	0.77		0.99	1.14	
Male	1.16	0.89	0.02	1.40	0.90	0.34	1.59	1.36	<0.001
AGE<35	0.87	0.64		1.17	0.78		1.01	1.18	
AGE>35	1.02	0.76	0.10	1.39	0.87	0.14	1.41	1.29	<0.001
Non-Tenured	0.77	0.54		1.18	0.79		0.82	0.95	
Tenured	1.27	0.86	<0.001	1.45	0.86	0.08	1.92	1.44	<0.001
Heavy Clinical Load	0.83	0.61		1.19	0.81		1.00	1.10	
Light Clinical Load	1.46	0.91	<0.001	1.61	0.79	<0.001	2.11	1.48	<0.001
Private School	0.72	0.58		1.05	0.71		0.96	1.23	
Public School	1.04	0.73	<0.001	1.36	0.85	0.01	1.29	1.24	0.01

Figure 1. Importance of Scholarship. Global responses to the questions, “How important IS scholarship for advancement in your current position” and “How important SHOULD scholarship be for advancement in your current position?” See text for responses stratified by demographic variables.

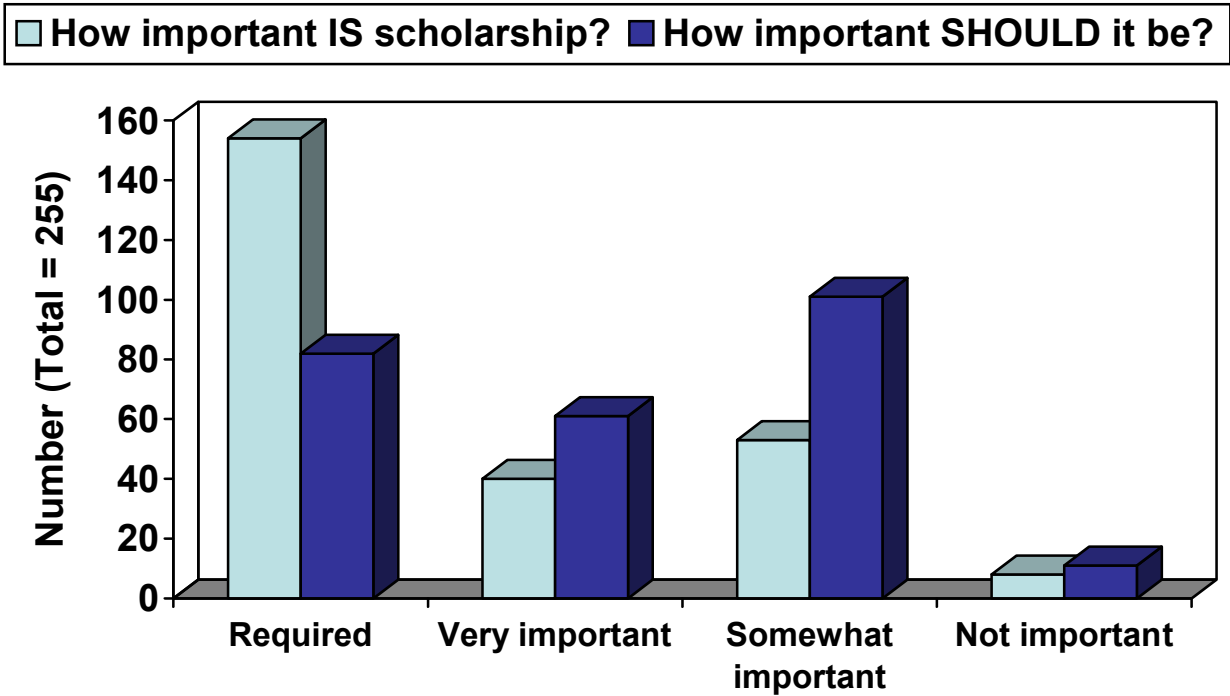
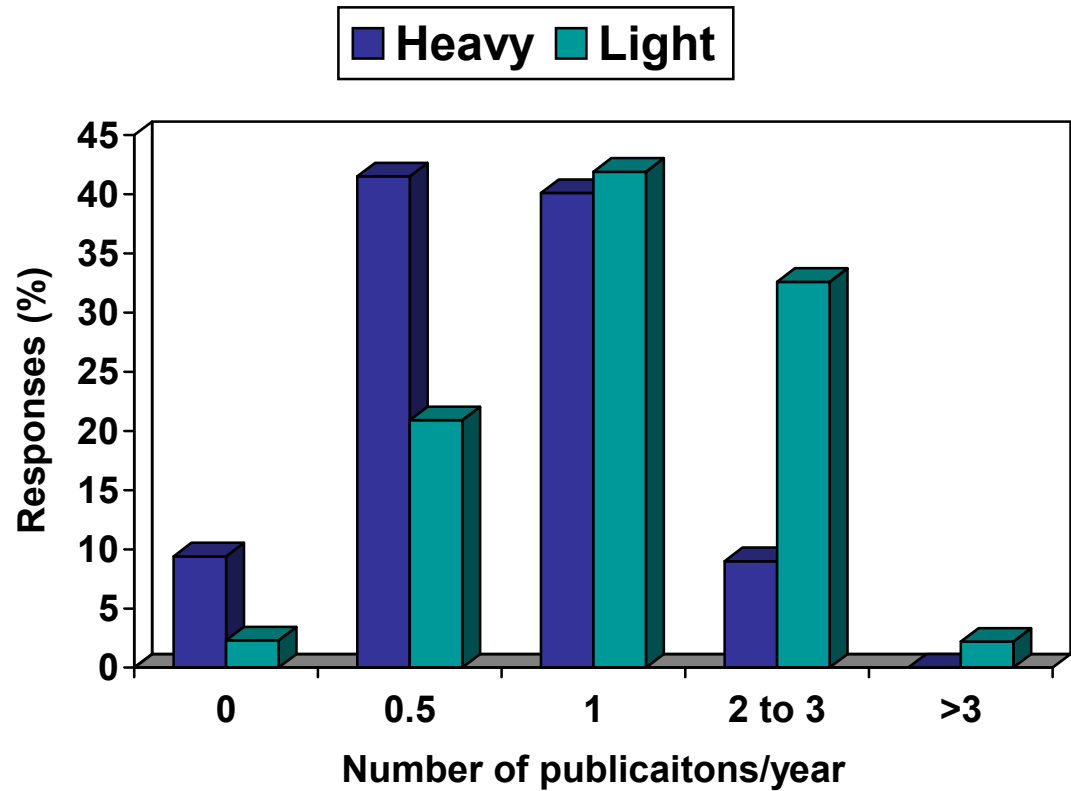


Figure 2. Publications. Responses to the question, “What do you consider to be a reasonable number of peer-reviewed, primary authorship publications per year for practice faculty to receive an evaluation of “acceptable” for scholarship/research.” (n = 255). Responses stratified by “heavy” (n=212) versus “light” (n=43) clinical service/teaching responsibilities (see text). Faculty with a lighter clinical responsibilities were significantly more likely to regard a larger number of annual publications as reasonable.



March 16, 2008

Joseph DiPiro
Editor
American Journal of Pharmaceutical Education

Ref.: Ms. No. ajpe2261

Barriers to Scholarship and Research among Pharmacy Practice Faculty:
Report from the Scholarship/Research Faculty Development Task Force,
Section of Teachers of Pharmacy Practice.

Dear Joe,

We are submitting our revised manuscript, "Barriers to Scholarship and Research among Pharmacy Practice Faculty: Report from the Scholarship/Research Faculty Development Task Force, Section of Teachers of Pharmacy Practice." We have addressed your comments and those of the reviewers as seen below in red.

1. The Conclusion should be a brief paragraph at the end of the text, rather than combined with the Discussion. Done
2. All references should conform to Journal style. Done
3. Figures 1 and 2 should not have internal horizontal lines. Done
4. The Appendix should be deleted. Done
5. The survey instrument should not be added, but you may indicate in text that it is available from the author. Done

Reviewers' comments:

Reviewer #1:

General Overview:

The topic of research presented in this manuscript is of particular importance for schools of pharmacy as it relates to faculty development and retention.

The information found would be of interest to university administrators, clinical faculty, and pharmacy organizations and supports the work of others. Although presented as a scientific paper describing survey results, the paper is in response to a charge from a former AACP President. Presentation of the survey results implicitly provides the authors' recommendations. However, the authors do not ever explicitly state their recommendations in the manuscript.

It would be more beneficial for readers if the authors were to provide a summary of their recommendations and connect them directly back to the charges they address. Summary added.

Additionally the readers would be particularly interested in recommendations that are different from those of other organizations which they rely on to conclude the manuscript. These are more fleshed out.

Specific comments are provided below. It would be helpful to either provide readers with a copy of the survey or to provide a more detailed description of the information collected and the type of questions used. The survey is the pivotal point of the manuscript. Without the survey, the reader can only deduce what the contents are based on the results provided. Perhaps the survey could be available for review at the AJPE website. As you advise.

Specific comments:

TITLE

Consider making the title more descriptive by indicating that the source of the data was a "survey." These are perceived barriers by the faculty as found in a survey.

Done as requested

ABSTRACT

Page 2, under Results, sentence starting, "Sixty-one percent said scholarship was required for advancement." This does not match the data presented on page 6, where under "Perceived importance of scholarship," it is indicated that, "Sixty percent of all respondents (154 of 255) indicated that scholarship was required for promotion..."

Changed to 60% in Results. And the word 'promotion' was changed to 'advancement' as stated in the survey.

INTRODUCTION

METHODS

Construction of survey instrument

Goal #2 is unclear. It may be advisable to focus the statement to provide a clearer description of the goal. How were participants asked to directly address the issues? The survey was asking for participant's opinions regarding scholarly activity at their institutions and the barriers that exist.

This was clarified.

Boyer's definition of scholarship and research is used to develop the context of the survey. It would be helpful to provide the reference and a summary of the definition for readers who are not familiar or cannot recall this work.

Sadly, I would guess that the very junior faculty who are surveyed in this paper would be unlikely to be familiar with the Boyer definition.

The reference to Boyer was added.

Pilot of survey involved how many participants? Six, and this is added to the paper.

Description of the survey

It would be helpful to have a section devoted to the description of the survey. The survey is the tool used to answer the charges, however the reader is never told about the content and types of questions asked (ranking, rating, open ended-questions...). The absence of a survey description makes it difficult for the reader to understand the context of the information provided in the results. Alternatively a viewable link could be used. A statement, "The text of the survey is available from the corresponding author." was added.

Statistical analysis

Need to describe statistical test used to analyze differences between global responses.

Within-group mean difference tests were performed, as indicated in the section on statistical analysis.

"Selection of stratification variables." This is an incomplete sentence. It may be omitted. This heading has been omitted.

RESULTS

Survey Samples

Statement A total of 343 respondents completed questions number one and 299 completed question number 29. This statement does not add to the audiences understanding of the survey sample. Why is question 29 significant? Is this the last question in the survey? It may be more informative to provide the total number of respondents, indicate the number of incomplete surveys and describe how this was addressed. This has been clarified.

"The results reported below...consist only of responses form the ~250 faculty." What is the precise number of responses used in your analysis, and is this number really unknown?

The exact numbers of faculty responses to the relevant questions are identified in Tables 1- 7."

Responses to 4 Committee Charges

"Global and stratified responses to the committee charges are found in tables 2-5." Statement could be deleted as authors refer reader to appropriate table under each charge. Statement was deleted.

Readers are only first exposed to the content of the survey in the results section. Because the readers are not oriented to the content of the survey until the results section, the reader must deduce what types of survey questions based on the description of results provided.

We believe that the interested reader will ask for the questionnaire.

Charge 1

"Stratification affected other rank scores." Consider rewording this sentence.

Stratification did not affect rank scores. Additional mean rank scores were significantly different between stratification groups. Statement was reworded.

"In terms of need for funding, tenured/tenure eligible faculty and respondents with lighter clinical responsibilities assigned higher priority."

This is a passive sentence, consider changing to active voice. Done.

Charge 2

Second sentence, "While the less available resource was funding..." Consider changing less to least. It is not clear what you are trying to say here.

Changed as suggested.

Last sentence, "Faculty with less clinical teaching/service were more likely to consider funds as an available resource." This sentence is redundant as it repeats content of prior sentence, consider removing. Done.

Charge 3

Charge 4

Sentence ending, "Tenured/tenure eligible faculty differed from non-tenured in the same sense," is unclear. Is this statement meant to draw a parallelism with the observation that female respondents assigned a higher priority to "how to identify a research question," while male faculty assigned a higher priority to "grant writing courses?" Perhaps it would be clearer to state the preference of tenure and non-tenure faculty to prevent confusion. Statement was clarified.

"We also attempted to gain insight into the importance of scholarship for advancement at the respondent's institution." This paragraph would be more appropriate for the methods rather than results section. Moved to the "Methods" section.

Perceived importance of scholarship

"(n=154 of 255)"? Should read "156 of 255 respondents?" "N" is not required as it indicates sample size not the number of particular answer. "N" was deleted.

In the first paragraph, the authors indicated that faculty with lighter teaching responsibilities and those in a tenurable position were more likely to perceive scholarship to be required for promotion. Table 6 (page 20) indicated that a score of 1=required and 4=not important, suggesting that lower scores are synonymous with higher priority. Review of results for tenure status and clinical workload, the lower score is associated with non-tenured and heavy clinical load. Thus the table would suggest that non-tenured staff and faculty with a heavy clinical load place a higher priority on scholarship. This is different than the description provided in the text of the manuscript on page 6.

The reviewer is correct. The legend was inadvertently reversed in the draft that he/she reviewed, and we have corrected this misstatement. The findings are now compatible with the results and discussion.

Discussion

Current Investigation

"Major findings." This is an incomplete sentence, what purpose does it serve? We have deleted it.

The quotes provided in the second paragraph of the discussion section were not previously presented in the results. The free-text responses are to be reported in a second manuscript that is planned for this survey (as indicated in the introduction on page 3). Those quotes would be more appropriately saved for the other manuscript. The discussion of this manuscript should interpret the data currently presented. We have deleted these and will include them in the next manuscript.

Limitations of Survey

The limitations provided are not necessarily a limitation of the survey alone, but of the study as well. Consider changing section title to reflect that.

"Don't know, haven't decided" limitation. This would be a limitation if an "Undecided" option were available to responders. It is not possible to verify this as survey content is not provided. We deleted this statement as it is not relevant to the study.

Recommendations

Paragraph discussing ACCP extensively highlights the recommendations of others. What do the results of your survey suggest? The authors' recommendations based on their observations should be clearly and explicitly tied back to the 4 charges. How the authors' recommendations compare to others should be highlighted, particularly those that are original. It is difficult to discern what new recommendations you are making based on the data. We have tried to clarify this and to tie our observations back to the charges.

Tables and Figures

Tables contain a lot of information making them appear busy and difficult to review the data.

More obvious division between global results and stratification comparisons may increase ease of readability. We agree that these tables are busy and detailed and somewhat difficult to read. However we have left these essentially unchanged as they convey the detailed results.

Consider omitting p-values. Then for the values that are significantly different may want to indicate with symbols for particular levels of significance such as 0.05, 0.01, 0.001. We again believe that the detail is important including the p-values.

Table 2: Consider presenting only 2 decimal places for mean and SD, similar to other tables. Done

Table 3: Consider presenting % of yes responses only. Done.

Table 5: P-value for clinical load and faculty track are 0.00...this is p<.001, and we have clarified this.

Table 7: Point number 3, the correct homonym to indicate the primary author is "principal," rather than principle. Corrected.
Figure 2: The Global results do not add additional information to the graph, consider removing it. It has been deleted.

Reviewer #2

STRENGTHS of ARTICLE - very relevant topic for Dept Chairs and pharmacy practice faculty; can be useful in identifying AACP and School-level faculty development needs for scholarship

LIMITATIONS OF ARTICLE - see specific items below that need to be addressed or clarified in the manuscript

INTRO

Mention of a second report with detailed content analysis of free text responses. Suggest that this only warrants one article and all comments should be interpreted along with survey results. Suggest verbatim responses should be analyzed for common themes, trends, and relevance to survey data. Based on this revision is needed prior to publication. As suggested by the first reviewer, we have deleted "free-text" responses. These free-text responses are extensive and difficult to analyze and will make the current manuscript vastly more complicated. We are not trying for a "least publishable unit" for this investigations, and we think there represent two stand-alone papers.

METHODS

1- Definition of scholarship/research - respondents were informed that scholarship was very broadly defined to include research, publications, etc. This will influence the interpretation of results as some faculty may have stronger requirements for research vs. publication vs. presentations yet this was not addressed or segmented for analysis. We thank the reviewer for this observation and have added a paragraph in the discussion section to address this.

2 - Did not see copy of the actual survey instrument attached. We have addressed this by offering to send the survey instrument to interested readers as suggested by the editor.

3 - Completion time for the survey was originally 2 weeks (sent out May 15 with summary statistics on May 30) then in results the final survey results were downloaded on June 17. Needs clarity for consistency - 1 month timeframe is more consistent with survey research. We have simplified this.

4 - Explain why methodology included sending survey to Dept Heads for redistribution to faculty rather than sending directly to the AACP list of Pharmacy Practice faculty. The Department heads e-mail addresses were

available to us. We were unaware that we might have obtained access to individual names.

RESULTS

1- Responses to Four Committee Charges

For Charge 1, an accurate needs assessment should to be stratified not for the general category of scholarship - rather for research, publications, presentations, etc. A faculty member may have different needs for each type of scholarly activity that would differ based on their background, tenure/non-tenure status, hiring expectations, etc.

* For example, does the need for collaborators mean research collaborators or co-authors on a clinical review article?

* Does the actual need relate to identifying appropriate collaborators or better working relationships with one's collaborators?

Because this question was not stratified by the type of scholarly activity and the question was too general, the interpretation is not accurate or meaningful. We think this point has merit and we have added a paragraph to elaborate on its importance. However, the committee charge was broad, and future surveys may wish to try to determine needs based on the particular faculty member's background.

For Charge 2 -- collaborators were the resource most available to most respondents. This seems to be contradictory to the findings in Charge 1.

Collaborators were low on the priority list to Charge #1 and we do not think this finding is contradictory.

Perceived importance of scholarship -- were respondents asked what the expectations were for scholarship upon hiring? Were they explicitly stated in the hiring offers? This was not in the questionnaire.

- 1 Did they indicate a % time? Difficult to interpret results without this info...is there a gap in perceptions between faculty and Dept Heads? These important questions do not seem to be addressed for the most meaningful interpretation of results. (see below)

Current Investigation -- states major findings - "there appears to be a large gap between the expectations of administration regarding the importance of scholarship...and the attitude of practice faculty." Can this be an accurate statement? In order for this statement to be accurate and data-driven, would need to ask the same question of Dept Head (admin) and practice faculty to see if there is gap. The survey question was, "How important is scholarship/research for career advancement in your current position?"

- i) Required
- ii) Very important
- iii) Somewhat important

iv) Not important

We believe that when faculty responded that scholarship is “required”, that it is likely to be an accurate statement, although we concede that it would be preferable to have Department Chairs answer this question.

Limitations - a serious limitation is the generic definition of scholarship/research - see comments above. And we have added a paragraph describing this limitation.

References -- did not see the recent AJPE article that is relevant to interpretation of data on annual publications: This was added and discussed.

Coleman CI, Schlesselman LS, Lao E, White CM. Number and impact of published scholarly works by pharmacy practice faculty members at accredited US colleges and schools of pharmacy (2001-2003). Am J Pharm Educ. 2007 Jun 15;71(3):44.