Research Note

Perceptions of pharmacy faculty need for development in educational research

Linda S. Behar-Horenstein[a,*], Diane E. Beck[b], Yu Su[c]

[a] Colleges of Dentistry, Education & Pharmacy, CTSI Educational Development & Evaluation, University of Florida, P.O. Box 100208 Communicore Building CG-72B, Gainesville, FL 32610-0208, United states
[b] Department of Pharmacotherapy and Translational Research College of Pharmacy, University of Florida, 1225 Center Drive, Gainesville, FL 32610, United States
[c] College of Education, University of Florida, P.O. Box 100208, Communicore Building CG-72B, Gainesville, FL 32610-0208, United states

ARTICLE INFO

ABSTRACT

Introduction: Pharmacy educators have identified that pharmacy faculty need a better understanding of educational research to facilitate improvement of teaching, curricula, and related outcomes. However, the specific faculty development needs have not been assessed. The purpose of this study was to investigate self-reported confidence among clinical doctor of pharmacy faculty in skills essential for conducting educational research.
Methods: Faculty members with primary responsibilities in teaching at the University of Florida College of Pharmacy were invited to the take the Adapted Self-Efficacy in Research Measure (ASERM). Descriptive analysis and independent samples *t*-tests were used to compare the self-efficacy items by faculty rank, gender, and years of experience.
Results: Twenty-two of the 37 faculty members answered the 30-item survey that identified their self-efficacy in items and categories of skills, including writing skills, statistical skills, research design, research management and dissemination in education research. Senior faculty had significantly higher confidence than junior faculty on seven items. Participants who worked more than ten years had statistically higher confidence in preparing and submitting grant proposals to obtain funding for educational research. Skills where both junior and senior faculty had low confidence were related to using non-traditional methods such as qualitative methods and identifying funding resources for educational research.
Discussion and conclusions: Findings from the ASERM provided insights among pharmacy educators regarding self-efficacy related to skills needed for educational research, options for faculty development opportunities and actions for improving educational research knowledge and skills among them.

Introduction

Health care is experiencing substantial and rapid change that is driving significant transformation in the doctor of pharmacy (PharmD) curricula. Changes in higher education are stimulating new approaches to teaching, learning and assessment in pharmacy education. There are also greater expectations of evaluating the effectiveness of teaching and curricula to improve educational outcomes. As faculty embark on implementing new curricular approaches that address ACPE Standards 2016, they need to be

---

* Corresponding author.
E-mail addresses: LBehar-Horenstein@dental.ufl.edu (L.S. Behar-Horenstein), Beck@cop.ufl.edu (D.E. Beck).

prepared to evaluate the effectiveness of these approaches and their impact on educational outcomes.[1]

McLaughlin et al.[2] have advocated that pharmacy educators need to better understand educational research to facilitate the improvement of teaching, curricula, and related outcomes. Educational research involves the use of systematic and critical investigation to explain educational issues. Although some pharmacy faculty have been trained in research, few understand educational research that is more closely related to social and behavioral research than pharmaceutical or clinical research. Since educational research uses a systematic approach to advance knowledge, the researcher must be equipped to guide, contribute, and develop theories related to education. Due to a paucity of literature about faculty efficacy in educational research, this was the focus of our study.

Faculty development that focuses on the knowledge and skills necessary to conduct educational research has not received a lot of attention. The 2009-10 AACP Faculty Affairs Committee provided a critical appraisal and recommendations for faculty development.[3] This report noted that faculty development programs must encompass all faculty subgroups but did not address the need for development around educational research. Zeind et al.[4] describe a sustainable faculty development program that included an assessment of faculty development needs. The assessment determined the broad needs of faculty such as developing courses, managing classroom, using teaching techniques, and preparing manuscripts. There was a single item that assessed faculty needs related to educationally related research activities. To better understand the developmental needs of faculty who desire to accomplish educational research, the assessment should address specific knowledge and skills required. The purpose of this study was to assess self-reported confidence in using skills related to educational research among clinical pharmacy faculty who have primary responsibility for teaching in a PharmD program.

Methods

Survey instrument

The Self-Efficacy in Research Measure (SERM), based on the self-efficacy framework suggested by Bandura, was adapted for this study.[5–8] The SERM is a 33-item survey that uses a nine-point rating scale (1-no confidence to 9-total confidence) originally developed by Phillips and Russell[9] for use with graduate psychology students. Previous studies demonstrated good overall internal consistency for the SERM and for the four subscales.[6,7] The subscales include: (1) writing skills (WS), gathering literature for and writing research papers; (2) statistical skills (SS), identifying hypothesis, preparing and managing data, and selecting and interpreting statistical tests; (3) research design (RD), addressing methodological considerations of a research study; and (4) research management and dissemination (RM-D), management, organization, and presentation of research studies. Since three of the items pertained specifically to completing a thesis or dissertation, these items were not included in the survey administered to pharmacy faculty. In nine of the items, we also added "educational" so that a reference is made to educational research rather than research. This survey was felt to be appropriate because psychology students are taught to use social, behavioral, and quantitative research methods and these same methods are essential for educational research.

Three graduate students and a faculty member with expertise in educational research independently categorized the 30 items to document content validity, which provided evidence that this instrument was appropriate for educational research. This content validation process resulted in articulating representative categories and related items. Based on their consensus, four categories and representative items were identified including: (1) writing skills (WS), items 5, 7, 13, 14, 20, and 29; (2) statistical skills (SS), items 2, 6, 16, 17, 19, 21, 22, 27, 28, and 30; (3) research resign (RD), items 1, 3, 9, 10, 11, 18, 23 and 24; and (4) research management and dissemination (RM-D), items 4, 8, 12, 15, 25, and 26.

Participants

Thirty-seven faculty members whose primary responsibilities are teaching at the University of Florida College of Pharmacy were invited to the take the adapted SERM (ASERM). At the University of Florida's College of Pharmacy, there are 77 faculty members with 37 teaching-intensive (clinical track) and 40 research-intensive (tenured or tenure-track) persons. The participating faculty designated as clinical track have significant teaching responsibility and are therefore encouraged to engage in educational research and scholarship. Tenure track faculty members have research expectations that focus on work funded by the National Institutes of Health (NIH) and other similar agencies. With consideration of these differences, only the clinical track faculty members were invited to complete the ASERM.

The faculty members invited to complete the survey have been able to participate in faculty development opportunities at the college of pharmacy and the health science center. Faculty development opportunities have primarily focused on educational research skill development, teaching, learning, and assessment (e.g., using educational literature, overview of statistical methods, survey and questionnaire design). Among the participants in this study, two faculty members completed the Medical Education Research Certificate Program that was initially developed by the American Association of Medical Colleges (AAMC) and was offered at the health science center in 2014–2015. Two other faculty members have completed education-related courses that are offered by the Harvard Macy Institute.[10,11] These programs included an emphasis on knowledge and skills essential for conducting educational research.

The survey was administered using Survey Monkey-Platinum[12] which is an encrypted version. The Institutional Review Board II approved this study (2015-U-1073).

Table 1
Frequency of Demographic Information.

Factor	Levels	Frequency	Percent
Rank	Clinical assistant	11	50.0
	Clinical associate	10	45.5
	Clinical professor	1	4.5
	Total	22	100
Teaching Experience	1–5 years	6	27.3
	5–10 years	8	36.4
	10–15 years	3	13.6
	15–20 years	3	13.6
	20 years	2	9.1
	Total	22	100
Gender	Female	14	63.6
	Male	8	36.4
	Total	22	100

Statistics

In the current study, the data sets were evaluated and determined to be normally distributed and independent. We compared the scores between males and females and by faculty rank. Years of experience was collapsed into two groups, up to ten years and over ten years. For each demographic group, an independent samples *t*-test was run for each subscale of the ASERM. The *a-priori* level of significance was set at 0.05. All statistical analyses for ASERM scale were conducted using SPSS 23.0.[13] Descriptive statistics are reported for all survey items and participant demographics.

Results

Survey sample

Twenty-two faculty members completed the survey resulting in a 60% response rate. The participants were comprised of clinical assistant (n = 11, 50%), clinical associate (n = 10, 44.5%), and clinical professor (n = 1, 4.5%) ranks. Since there was only one clinical professor, the analysis related to faculty rank was performed with clinical associate and clinical professors combined (senior faculty). Clinical assistant professors were designated as junior faculty. There were 14 females (63.6%) and eight males (36.4%). Fourteen (63.6%) faculty had worked at the college less than 10 years and 36.4% more than 10 years (Table 1).

Survey results

Mean survey scores for items ranged from 1.82 to 7.32 (Table 2). Based on the results of all participants the five items and related categories with the highest reported confidence were: 1) entering data in a database or spreadsheet (m = 7.32; writing skills); 2) keeping records during an education research project (m = 7.23; research management and dissemination); 3) writing the introduction and literature review for an educational research publication, (m = 6.86; writing skills); 4) preparing an education research presentation for a conference (m = 6.77; research management and dissemination); and 5) reviewing the relevant literature in an area of research interest (m = 6.73; writing skills). Five items with the lowest reported confidence included four in statistical skills: 1) writing statistical computer programs (m = 1.82); (2) operationalizing variables of interest (m = 2.54); (3) designing an experiment using non-traditional methods (e.g., ethnographic, phenomenological, grounded theory approaches) (m = 2.59); and 4) using statistical packages (e.g., SPSS, SAS, etc.) (m = 3.00). The other item was identifying funding sources to help pay for education research (m = 2.77) (Research Management and Dissemination).

A descriptive analysis of each category showed that the level of confidence was highest in statistical skills (m = 40.86, SD = 13.90), followed by writing skills (m = 39.05, SD = 13.90) and research design (m = 37.50, SD = 14.82). Research management and dissemination (m = 29.14, SD = 13.14) had the lowest level of confidence (Table 2).

Comparison of items by demographics

Senior faculty had significantly higher confidence than junior faculty on the following items: 1) selecting a suitable education research topic for study (p = 0.011); 2) writing the methods section for an education research paper for publication (p = 0.006); 3) designing an experiment using traditional methods (e.g., experimental, quasi-experimental designs (p = 0.009); 4) making time for education research (p = 0.001); 5) formulating education research hypotheses (p = 0.026); 6) identifying funding sources to help pay for education research (p = 0.036); and 7) preparing and submitting grant proposals to obtain funding for education research (p = 0.009).

A comparison of items by years of experience showed one statistically significant difference on the item "preparing and submitting grant proposals to obtain funding for education research." Participants who worked more than ten years had statistically higher

Table 2

Mean/Standard Deviations (SD) to Adapted Survey of Efficacy in Research Measure Items by Category (N = 22).

Item	Category	Mean/SD of all Faculty	Mean/SD of Senior Faculty	Mean/SD of Junior Faculty	Significance
1. Selecting a suitable education research topic for study.	RD[a]	6.00/2.27	7.18/1.16	4.82/2.52	0.011
2. Knowing which statistical methods to use.	SS[b]	4.18/2.32	5.00/2.32	3.36/2.11	NS
3. Getting an adequate number of subjects.	RD	5.23/2.11	5.82/1.25	4.64/2.66	NS
4. Preparing an education research presentation for a conference.	RM-D[c]	6.77/2.58	7.82/1.54	5.73/3.15	NS
5. Writing the methods section for an education research paper for publication.	WS[d]	6.00/2.45	7.36/1.56	4.62/2.46	0.006
6. Entering data in a database or spreadsheet.	SS	7.32/2.78	7.64/2.46	7.00/3.17	NS
7. Writing a discussion section for an education research paper.	WS	6.64/2.44	7.55/1.81	5.73/2.72	NS
8. Keeping records during an education research project.	RM-D	7.23/2.31	7.36/0.92	7.10/3.21	NS
9. Collecting educational outcomes data.	RD	5.73/2.27	6.00/1.55	5.45/2.84	NS
10. Designing an experiment using non-traditional methods (e.g., ethnographic, phenomenological, grounded theory approaches).	RD	2.59/1.71	2.82/2.04	2.36/1.36	NS
11. Designing an experiment using traditional methods (e.g., experimental, quasi-experimental designs).	RD	5.00/2.74	6.45/2.34	3.55/2.38	0.009
12. Making time for education research.	RM-D	3.77/2.41	5.37/2.25	2.18/1.25	0.001
13. Writing the introduction and literature review for an education research for publication.	WS	6.86/2.57	7.81/1.60	5.91/3.05	NS
14. Reviewing the relevant literature in an area of research interest.	WS	6.73/2.37	7.64/1.75	5.82/2.64	NS
15. Contacting researchers currently working in an area of education research interest.	RM-D	5.59/2.54	6.18/2.18	5.00/2.83	NS
16. Avoiding the violation of statistical assumptions.	SS	4.59/2.91	5.18/2.71	4.00/3.10	NS
17. Using simple statistics (e.g., t-test, ANOVA, correlation).	SS	4.64/2.80	5.55/2.58	3.73/2.83	NS
18. Controlling for threats to validity.	RD	4.00/2.37	4.73/2.45	3.27/2.15	NS
19. Formulating education research hypotheses.	SS	4.95/2.46	6.09/2.07	3.82/2.36	0.026
20. Writing the results section of an education research paper for publication.	WS	6.45/2.84	7.45/2.21	5.45/3.14	NS
21. Using multivariate statistics (e.g., multiple regression, factor analysis).	SS	3.45/2.50	4.00/2.51	2.91/2.47	NS
22. Using statistical packages (e.g., SPSS, SAS).	SS	3.00/2.54	3.55/2.38	2.56.2.73	NS
23. Selecting a sample of subjects from a given population.	RD	4.91/2.81	5.55/2.50	4.27/3.01	NS
24. Selecting reliable and valid measurement instruments and/or surveys.	RD	4.05/2.42	4.73/2.10	3.36/2.62	NS
25. Identifying funding sources to help pay for education research.	RM-D	2.77/1.80	3.73/1.79	1.81/1.25	0.009
26. Preparing and submitting grant proposals to obtain funding for education research.	RM-D	3.00/2.07	3.91/2.12	2.09/1.64	0.036
27. Writing statistical computer programs.	SS	1.82/2.26	1.64/1.80	2.00/2.72	NS
28. Operationalizing variables of interest.	SS	2.54/1.94	2.64/1.50	2.45/2.38	NS
29. Writing the discussion section for a research paper for publication.	WS	6.36/2.56	7.18/1.83	5.55/2.91	NS
30. Interpreting computer printouts of educational research results.	SS	4.36/2.75	4.45/2.46	4.28/3.13	NS

[a] Research Design.
[b] Statistical Skills.
[c] Research Management and Dissemination.
[d] Writing Skills.

confidence (m = 4.25) than those who worked less than ten years (m = 2.29, p = 0.028) with this item. There were no statistically significant differences due to gender by item.

Comparison of item categories by demographics

Table 3 provides a comparison of means for the following four item categories: writing skills, statistical skills, research design, and research management and dissemination. Senior faculty demonstrated statistically significant higher writing skills than junior faculty (m = 45.00 versus m = 33.09, p = 0.041) and higher research management skills (m = 34.36 versus m = 23.91, p = 0.012). There were no significant differences among the four categories based on length of work experience (< 10 years vs. 10+ years) or gender.

Table 3

Descriptive Statistics for ASERM Survey Categories by Senior and Junior Faculty (n = 22).

	Mean/SD	Mean/SD of Senior Faculty	Mean/SD of Junior Faculty	Significance
Writing Skills	39.05/13.90	45.00/9.28	33.09/15.53	0.041
Statistical Skills	40.86/19.50	45.64/17.84	36.09/20.74	NS
Research Design	37.50/14.82	43.27/10.78	31.72/16.48	NS
Research Management & Dissemination	29.14/10.14	34.36/7.83	23.91/9.72	0.012

Discussion

The findings showed that there were significant differences in participant confidence levels due to rank. Senior faculty had significantly higher means on seven items, including three items related to research management and dissemination (RM-D), two items related to research design (RD), one item related to writing skills (WS) and one item related to statistical skills (SS). Many of the items in which differences were observed hold implications for conceptualizing and implementing educational research including selecting an education research topic, formulating education research hypotheses, designing an experiment using traditional methods and writing the methods section. Compared to senior faculty, junior faculty were less confident in their ability to make time for educational research. Based on these findings, the authors conclude that rank and participant confidence in educational research practices are related. There were no differences in item confidence when compared by gender and years of experience. There was consistency between items and items categories in which higher levels of confidence were observed.

Perhaps the findings are not surprising. Many assistant professors, unless they are well prepared and knowledgeable about the professoriate, are typically not prepared to launch a research program upon their entry into the academy. Another issue as reported by Zafar[14] is that faculty members may not have not have a clear understanding of the numbers for articles they are expected to produce or the preferred research journal publications. Often new faculty members are overwhelmed with acculturation, socialization, and teaching expectations. Thus, expectations for publications are not prioritized.

Given competing demands and a desire to become integrated into their department and schools, new faculty members may not pursue educational research. Moreover, for clinical track faculty members who carry heavy teaching loads, finding the energy or initiative to focus on educational research may be usurped by demands related to course development, reading and grading student assignments, responding to student and departmental emails, and faculty meetings. Often when faced with overwhelming roles, faculty members resort to completing the work where they are most confident and avoid tasks that are more challenging.

Zibrowski et al.[15] have explored why medical educators struggle with having time to pursue educational scholarship. Like medical educators, clinical track pharmacy educators have significant patient care and teaching responsibilities. Zibrowski et al.[15] found that medical faculty reported a lack of protected time, fragmentation of time, and prioritization of time due to competing expectations, as well as motivation as barriers. They also noted the degree of recognition and support that is available for educational scholarship played a role in their motivation to pursue it.[15]

A strategy for enhancing support is to send faculty members to workshops and seminars outside the institution or to utilize an on-site collegial process oriented model.[10,11] At the University of Florida Health Science Center, several colleges have made available an on-site peer faculty development and a consultation model for over five years.[16] The consultant has used findings from similar studies to tailor mentoring and to coach faculty in the conceptualization, implementation and writing of educational research studies through publication. During initial meetings with a faculty member, the consultant discusses potential research study interests and develops a prioritized list of work and timetables for completing portions of the study. The consultant schedules regular meetings with the faculty member or follows up to check in on their progress. She also co-authors papers and assists with data analysis. Co-writing with faculty has been an asset in bringing research studies to publication. As a measure of its success, it has resulted in more than 31 publications in dental education over a five-year period, and nine in veterinary medicine over 24 months.[16] Currently, there are more than five dozen educational studies in development across the entire health science center from stages of conceptualization to data collection and analysis to manuscript writing under review. This personalized approach has been successful in raising awareness about the important contributions that educational research can provide to a health science center.

As expectations of evaluating the effectiveness of teaching and curricula outcomes continue to increase, colleges of pharmacy across the nation will need to invest resources into ensuring that its faculty are equipped with the necessary skills to assess the effectiveness of teaching inputs and outcomes. Wise administrators will make a commitment to a systematic faculty development initiative that helps them nurture untapped faculty talent and ensures faculty vitality and retention.[1]

The findings in this study are similar to what was has been reported in studies of faculty in dentistry and veterinary medicine. Both veterinary medicine and dental faculty reported a need to develop skills relative to grant proposal writing, documenting educational outcomes, and writing an educational research manuscript.[17,18] Dental faculty also reported a need to augment their skills in developing research designs.

Findings from this study can be used to guide faculty development programs and ensure that skill enhancement is tailored to faculty needs by rank, years of experience and commensurate with their department's expectations for retention and promotion. This activity should be coupled with the identification of clear expectations for research/scholarship when faculty are hired,[19] and provide educational services that foster a proliferation of timely and scholarly educational research. College resources should make certain that faculty can formulate research questions and engage in the systematic collection and interpretation of data.

The study has implications for pharmacy faculty with intensive teaching responsibilities. The findings provide insights from a small group of pharmacy educators regarding the perceptions of themselves as educational researchers and options for faculty development opportunities and actions for improving educational research knowledge and skills. The findings from this study provide one approach to identifying faculty development needs related to educational research. Moreover, carefully planned and implemented faculty development opportunities are encouraged to increase the number of pharmacy faculty who have confidence in conducting educational research. Study findings offer insight for faculty members and administrators who are contemplating ways to build their institutional portfolio of educational research. Findings from the previously mentioned studies in other health science colleges provide guidance that can be used to frame approaches to faculty development in pharmacy education at our institution and others.

The University of Florida College of Pharmacy is now adopting this same faculty development and consultation model described above, as a strategy for enhancing faculty confidence in educational research. On site and online seminars and educational research

sessions through a health science center wide teaching and research program provide opportunities for faculty to develop new research educational knowledge, skills, and collaborations. Future studies should aim to conduct a national survey to establish a baseline faculty level of confidence as it relates to conducting educational research.

Study limitations were the use of a single survey administration, lack of control group, inability to determine if social desirability bias (SDB) impacted participant responses, and a small sample size. The first three limitations and potential biases are inherent to most surveys. Those who responded to the survey tend to care most about the topic. Therefore, the findings may not reflect the beliefs of the entire population of clinical faculty. SDB refers to the authenticity of responses. Without using a measure of SDB it cannot be known if participants answered in ways that reflected their beliefs or if they responded with answers that they believed that the researcher was seeking. Since this study was conducted at only one pharmacy school, the findings have limited generalizability.

Another potential limitation is the survey tool that was used to evaluate faculty confidence in educational research. We adapted the SERM since there were no other survey tools for measuring educational research described in the literature. This survey was originally developed for administration with psychology graduate students. Based on a review of the survey items and our experience in assisting pharmacy with educational research, we believed it equally measured areas of research that pharmacy faculty seek help with as they are engaging in educational research. This adaptation also included modification of wording so that the items stimulated faculty to reflect on the elements of research in the context of education. Further study is needed to evaluate whether the ASERM has evidences of validity for measuring pharmacy faculty confidence in educational research.

This study only included clinical, non-tenure track faculty. Although our institution is research intensive, the clinical faculty are more typical of a smaller college. It is important to point out that there are different expectations for research scholarship between tenure-track faculty (NIH-funded) and clinical faculty. Research faculty have fewer teaching responsibilities and educational research is not their focus. Including tenure-track faculty in this study would not have been meaningful because the study purpose and findings are largely irrelevant to the expectations associated with their appointment.

We decided to conduct a quantitative study to identify baseline findings and potential significant relationships among this group of clinical faculty. However, this is not the only approach to understanding clinical faculty confidence in the use of educational research skills. Qualitative research, using either interviews or focus groups with clinical faculty should also be conducted.

Conclusions

The survey of 22 faculty members at a single pharmacy college showed that senior faculty were more self-efficacious in seven items related to the categories of research management and dissemination, research design, writing skills, and statistical skills on the ASERM tool. Senior faculty also reported higher levels of self-efficacy on items in writing skills and research design. Skills where both junior and senior faculty had low confidence were related to using non-traditional methods such as qualitative methods, identifying funding resources for educational research, and use of statistical software.

Disclosures

None

Funding

References

1. Accreditation Council for Pharmacy Education. Accreditation Standards and Key Elements for the Professional Program in Pharmacy Leading to the Doctor of Pharmacy Degree (Standards 2016). Published February 2015. Available at: ⟨https://www.acpe-accredit.org/pdf/Standards2016FINAL.pdf⟩. Accessed 19 September 2017.
2. McLaughlin JE. A roadmap for educational research in pharmacy. *Am J Pharm Educ.* 2013;77(10):Article 218.
3. Guglielmo BJ, Edwards DJ, Franks AS, et al. A critical appraisal of and recommendations for faculty development. *Am J Pharm Educ.* 2011;75(6):Article 122.
4. Zeind CS, Zdanowicz M, MacDonald K, et al. Developing a sustainable faculty mentoring program. *Am J Pharm Educ.* 2005;69(5):Article 100.
5. Bandura A. Self-efficacy: toward a unifying theory of behavioral change. *Psychol Rev.* 1977;84(2):Article 191.
6. Phillips JC, Russell RK. Research self-efficacy, the research training environment, and research productivity among graduate students in counseling psychology. *Couns Psychol.* 1994;22:628–641.
7. Heppner PP, Wampold BE, Owen J, Thompson MH, Wang KT. *Research Design in Counseling.* 4th ed. Boston, MA: Cengage Learning; 2015.
8. Gelso CJ, Lent RW. Scientific training and scholarly productivity: the person, the training environment, and their interaction. In: Brown SD, Lent RW, eds. *Handbook of Counseling Psychology.* New York, NY: John Wiley & Sons, Inc; 2000.
9. Gelso CJ, Mallinckrodt B, Judge AB. Research training environment, attitudes toward research, and research self-efficacy: the revised Research Training Environment Scale. *Couns Psychol.* 1996;24:304–322.
10. American Association of Medical Colleges. (AAMC) Medical Education Research Certificate Program (MERC). Available at: ⟨https://www.aamc.org/members/gea/merc/⟩. Accessed 19 September 2017.
11. Harvard Macy Institute. Available at: ⟨http://www.harvardmacy.org⟩. Accessed 19 September 2017.
12. Anon. survey Monkey. Available at: ⟨https://www.surveymonkey.com⟩. Accessed 19 September 2017.
13. Statistical Package for the Social Sciences. (SPSS) Chicago, Illinois: SPSS Inc.; 2006.
14. Zafar MA. *Perceptions and Experiences of the Socialization Processes Among Early Career Foreign National Tenure-accruing Faculty In A Research I University [dissertation].* Gainesville, FL: University of Florida; 2011.
15. Zibrowski EM, Weston WW, Goldszmidt MA. 'I don't have time': issues of fragmentation, prioritization and motivation for education scholarship among medical faculty. *Med Educ.* 2008;42(9):872–878.

16. Faculty Development at the University of Florida College of Dentistry. Available at: ⟨http://facdev.dental.ufl.edu/⟩. Accessed 19 September 2017.
17. Behar-Horenstein LS, Ginn PE, Garvan CW. Perceived knowledge, priorities and needs among veterinary medicine faculty. *IOSR J Agr Vet Sci.* 2016;9(7):14–16.
18. Behar-Horenstein LS, Garvan CW, Catalanotto FA, Hudson-Vassell CN. The role of needs assessment for faculty development initiatives. *J Fac Dev.* 2014;28(2):75–86.
19. Robles JR, Youmans SL, Byrd DC, Polk RE. Perceived barriers to scholarship and research among pharmacy practice faculty: survey report from the AACP scholarship/research faculty development task force. *Am J Pharm Educ.* 2009;73(1):Article 17.