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# Faculty Support for a Culture of Scholarship of Discovery: A Literature Review

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ABSTRACT

*Background:* A review of the literature was completed answering the question: "What is known about the barriers to, and support of, the scholarship of discovery that faculty members in nursing and related health sciences (i.e., medical, dental, and pharmacy) whose time is used in both the academic setting and clinical setting encounter as they develop programs of research, engage in grant writing, and pursue scientific publication?"
*Methods:* Using a systematic approach, a total of 29 articles were included in this review.
*Results:* Four major themes were identified: (1) Organizational expectations (2) administrative support (3) mentorship and (4) barriers to scholarship in nursing and related health sciences faculty. Organizational expectations and administrative support were critical in developing and maintaining a culture of scholarship, various mentorship models improved faculty scholarship skills and productivity, while multiple barriers were found to inhibit faculty development and scholarly productivity.
*Conclusion:* The implementation of organizational, administrative, and faculty activities and interventions can promote a culture of scholarship. Further research is needed to determine which interventions are most helpful in developing health science faculty scholarship.

Scholarship, service, and teaching are the primary components of nursing faculty's role. Nursing faculty teach in the clinical and classroom setting and are called on to participate in the scholarly development of the discipline itself. Engaging in scholarly pursuits such as research, grant-writing, presentations, and publication is an expectation for some faculty members in academia, while the scholarship of other faculty may focus on teaching and/or practice. However, competing demands on faculty time and lack of resources often make it problematic to engage in scholarly activities. How can these issues be overcome?

A review of the literature was completed to identify and evaluate the evidence that distinguishes what is most helpful to faculty members in nursing and related health sciences (i.e., medical, dental, and pharmacy) whose time is used in both the academic and clinical setting as they develop their scholarly skills. The guiding question is: "What is known about the barriers to, and support of, the scholarship of discovery that faculty members in nursing and related health sciences (i.e., medical, dental, and pharmacy) whose time is used in both the academic setting and clinical setting encounter as they develop programs of research, engage in grant writing, and pursue scientific publication?"

## Background

The American Association of Colleges of Nursing (AACN, 2018) position paper *Defining Scholarship for Academic Nursing* broadly identifies the three pillars of faculty scholarship: Discovery, practice, and teaching. For discovery, a wide definition is used (AACN, 2018) which includes research, theory development and testing, analysis of large data sets, and philosophical discussions. The scholarship of practice includes evidence-based practice. For the scholarship of teaching, AACN (2018) called on academic institutions to recognize scholarly teaching, grounded in research and using educational approaches that engage learners and technologies supported by research. AACN (2018) recommended that scholarly efforts not be restricted to academic institutions; indeed, the scholarship of practice calls for creation of inter-institutional teams of scholars and clinicians. This is accomplished by integrating scholarship between and among institutions. By aligning with practice partners, nursing scholars in academia may facilitate

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health care transformation through development of new relationships and shared projects.

The scholarship of discovery is the focus of this review. The work of faculty that creates science–research—and associated activities, such as development of theory, determining patterns in large data sets, and philosophical discussions (AACN, 2018), are included. As many institutions offering advanced degrees hold their faculty responsible for development of the scientific foundation of the discipline of nursing, these activities are both highly regarded and rewarded in higher education. Often, these are linchpin experiences both for faculty professional development and for career advancement. Therefore, there is utility in determining which activities and supports are most helpful to new and mid-career faculty members. Identifying and overcoming barriers to the scholarship of discovery also provides an opportunity to identify implications for institutions and faculty members as they seek to grow their skills and their careers.

## Approach

The question "What is known about the barriers to, and support of, the scholarship of discovery that faculty members in nursing and related health sciences (i.e., medical, dental, and pharmacy) whose time is used in both the academic setting and clinical setting encounter as they engage in philosophical discussions, develop programs of research, engage in grant writing, and pursue scientific publication?" gave rise to key words that were used in the literature search. A search was conducted of the Cumulative Index of Nursing and Allied Health Literature (CINAHL) and PubMed to identify publications in peer-reviewed journals in nursing and other health science professions. Key words were *nursing*, *faculty*, other health science professions' faculty (*dental*, *medical*, and *pharmacy*); *staff development*, and *research* (see Fig. 1). Articles were limited to those published in English between 2000 and 2018. From the initial 1091 articles found in the search, titles and abstracts were reviewed for specific relevance to the question posed. Thirty-five were chosen for closer review with the majority published between 2008 and 2018 and included nursing and other health profession faculty. After an initial reading of the 35 articles, 11 were unrelated to the question and removed, an additional five resources were identified using the archival method leaving 29 articles included in the final review (See Fig. 1). A summary of the reviewed articles appear in the provided evidence table (Table 1).

### *Analysis*

The quality of the evidence was weak to moderate, as assessed using Melnyk and Fineout-Overholt's (2015) levels of evidence. Of the final 29 articles, eight were identified as level I-IV evidence which including one quantitative and two qualitative, four mixed methods and one systematic review. The remaining 21 were level IV-VII including descriptive reports, case studies, program evaluation, or expert opinion based articles. Of the 29 articles in the final review seven focused on medical faculty, four other health science faculty and the remaining 18 from the profession of nursing. From the 29 articles, specific themes emerged from reading, creating a holistic understanding of the required attributes for successful faculty scholarship production. Four major themes were identified: (1) organizational expectations, (2) administrative support, (3) mentorship, and (4) barriers to scholarly production.

### *Organizational expectations*

Organizational expectations are a major factor in faculty engagement in the scholarship of discovery. These expectations (Suplee & Gardner, 2009) are often outlined in formal organizational documents, such as the published mission/vision/philosophy (Smesny et al., 2007) and values of the university, the school/college of nursing, or both. Institutional structure, characteristics (McBride et al., 2017) and climate, such as size and location of the university (Smeltzer et al., 2014a;

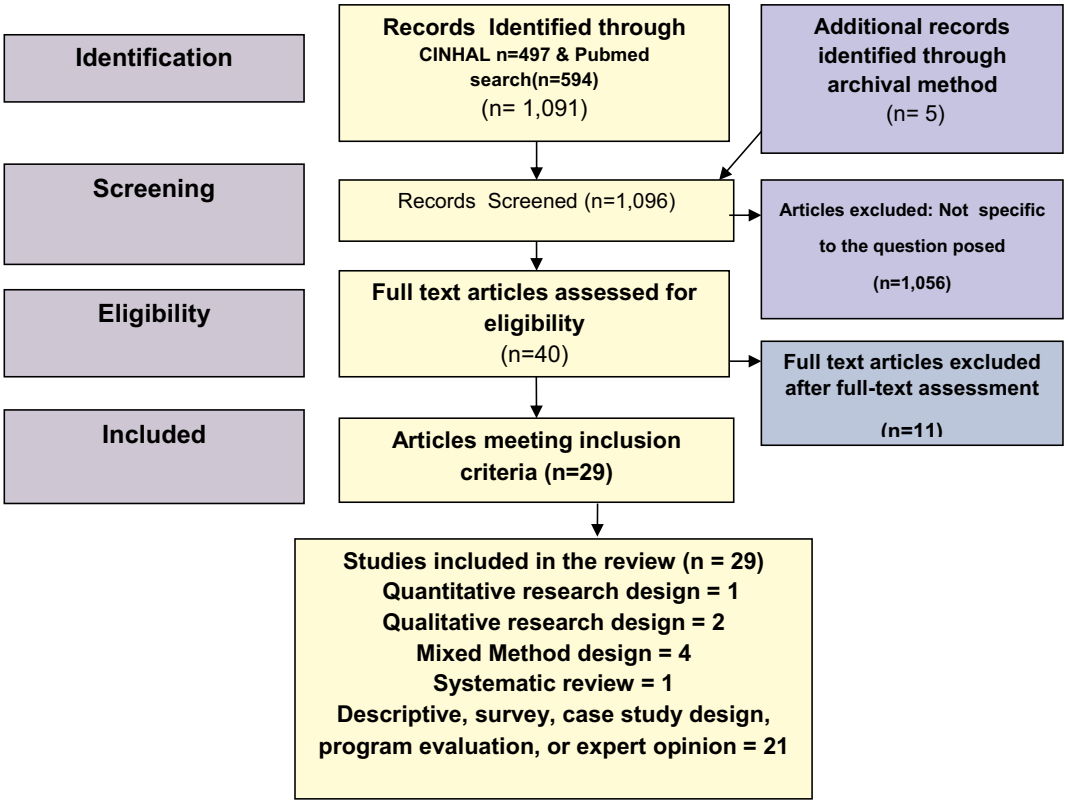


**Fig. 1.** Flow chart of search strategy.

**Table 1**
Faculty support for a culture of scholarship evidence table.

| Author, year, title | Purpose | Research design (Level of evidence; type of research, sampling, setting) | Intervention/variable or program description | Results |
|---|---|---|---|---|
| Baldwin, C., & Chandler, G. E. (2002). Improving faculty publication output: The role of a writing coach. *Journal of Professional Nursing, 18*(1), 8–15. doi: https://doi.org/10.1053/jpnu.2002.30896 | Program of support, including writing coach. | Level VII<br>Large USA Eastern university college of nursing, n = 16 faculty voluntarily participated. | Coaching and leadership used to improve publication success, along with writing coach. | Outcomes:<br>21 submissions with 16 publications over 2.5 years. |
| Bertram, A., Yeh, H.C., Bass, E.B., Brancati, F., Levine, D., & Cofrancesco, J. (2015). How we developed the GIM clinician-educator mentoring and scholarship program to assist faculty with promotion and scholarly work. *Medical Teacher*, 37(2), 131–135. doi: 103109/142159X | Evaluate the Clinician-Educator Mentoring and Scholarship Program (CEMSP), and review patterns of faculty promotions. | Level VII<br>Large USA research-intensive academic health center college of nursing; n = not stated. | CEMSP program developed to assist faculty with scholarship:<br>1. Junior faculty meet with director of program and other faculty regularly.<br>2. Writing assistance and assistance in developing presentations for scientific meetings. | Outcomes over 20 years:<br>21 faculty promoted with an average of 30 publications/year. Barriers: Lack of time and financial support. |
| Brandon, C., Jamadar, D., Girish, G., Dong, Q., Morag, Y., & Mullan, P. (2015). Peer support of a faculty "Writers' Circle" increases confidence and productivity in generating scholarship. *Radiologic Education*, *22*(4), 534–538. doi: http://dx.doi.org/10.1016/j.acra.2014/12.006 | Evaluate a peer-supported writing group. | Level VI<br>Large midwestern university department of radiology, n = 6<br>Single, post-test descriptive study. | Program:<br>Faculty formed their own writers' circle; focus on manuscripts which had been rejected previously; n = 10 revisions. | Results: Within 6 months, 4 manuscript accepted, 5 in revision. Motivation to publish improved. |
| Cullen, D., Shieh, C., McLennon, S. M., Poke, C., Harman, T., & Shah, H. (2014). Mentoring nontenured track nursing faculty: A systematic review. *Nurse Educator*, *42*(6), 290–294. doi: https://doi.org/10.1097/NNE.0000000000000394. | Identify mentoring effectiveness on non-tenured track faculty progression, and productivity for advancement. | Level I<br>Systematic Review: Progression of non-tenured faculty and mentoring.<br>Articles = 60, qualitative and quantitative studies. | Selection of articles clearly outlined in the review. | Overarching theme: Mentoring needed for success.<br>Organizational support important. Barriers included workload, time and scheduling. Mentor and organizational support often lacking. |
| Hawkins, J. W., & Fontenot, H. (2009). What do you mean you want me to teach, do research, engage in service, and clinical practice? Views from the trenches: The novice, the expert. *Journal of the American Academy of Nurse Practitioners*, *21*(7), 358–361. doi: https://doi.org/10.1111/j.1745-7599.2009.00421.x. | To explicate two points of view- the novice and the expert nurse practitioner (NP) faculty member and their efforts toward scholarly production. | Level VII<br>Expert opinion; case description of a single dyad of NP faculty (one junior, one senior). | Mentoring of junior nurse practitioner faculty with a senior nurse practitioner faculty in diverse faculty roles relating to both general academic requirements and those particular roles related to NP education. | Barrier was lack of time for scholarly activities due to the extraordinary amount of time spent recruiting new NP clinical preceptors. |
| Heinrich, K.T., & Oberleitner, M. G., (2012). How a faculty group's peer mentoring of each other's scholarship can enhance retention and recruitment. *Journal of Professional Nursing, 28*(1), 5–12. doi: https://doi.org/10.1016/j.profnurs.2011.06.002 | Program designed for peer mentoring toward publication, recruitment and retention of junior faculty. | Level VI<br>Case study of a 3-year professional development program initiated by a USA Southern university.<br>n = 31, involved over 3 years. | A pre-project survey identified needed aspects of the program. | Increased scholarly production (but no specifics offered); peer-mentoring led to a partnership culture at the institution. |
| Jacelon, C. S, Zucker, D. M., Staccarini, J.M., & Henneman, E. A. (2003). Peer mentoring for tenure-track faculty. *Journal of Professional Nursing, 19*(6), 335–338. doi: https://doi.org/10.1016/S8755-7223(03)00131-5 | Discussion on how one small group was able to support one another through the tenure-track process and peer-mentor their way to productive research careers. | Level VII<br>Large research-intensive university in the USA<br>n = 6 | One small group encouraged and facilitated research, publication and peer-review. | After one year, 10 articles were submitted to peer-reviewed journals with five accepted. Four of eight grants submitted were funded. |
| Lewallen, L.P., Crane, P.B., Letvak, S., Jones, E., & Hu, J. (2003). An innovative strategy to enhance new faculty success. *Nursing Education Perspectives*, *25*(5), 257-260. Retrieved from http://www.nln.org/nlnjournal/index.htm | To understand the stressors and expectations faced by new faculty, as well as explore innovative ways of assuring new faculty success. | Level VI<br>Research design: Descriptive qualitative, n = 5 faculty at an Eastern USA research-intensive university college of nursing | Development of a self-governing support group of new faculty as strategy to assist in faculty success. Included support for publications, presentations and pursuit of tenure. | Benefits included reduced stress, increased camaraderie and support. Barriers identified included time and difficulty scheduling meetings. Group became exclusive. Mentoring was only somewhat helpful. |
| McBride, A.B., Campbell, J., Barr, T., Duffy, J., Haozous, E., Mallow, J., Narsavage, G., Ridenour, N., Theeke, L. (2017). The impact of the Nurse Faculty Scholars program on schools | RWJF scholars program participation and individual scholars impact on institutions.<br><br>Goal of program: Impact scholarship of the individual and institutional development. | Level VI<br>Design: Mixed method.<br>First 5 years cohorts N = 66 at 46 USA universities<br>1. Qualitative open-ended phone | Program focused on broadening the understanding for the faculty role; widening influence both at the institution and nationally and assisting scholars to assume greater leadership roles. | Qualitative: 6 themes<br>Outcomes included achievement of program goals. Lessons learned: Need dedicated time and resources; national mentoring; regular faculty meeting focused on scholarship; |

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**Table 1** (*continued*)

| Author, year, title | Purpose | Research design (Level of evidence; type of research, sampling, setting) | Intervention/variable or program description | Results |
|---|---|---|---|---|
| of nursing. *Nursing Outlook*, *65*(3), 327–335. doi: https://doi.org/10.1016/j.outlook.2017.01.013 | | interview of deans.<br>2. Quantitative survey of Deans: instrument (6 item survey) was based on the key themes expressed in the first series of interviews. | | training programs needed for leadership development. |
| Minnick, A., Kleinpell, R., & Norman, L. D. (2018). Promoting faculty scholarship: A clinical faculty scholars' program. *Journal of Nursing Education*, *57*(2), 121–125. doi: https://doi.org/10.3928/01484834-20180123-11 | Evaluation of The Scholarly Practice Investment Program (SPIP), designed to support nontenure track faculty to build or sustain scholarship in clinical areas. | Level VI<br>Case study of development and results of the scholarly practice program (SPIP);<br>n = 15 faculty chosen through an application process. | Faculty received 20% release time for no more than two years to meet demands of the project. Mentorship and consultation provided by faculty mentors. | Outcomes: 15 presentations, three posters, 19 publications, and a webinar. Three projects received external funding. |
| Minnick, A. F., Norman, L. D., & Donaghey, B. (2017). Junior research track faculty in U.S. schools of nursing: Resources and expectations. *Nursing Outlook*, *65*(1), 18–26. doi: https://doi.org/10.1016/j.outlook.2016.09.004 | Describe junior nursing research faculty recruitment; nursing programs' support during the first 2 years of employment; and administrators' views about the strength and weaknesses of the junior nursing research faculty pool. | Level IV<br>Survey research.<br>USA nursing program administrators (deans).<br>52% response rate (n = 125). | | Realistic, measurable goals for scholarly production very important.<br>Discrepancy between reported "generous support" for early career research support, versus what was actually provided. Need to strengthen doctoral programs. |
| Mueller, C. M., Gaudilliere, D. K, Kin, C., Menorca, C., & Girod, S. (2016). Gender disparities in scholarly productivity of U.S. academic surgeons. *Journal of Surgical Residency*, *203*(1), 28–33. doi: https://doi.org/10.1016/j.jss.2016.03.060 | Explore gender disparities among female surgeons related to scholarly production, rank, and advancement in 3 USA universities. | Level VI<br>Quantitative retrospective descriptive analyses of publication #, H index. centers and looked at M and F cohorts and academic rank over 60 year span<br>n = 978 (M = 744, F = 234)<br>On-line profiles of full-time faculty were examined. | | Females of lower ranked and had less scholarly production than males.<br>Barriers: possible institutional bias, lack mentoring of faculty, lack of understanding of promotion requirements. |
| Nies, M. A. & Troutman-Jordon, M. (2012). Mentoring nurse scientists to meet nursing faculty workforce needs. *The Scientific World Journal*, *Article* 345085, 1–5. doi: 10.1100/2012/3450853. | Discusses the role of a senior nursing faculty member in mentoring a junior nursing faculty member and the mutual benefits of the mentoring process. | Level VI<br>Case study.<br>Described a single junior/senior faculty dyad. | | Mentoring important between senior and junior faculty. Carefully planned research, service and presentation activities can support tenure process in junior faculty. Collaboration on projects also helpful. |
| Pfund, C., Byars-Winston, A., Branchaw, J. Hurtado, S., & Eagan, K., (2016). Defining attributes and metrics of effective research mentoring relationships. *AIDS Behavior. Suppl* 2, 238–248. doi: https://doi.org/10.1007/s10461-016-1384-z. | Review of the literature focusing on attributes of successful research mentoring and outcome measures (not restricted to nursing as a discipline). | Level VI<br>Non-systematic review of the literature which focuses on mentoring. Theoretical constructs of interest were outlined. | | Attributes identified from 5 domains: Research skills and research self-efficacy; relationship building; creation of a culture of scholarship; advancing equity and inclusion; and mentor/mentee sponsorship.<br>Outcomes of research mentoring included academic persistence; self-efficacy in research; developing a science identity and career satisfaction. |
| Reader, S., Fornari, A., Simon, S., & Townsend, J. (2015). Promoting faculty scholarship – An evaluation of a program for busy clinician-educators. *Canadian Medical Education Journal*, *6*(1) e43-e60. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4563620/ | Determine if a faculty development program targeted to junior, part-time faculty with heavy clinical responsibilities would increase dissemination of educational research as part of a career trajectory. | Level VI<br>Mixed-methods study over 3 years.<br>n = 10 clinical faculty. | 3 cohorts over 14 months received protected time, skills training (monthly seminars and 2 workshops), and consultation/coaching services. | Outcomes included increased publication and presentation, increased confidence and skills. Multi-level mentoring and protected time especially helpful. |
| Records, K., & Emerson, R. J. (2003). Mentoring for research skill development. *Journal of Nursing Education*, *42*(12): 553–557. doi: https://europepmc.org/abstract/med/14694996 | Description of one facility's strategy to develop and implement a research arm of an institutional mentor program in order to facilitate new faculty's attainment of tenure. | Level VII<br>Expert opinion.<br>Brief literature review. | Program included assigned mentor with a specific focus on: Development of research skills with a focus on institutional goals; creation of a professional network; attendance at a research conference; development of grant writing skills; support and assistance with preparing | No outcomes reported. |

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**Table 1** (*continued*)

| Author, year, title | Purpose | Research design (Level of evidence; type of research, sampling, setting) | Intervention/variable or program description | Results |
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| | | | publications; planning long-term career goals. | |
| Smeltzer, S.C., Cantrell, M. A., Sharts-Hopko, N.C., Heverly, M. A., & Jenkinson, A., Nthenge, S. (2016). Assessment of the impact of teaching demands on research productivity among doctoral nursing program faculty. *Journal of Professional Nursing*, *32*(3), 180–192. doi: https://doi.org/10.1016/j.profnurs.2015.06.011 | Identify research productivity and scholarship of faculty teaching doctoral students; identify institutional features which support scholarly activity and analysis of predictors of scholarship productivity. | Level VI<br>Mixed-methods study.<br>Focus groups (2) at national conferences, total n = 29 participants (used to develop the study instrument); then, 73-question, researcher developed survey with acceptable validity. Subjects recruited Responses from 71/254 AACN-affiliated schools of nursing. | Simple survey, no intervention. Focus groups found three major themes "demands of teaching, importance of institutional structure and climate, and the sustainability of ones' self, the institution and the discipline". | Qualitative themes were importance of organizational structure and support; demands of teaching and self-sustainment. Quantitative results showed most scholarly production came from research-intensive universities. What helped: start-up funding, collaboration, research assistance, and mentoring. |
| Smeltzer, S. C., Sharts-Hopko, N. C., Cantrell, M.A., Heverly, M.A., Wise, N. J., Jensinson, A., & Nthenge, S. (2014). Challenges to research productivity of doctoral program nursing faculty. *Nursing Outlook*, *62*(4), 268–274. doi: https://doi.org/10.1016/j.outlook.2014.04.007 | Reviews the social economic issues raised in the literature around doctoral faculty shortage in the USA and doctoral faculty workload and stressors and its effect on scholarly production. | Level VII<br>Expert opinion. | | There is a growing emphasis the DNP (instead of PhD, the research doctorate) which is impacting nursing research mission. Mentoring important. Faculty retention is related to lack of incentives for the doctoral faculty role and other opportunities. |
| Smeltzer, S. C., Sharts-Hopko, N. C., Cantrell, M. A., Heverly, M. A., Wise, N., Jenkinson, A., & Nthenge, S. (2014). Nursing doctoral faculty perceptions of factors that affect their continued scholarship. *Journal of Professional Nursing*, *30*(6), 493–501. doi: https://doi.org/10.1016/j.profnurs.2014.03.008 | To identify the "topics, questions and items relevant for inclusion in an on-line survey to be administered to faculty about the effect of teaching and mentoring doctoral students on faculty member's research and scholarly productivity." | Level VI<br>Qualitative descriptive study using two focus groups of PhD and DNP faculty members. | | Themes identified were: Demands of teaching; institutional structure and climate and sustainability<br>Strategies for success included knowing the mission of the institution; identify one's individual passions; make priorities and goals. Collaborate in research and writing for publication. |
| Smesny, A. L., Williams, J.S., Brazeau, G. A., Weber, R. J., Matthews, H. W., & Das, S. K. (2007). Barriers to scholarship in dentistry, medicine, nursing, and pharmacy practice faculty. *American Journal of Pharmaceutical Education*, *71*(5), Article 91. doi: https://doi.org/10.5688/aj710591 | To identify the barrier to scholarly work in health care professional faculty. | Level VII<br>Expert opinion. | | In these disciplines, emphasis is on clinical and outcomes research. Barriers to scholarship include time; unclear promotion and tenure guidelines; lack of mentors; lack of mentors; lack of faculty development programs and burden of student loans. |
| Solis, G. R. (2017). To give and to get: How nurse faculty scholars contribute and benefit from participating in interdisciplinary research teams. *Nursing Forum*, *52*(2), 133–137. doi: https://doi.org/10.1111/nuf.12188. | To encourage academic nurse faculty who may find themselves in a nursing research "desert" to collaborate with other disciplines and consider joining an IDR team to get started in career advancement. | Level VII<br>Expert opinion. | | Describes interdisciplinary research (IDR) as a potential avenue for scholarly activity for nurse faculty members who are in a "research desert." |
| Steinert, Y. (2017). Faculty development: From program design and implementation to scholarship.<br>*GMS Journal for Medical Education*, *34*(4), 1–11. doi: https://doi.org/10.3205/zma001126 | To bring together educators and scholars as they design, implement, and evaluate faculty development initiatives across the educational spectrum. | Level VII | | Educational research in the professions is lagging behind. Program evaluation, research studies, and knowledge translation are required in faculty development and can provide scholarship opportunities. Recommendations offered. |
| Steinert, Y., & McLeod, P. J. (2006). From novice to informed educator: The teaching scholars' program for educators in the health sciences. *Academic Medicine*, *81*(11), 969–974. doi: https://doi.org/10.1097/01.ACM.0000242593.29279.be | Evaluate implementation and results of a program for scholars which was designed to promote the professional development of physicians. | Level VII<br>Canadian school of medicine.<br>N = not stated. | The Teaching Scholars Program (TSP): A yearlong program that focused Curriculum design and innovation; effective teaching; evaluation strategies; program evaluation; research and educational leadership. | Positive impact: Over 10 years, more than half of the participants increased their responsibilities or advanced roles. Interest in a Post Graduate Fellowship in Health Sciences Education; development of a new Master's option<br>Between 1997 and 2006 15/26 scholars increased new roles and responsibilities by 60%; pursuing scholarly activities also increased. |

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**Table 1** (*continued*)

| Author, year, title | Purpose | Research design (Level of evidence; type of research, sampling, setting) | Intervention/variable or program description | Results |
|---|---|---|---|---|
| Storch, J., & Gamroth, L. (2002). Scholarship revisted: A collaborative nursing education program's journey. *Journal of Nursing Education*, *41*(12), 524–530. doi: https://doi.org/10.3928/0148-4834-20021201-05 | A collaboration between universities, colleges and community colleges was formed for curriculum development, which was viewed through the lens of scholarship. | Level VII<br>Expert opinion. | Utilizing Boyer's theory and a reflective process faculty considered:<br>"What characterizes scholarly teaching?"<br>"What characterizes scholarly application?"<br>"What characterizes scholarly service?"<br>These questions drove curricular revisions. | Outcomes: Increased clarity about the definition of scholarship; increased interest in scholarly activities and increasing the culture of scholarship at participating schools. Now, there is a clearer perception of how scholarship impacts tenure and promotion. |
| Suplee, P. D., & Gardner, M. (2009). Fostering a smooth transition to the faculty role. *The Journal of Continuing Education in Nursing*, *40*(11), 514–520 doi: https://doi.org/10.3928/00220124-20091023-09 | Addresses one academic institution's faculty developmental approach to orientation and development infrastructure for full-time faculty. | Level VII<br>Large USA university.<br>n = 28 faculty | Orientation program was 6 weeks, in seminar/workshop milieu. Faculty culture and expectation discussed. Supported development of teaching and scholarly skills, including toward publication, grant-writing and presentations. Mentors were assigned. | Evaluation of program positive. No other outcomes noted. |
| Van Melle, E., Lockyer, J., Curran, V., Lieff, S., St. Onge, C., & Goldszmidt, M. (2014). Towards a common understanding: Supporting and promoting education scholarship for medical school faculty. *Medical Education*, *48*(12), 1190-1200. doi: https://doi.org/10.1111/medu.12543 | Explore how promotion policies and processes are used in Canadian medical schools to support and promote education scholarship (ES). | Level VI<br>Interpretive approach examining policies and procedures, followed by interviews with key informants (n = 17) Canadian medical schools. | | Themes: Promotion policies and process: Inclusion and level of description of ES varies widely; boundaries between ES, teaching, leadership and research are blurred; evidence for ES focused on traditional metrics (peer-reviewed journals); difficult to measure and evaluate impact of ES.<br>Recommendations: Create common understanding of ES; develop guidelines to assess impact; develop informed leadership; develop mentors; create explicit role descriptions; create guide for faculty. |
| Wills C. E., & Kaiser L. (2002). Navigating the course of scholarly productivity: The protege's role in mentoring. *Nursing Outlook*, *50*(2), 61–66. Retrieved from http://live-uarizona-diversity.pantheon.arizona.edu/sites/default/files/navigating_the_course.pdf | How nursing faculty who are mentees/proteges take active role in obtaining mentoring for developing scholarly writing skills | Level VII<br>Expert opinion. | | Recommendations: Know yourself; develop realistic expectations; reach out and get to know others; negotiate for what is needed; learn from every experience. No other outcomes reported. |
| Wise, H. H., Brotherton, S.S., & Mitcham, M.D. (2008). From scholarly teaching to the scholarship of teaching: A retrospective look at strategies that foster the transition of scholarly work in allied health into credible forms of scholarship. *Journal of Allied Health*, 37(1), e50-e68. | Identify and propose strategies to connect teaching or service activities to scholarly productivity. | Level VI<br>Case study of small group (n = unknown) of allied health faculty members (OT, PT, Speech-Lang Pathology) university from the Middle South of the USA. | | Outcomes: Developed grant-funded online program for continuing education in geriatrics. Also 4 podium presentations at national conferences and 2 abstracts were published. Work replicated in subsequent grant. All activities supported promotion/tenure. |
| Zibrowski, E., Weston, W., & Goldszmidt, M. (2008). "I don't have time" issues of fragmentation, prioritization and motivation for education scholarship among medical faculty. *Medical Education*, *42*(9), 872–878. doi: https://doi.org/10.1111/j.1365-2923.2008.03145x | To explore lack of time as a barrier for faculty interested in pursuing education scholarship. | Level VI<br>Two phase mixed methods:<br>cross sectional purposive needs assessment questionnaire.<br>n = 108 medical faculty conducted at one site. One year later a subgroup of 16 participants took part in focus groups for a qualitative exploration.<br>Site: Academic medical center in Ontario. | | Time availability and having published in the past 5 years were moderately correlated; advanced training was correlated with working on scholarly projects after hours and this, in turn, was associated with publishing at least one paper. These same scholars tended to catch up on leadership and administrative duties at home, after hours.<br>Physicians struggled to balance scholarly, administrative, and leadership duties, and were unable to engage in these during regular work hours. Needed protected time and institutional support. |

Smeltzer et al., 2016) are other aspects of organizational support that need to be considered. Expectations may also emerge through job descriptions, and these may be implicit or explicit (Van Melle et al., 2014). When clinical faculty are notified of criteria for promotion, and there is transparency about this process (Mueller, Gaudilliere, Kin, Menorca, & Girod, 2016) this, too, is a strong statement of organizational expectations for scholarly work (Smesny, 2007; Van Melle et al., 2014).

When institutional values do not support scholarship, barriers may arise; Zibrowski, Weston, and Goldszmidt (2008) reported that, among physicians who were clinical faculty in colleges of medicine, scholarly accomplishments were greeted with cynicism. Positive, constructive interactions with open communication (Cullen et al., 2017) are expressions of organizational support and help to set the tone, and a partnership culture (Heinrich & Oberleitner, 2012) contributes to a culture of scholarship, expressing organizational expectations.

### *Administrative support*

Organizational expectations create the underpinnings that result in development of a structure of administrative support, which varies from organization to organization. Cullen et al. (2017) reported that institutional and administrative support are essential for creating a culture of scholarship. Activities provided by educational institutions that are seen as supportive include assisting with preparing professional presentations and manuscripts (Records & Emerson, 2003; Wills & Kaiser, 2002), through writers' circles (Brandon et al., 2015), and small work groups (Jacelon, Zucker, Staccarini, & Henneman, 2003), offering opportunities for small groups of faculty to meet regularly (McBride et al., 2017). Creating a supportive environment reduces stress while working on scholarship activities (Lewallen, Crane, Letvak, Jones, & Hu, 2003).

Setting measurable goals that are realistic is important (Minnick, Norman, & Donaghey, 2017); these authors also suggest that the AACN could assist the profession by setting national benchmarks for scholarly production. Another critical administrative support is the provision of focused, protected (Minnick et al., 2017; Reader, Fornari, Simon, & Townsend, 2015) time and resources for scholars to develop programs of research (McBride et al., 2017; Smeltzer et al., 2016). Smeltzer et al. (2016) asserted that start-up funding, interdisciplinary collaboration, having research assistance, having an office of research support, and formal/informal mentoring were key to the success of faculty seeking to develop their programs of research.

Funding for start-up costs is an important issue (Smeltzer et al., 2016; Solis, 2017). McBride et al. (2017) listed financial support as one of the factors that helped new scholars develop their programs of research. Smeltzer et al. (2016) noted in their study that the greatest predictor of research productivity was the average number of hours spent on scholarship and buy-out of faculty teaching time.

Suplee and Gardner (2009) noted that creation of a supportive faculty development infrastructure, through the orientation process, helped to meet faculty development as they began to institute programs of research. Implementing such activities as monthly lunchtime breakouts and bi-yearly full-day workshops provided support in a way that was accessible to busy faculty. Steinert (2017) asserted that structured programs which included availability of statistical consultation and an administrative assistant was also important (Minnick, Kleinpell, & Norman, 2018). Collaboration (Heinrich & Oberleitner, 2012) and camaraderie (Lewallen et al., 2003), including interdisciplinary collaboration (Cullen et al., 2017, Smeltzer et al., 2016, Smesny et al., 2007, Solis, 2017) were hallmarks of administrative support. Formal and informal mentoring was also a very strong indicator of administrative support; mentoring is discussed as a separate theme below.

### *Mentoring*

Mentoring was identified as another major theme in our review. Mentoring is essential for the dissemination of scholarly work of faculty and to support skill and career development. Nies and Troutman-Jordan (2012) defined mentoring as “a relationship between two people in which one person with greater experience and/or expertise teaches and counsels the other to develop professionally” (p. 1), a definition supported by others (Wills & Kaiser, 2002). It is more than limited-time assistance, as mentoring occurs over time, with both the mentor and mentee committed to engaging in development (Nies & Troutman-Jordan, 2012). It is an interactive, reciprocal process focusing on career and skill development (Wills & Kaiser, 2002).

The mentor provides guidance in a supportive and caring context with constructive interactions (Cullen et al., 2017) and nurturing development (Nies & Troutman-Jordan, 2012) of the individual. Strong mentorship is a predictor of junior faculty success regarding scholarship (Pfund, Byars-Winston, Branchaw, Hurtado, & Eagan, 2016) and subsequent promotion and tenure (Records & Emerson, 2003). When mentoring is successful, it results in increased “self-efficacy, career satisfaction, and improved productivity” for the faculty member (Pfund et al., 2016, p. 238).

In academia, mentoring takes place between faculty and students (Nies & Troutman-Jordan, 2012), as well as between inexperienced and more experienced faculty (Hawkins & Fontenot, 2009; McBride et al., 2017). Many authors emphasized the importance of mentoring junior faculty by scholars with more expertise specifically to enhance development of skills essential for productive scholarship (Bertram et al., 2015; Cullen et al., 2017; Pfund et al., 2016; Reader et al., 2015; Records & Emerson, 2003; Smeltzer et al., 2014b). Diverse approaches to mentoring were uncovered in this review. These included structured, unstructured, peer-to-peer, one-on-one, individual, and group, with formal and informal interventions.

Mentoring toward scholarly endeavors may occur in several ways, and may have an impact on engagement in and completion of scholarly work. In a systematic review, Cullen et al. (2017) determined that, when faculty engaged in structured mentoring programs, they were more apt to report an increase in the production of scholarly outcomes as well as having the perception of positive relationships and administrative support of their efforts. Structured mentoring programs were described by several authors. Suplee and Gardner (2009) provided an example of scholarship mentoring during orientation; a structured workshop provided activities related to writing and publication. Seasoned and junior faculty were encouraged to work together on shared projects (Baldwin & Chandler, 2002; Bertram et al., 2015; Suplee & Gardner, 2009). These programs increased use of resources and were associated with an increased number of published manuscripts. The support provided through structured mentoring became a part of the institutional culture.

Peer-to-peer mentoring is emerging as a result of changes in academia, including faculty shortages (Heinrich & Oberleitner, 2012). Jacelon et al. (2003) defined peer mentoring as faculty members mentoring each other through the processes necessary to enhance and support scholarly activities. Jacelon et al. (2003) described how tenure-track nursing faculty collaborated to guide and gain perspective on the scholarly role of faculty. Through shared commitment, they critiqued and prioritized scholarly work. This led to five publications and four funded grants. Records and Emerson (2003) used individualized mentoring in a program to help untenured or new tenured track faculty attain tenure by assigning a tenured faculty to mentor untenured faculty early in their careers and to develop leadership, technical, service, teaching, and research skills. Mentors provided guidance in identifying mentee research interests, assisting with grant writing, recommending specific research conferences, coaching for presentation, and assisting with manuscript preparation. Lewallen et al. (2003) described a small group of five untenured peers from diverse backgrounds. These junior

faculty facilitated each other's scholarly work and negotiated tenure requirements. This led to further presentations and publications. Brandon et al. (2015) also successfully implemented a writers' circle, with five faculty producing four published manuscripts.

Most of the well-defined programs that were explored used group mentoring (Reader et al., 2015). Group mentoring may be more efficient, maximizing the limited time availability of expert faculty members. This approach promoted teamwork, enthusiasm, collegiality, accountability, and productivity (Smeltzer et al., 2014b). Highly structured group programs (Heinrich & Oberleitner, 2012; Minnick et al., 2018; Reader et al., 2015; Steinert & McLeod, 2006), lasting from one to three years, provided protected time for participants to meet with mentors and attend meetings and workshops that supported scholarly activities. One group program had formal admission processes for both mentors and mentees, facilitating shared understanding of responsibilities and expected outcomes (Minnick et al., 2018).

Three reports described multi-year professional development programs that featured group mentoring (Heinrich & Oberleitner, 2012; Reader et al., 2015; Smesny et al., 2007). Heinrich and Oberleitner (2012) in a three-year program reported the focus in year one was on individual scholar development and included 1:1 consulting. In year to the focus was on cultivating collaborations and added writing groups while in year three the focus was on program sustainability, and moving to a partnership model. This program resulted in a significant increase in scholarly presentations and publications. Reader et al. (2015) described a structured, 3-year medical education scholars' program that included individual and group mentoring provided by various assigned leaders. The authors reported increased productivity of research projects and published works in medical staff who previously perceived that they did not have time. Smesny et al. (2007) noted that nursing faculty were not always equipped to participate in research activities. The cohort effect of group mentoring contributed to participants' accountability, confidence, and enthusiasm for their projects.

Some less structured programs also reported positive results from their efforts of implementing mentoring programs. Minnick et al. (2018) described an approach to mentorship that assigned leaders and focused on project-specific outcomes. Mentors provided individual consultation, including reviewing proposals, navigating institutional review board (IRB) submission and approval, assisting with collecting and managing data, and assisting with the dissemination of results, including publication. Minnick et al. (2018) reported a total of 19 publications in two years among program participants.

Positive mentoring relationships are also seen as essential for creating a culture of scholarship (Cullen et al., 2017). Faculty members saw that structured mentoring improved recruiting and retaining faculty, easing the faculty shortage, which they saw as a positive outcome in contributing to a culture of scholarship (Cullen et al., 2017). Heinrich and Oberleitner (2012) noted that a structured mentoring program transformed the culture to one of partnership, where faculty peer-mentored each other as scholars, resulting in increased collaboration on presentations and publications. The partnership culture was reflected in behavior change. Faculty were prepared to edit and assist each other as they strove to disseminate their work (Heinrich & Oberleitner, 2012; Jacelon et al., 2003).

Overall, the literature revealed that mentoring is a critical strategy for the successful development of scholarly skills in novice and junior faculty, as well as faculty who perceive that they do not have the time or skills to accomplish scholarly activities on their own. Various approaches to mentoring have been implemented, many with successful outcomes.

### *Barriers to scholarly production*

The literature revealed a variety of barriers that faculty encounter as they seek to engage in scholarly activities. These included insufficient or under-developed faculty skills and insufficient time to engage in and complete research, grant-writing, and writing for publication. Also noted were gender biases (Mueller et al., 2016); insufficient organizational and administrative support (including institutional barriers to successful mentoring); and inadequate financial support.

A common barrier not only identified in nursing, but also in medicine (Reader et al., 2015), was insufficient skills, which included scholarship skills, such as networking, mentoring, researching, and writing (McBride et al., 2017). Faculty needed various types of assistance, including coaching on editing and revising manuscripts, learning how to incorporate developmental feedback, and polishing APA formatting (Baldwin & Chandler, 2002). According to Van Melle et al. (2014), when starting scholarly work, medical faculty had difficulty determining what information needed to be collected. Minnick et al. (2018, p. 124) noted, “clinical teaching faculty require more and continued assistance if the resources [provided] are to be of use.” Heinrich and Oberleitner (2012) reported that it could take five or more years for novice and clinical faculty of nursing to fulfill scholarly expectations.

Lack of time for scholarly work is frequently cited for the inability to produce scholarly work, not only by nursing faculty, but by faculty in dentistry, medicine, and pharmacy (Bertram et al., 2015; Smesny et al., 2007; Zibrowski et al., 2008). The faculty role consists of many aspects, with scholarly activities often expected in addition to teaching, clinical supervision, course development and updating, university service responsibilities, and advising. These create competing demands on a faculty member's limited time (Zibrowski et al., 2008). These competing responsibilities cause role strain for new faculty, especially as requirements for promotion and tenure are considered (Lewallen et al., 2003). Institutional priorities, such as increasing faculty workloads to meet the demand for new nurses, often get in the way of scholarly activities (Mueller et al., 2016; Smeltzer et al., 2014b; Zibrowski et al., 2008). Zibrowski et al. (2008) and Van Melle et al. (2014) noted that insufficient time and fragmented, sporadic effort on research and other projects was frequently reported by medical faculty members.

Smeltzer et al. (2014a) identified that the invisible work of academia (such as frequent meetings with graduate students, answering emails, and providing 1:1 assistance to students on their writing) erodes time available for scholarly endeavors such as research and grant-writing. Another example of this was the time constraint experienced by DNP faculty, who felt caught in a cycle of seeking clinical preceptors for advanced students at a time of rapid expansion of these programs (Hawkins & Fontenot, 2009).

Mueller et al. (2016) found that gender was a significant barrier to publication in their study of surgical residents. Women surgeons of all ranks published significantly fewer articles, and with less scientific impact, than their male counterparts. This resulted in slower advancement to the higher ranks for women surgeons. The authors suggested that the lack of publication may be due to outside obligations of young women surgeon, such as raising a family, but that mentoring might facilitate overcoming this barrier, but implicit bias within organizations may also contribute to this issue.

Workload and scheduling were two administrative barriers noted in the literature (Cullen et al., 2017). Insufficient faculty resources, with “gaps in faculty expertise and other resources” were also notable examples of insufficient organizational resources (Minnick et al., 2017, p. 25). Lack of mentor support (Cullen et al., 2017), as well as in dentistry, pharmacy, and medicine (Smesny et al., 2007), and the inability of a mentee to identify an appropriate mentor may also affect the success of the mentoring relationship (Reader et al., 2015) and therefore scholarly output.

Heinrich and Oberleitner (2012) implemented a three-year scholar support program and completed a pre-project survey. In this survey, the authors identified several faculty types, including faculty who resisted engaging in scholarly activities, which is seen as a leadership and organizational issue. Lewallen et al. (2003) identified that issues arose when collaborative groups became exclusive, making it difficult for novice or junior faculty to participate in scholarly endeavors. Another

barrier identified in the literature was the lack of organizational intention to develop junior scholars (Cullen et al., 2017). One report identified that some nationally recognized scholars developed a "misguided sense of their own importance…[the] diva syndrome" which potentially harmed the collaborative environments that organizations were trying to create (McBride et al., 2017, p. 330).

Lack of money for research and publication/presentation was a barrier to scholarly production, not only in nursing (Bertram et al., 2015; McBride et al., 2017; Solis, 2017) but also in dentistry and pharmacy (Smesny et al., 2007). Smeltzer et al. (2016) found that "external funding was required to secure tenure" (p. 183), as reported by nearly half of their survey respondents speaking about their home institutions. Junior faculty members often need additional funding to initiate scholarly pursuits, perhaps beginning with poster or podium presentation at a national or international conference. Faculty expenses required to participate could be a barrier. Insufficient funds for new researchers to launch a program of research are likely a large hurdle in research-intensive institutions.

Although mentoring was cited frequently as a helpful intervention, mentoring programs and activities have been unevenly implemented in some institutions, and there have been reported mismatches between mentor and mentee. These include goals, personalities, or schedules (Cullen et al., 2017). Other mismatches found were of mentor and mentee in their areas of interest (Nies & Troutman-Jordan, 2012; Wills & Kaiser, 2002) and workload and scheduling (Lewallen et al., 2003). Inadequate time for relationship-building was also noted to hinder junior faculty development (Cullen et al., 2017). These issues have made maintaining the mentoring relationship difficult, and all serve as barriers to scholarly production.

Pfund et al. (2016) reported that many mentors and mentees were not provided training about their respective roles. A lack of guidelines and training for mentors and mentees is seen as an institutional/organizational barrier that leadership and planning may overcome. Smesny et al. (2007) noted that there is an overall lack of role models and faculty mentors in density, pharmacy, and medicine.

In summary, institutional and administrative support were found to be essential in creating a culture of scholarship. Many types of mentoring were found that enhanced and supported successful scholarly endeavors, though the literature notes that faculty must overcome barriers individually, with mentors, with group endeavors, and with institutions for productivity in their scholarly work.

## Outcomes

The literature review identified numerous specific outcomes that occurred as a result of the development of a culture of scholarship, supportive mentoring, and reduction of barriers. Heinrich and Oberleitner (2012) noted two important outcomes: 1) successful promotion and tenure of faculty, which facilitates retention; and 2) an increase in the interest of faculty recruits, who were reportedly "intrigued by the idea of being peer-mentored to meet scholarly expectations" (p. 10).

Successful publication in peer-reviewed journals is a hallmark of scholarship, important for promotion and tenure (Storch & Gamroth, 2002), and a developmental milestone for faculty (Steinert & McLeod, 2006; Storch & Gamroth, 2002). Therefore, this is an important metric to include in outcomes for scholars (Steinert & McLeod, 2006). Successful publication from faculty in these institutions was reported (Baldwin & Chandler, 2002; Bertram et al., 2015; Brandon et al., 2015; Cullen et al., 2017; Minnick et al., 2018; Wise, Brotherton, & Mitcham, 2008). Publishing helps faculty develop skills and confidence of research and scholarship self-efficacy (Pfund et al., 2016; Reader et al., 2015).

Professional, career (Jacelon et al., 2003; Van Melle et al., 2014; Wills & Kaiser, 2002), and leadership development of faculty (Nies & Troutman-Jordan, 2012; Steinert, 2017; Storch & Gamroth, 2002; Suplee & Gardner, 2009) are other outcomes, especially of mentoring.

Academic persistence, the ability to develop skills and engage in all scholarly activities, was identified as an outcome by Pfund et al. (2016). Pfund et al. (2016) identified attributes from the literature and suggested metrics to measure effective mentoring based on four conceptual frameworks. The identified attributes for effective mentoring were research, interpersonal, psychosocial and career, culturally responsive/diversity, sponsorship, or mentee networks. Faculty development (Cullen et al., 2017; Steinert, 2017; Suplee & Gardner, 2009) is critical for successful engagement in scholarly activities, and may lead to "increased productivity, compensation and job satisfaction" (Cullen et al., 2017, p. 290). However, research needs to be done to identify more clearly faculty development activities and initiatives that work (Steinert, 2017) to support faculty engagement in scholarly activities. Nursing leaders (deans/directors) need to insure there is sufficient rigor, faculty resources and workforce development resources to support nursing faculty engaging in the scholarship of discovery (Minnick et al., 2017).

## Implications

The review of the literature identified the need for higher levels of evidence to support what kinds of activities and interventions help and hinder a faculty member's ability to engage successfully in scholarly activities such as research, grant-writing, and publication. These interventions and activities include those that support mentoring in all its forms; those that help develop and sustain an organizational culture that values scholarly activities; and those that reduce or eliminate the barriers which get in the way of scholarly productivity.

### *Organizational expectations*

Creating a culture of scholarship begins with the expectation that faculty will engage in scholarship; this is usually reflected within the organization's mission/vision/values statement (Smeltzer et al., 2014b), infused into formal documents which are supported and promulgated by organizational leaders (Van Melle et al., 2014). Indeed, leader expectations play a crucial role in creating and sustaining a culture of scholarship (Van Melle et al., 2014). Further, reward structures need to be developed taking into account scholarship need to be in place to provide formal validation of the value of scholarly work (Smesny et al., 2007; Zibrowski et al., 2008).

Developing and implementing organizational support is crucial in creating a culture of scholarship that sustains faculty efforts (Cullen et al., 2017; Minnick et al., 2017). Such support includes developing both administrative and institutional infrastructures (Suplee & Gardner, 2009), such as associate deans for research positions (Minnick et al., 2018) and providing the mentoring and science/publication expertise (Cullen et al., 2017) needed for knowledge transfer to occur between senior and junior faculty.

### *Administrative support*

Also important is creating the expectation and intention (Cullen et al., 2017) of scholarly work through goal-setting (Minnick et al., 2017), especially the scholarship of discovery and its dissemination. Interdisciplinary and cross-disciplinary (Solis, 2017) networking, collaboration, and shared scholarly work (Smesny et al., 2007) can support the science of integration (Boyer, 1990) and may lead to innovative ideas and discoveries.

Building collegiality (Jacelon et al., 2003), eliminating incivility (Cullen et al., 2017), and removing embedded organizational gender (Mueller et al., 2016) and racial biases (Pfund et al., 2016) are crucial if faculty are to be productive. Seasoned scholars need to be engaged in all these endeavors, and non-tenure track faculty need to be supported and included (Cullen et al., 2017) for a culture of scholarship to be

**Table 2**
Implications for nursing scholarship.

- Transparency of formal organizational expectations and values congruent with scholarship, along with constructive interactions with open communication, play a crucial role in creating and sustaining a climate for a culture of scholarship.
- Institutional infrastructures and administrative support must provide expertise for faculty development and mentoring for advancing faculty scholarship.
- Institutional priorities must consider workload time commitments and reward structures in place to provide formal validation of the value of scholarship.
- Outcomes of a support structure that is firmly in place improve recruitment, promotion, and retention of faculty.
- There must be clear organizational intention to develop scholars by developing collaborative (intra and inter-discipline) environments while eliminating exclusiveness, gender bias, and incivility in mentoring groups to enhance engagement in scholarly endeavors.
- Faculty development is critical for successful engagement in scholarly activities especially the scholarship of discovery. Mentoring is the most powerful intervention in faculty development, especially formal mentoring with supportive, collaborative, and reciprocal mentorship a predictor of increased scholarly skills and scholarship productivity.
- Effective mentoring includes positive interpersonal and culturally responsive relationships and networks with clear expectations of goals, roles and responsibilities, and outcomes for the mentoring relationship to be successful.
- Mentors and consultants most useful for mentees include consultants in professional writing, data management, proposal review, and IRB navigation.
- Mentoring barriers to overcome include identifying a mentor, mismatched mentor and mentee, and inadequate time for relationship building.
- Recognize that junior and clinical teaching faculty require more and continued assistance in using resources to develop their scholarship.
- To enhance individual scholarship faculty must learn to identify and overcome barriers of role strain, balancing time with competing responsibilities with teaching workload, course development and updating, university service responsibilities, student advising and assistance, and clinical supervision.
- With organizational expectations, administrative support, and mentorship, new faulty can develop scholarship skills, confidence, self-efficacy, and meet professional and career goals related to scholarly activities.
- More rigorous research studies are needed in the future to determine most effective approaches to faculty development that results in substantive scholarly contributions.

successfully developed and maintained.

*Developing mentoring programs*

Mentoring emerged as a very strong overarching theme in this review, and was expressed in a variety of ways, from peer-to-peer mentoring to traditional mentor-mentee relationships to writing circles. Organizational leaders and faculty may create opportunities/programs for structured mentoring, especially for new and junior faculty (Hawkins & Fontenot, 2009; Reader et al., 2015; Smeltzer et al., 2014a, 2014b; Van Melle et al., 2014). This was shown to be among the most productive approaches to mentoring (Minnick et al., 2018; Suplee & Gardner, 2009). Further, organizations and faculty need to be open to a variety of mentoring opportunities (Lewallen et al., 2003) because mentoring is not a “one-size-fits-all” activity. Group mentoring may more effectively use a mentor's limited time, and there is a reported beneficial cohort effect of peers working together toward a common goal (Lewallen et al., 2003; McBride et al., 2017).

When entering a mentoring relationship, it is important to clarify expectations for everyone involved (Nies & Troutman-Jordan, 2012), including explicit role descriptions for both the mentors (Van Melle et al., 2014) and mentees (Wills & Kaiser, 2002). Mentoring models should consider partnering senior and junior faculty members (Suplee & Gardner, 2009) for publication and research. Another recommendation is to establish a method assuring long-term follow-through and accountability, as well as including clear goals (Nies & Troutman-Jordan, 2012; Wise et al., 2008) and measurable outcomes (Cullen et al., 2017; Pfund et al., 2016; Smeltzer et al., 2016; Wills & Kaiser, 2002).

It is also important for mentees to learn, engage in, and promote collaboration (Lewallen et al., 2003; Pfund et al., 2016; Smeltzer et al., 2014a) and to self-monitor progress (Cullen et al., 2017; Nies & Troutman-Jordan, 2012). While expecting occasional setbacks (Wills & Kaiser, 2002), new faculty need to build resiliency (Wills & Kaiser, 2002) and understand that most new faculty are in need of substantial support (Records & Emerson, 2003) as they develop the complex skills required of successful scholarly endeavors.

*Eliminating barriers*

This literature review uncovered common barriers that faculty encounter as they engage in scholarly work (Cullen et al., 2017). Barriers need to be identified and reduced or eliminated wherever possible (Cullen et al., 2017). To overcome the barrier of limited time, the most often suggested intervention was to provide protected time (McBride et al., 2017; Minnick et al., 2018; Reader et al., 2015; Zibrowski et al., 2008), which may reduce the burdens of overwork and competing priorities (Cullen et al., 2017; Lewallen et al., 2003; Reader et al., 2015). Zibrowski et al. (2008) noted that medical faculty suggested that they be allowed larger blocks of time (months/weeks) to complete their scholarly work, as opposed to a few hours each week. Van Melle et al. (2014) noted that medical school policies needed to specify the amount of time allowed for devotion to scholarly activity. For writing difficulties, organizations may provide writing coaching services (Baldwin & Chandler, 2002), creating a writing circle (Heinrich & Oberleitner, 2012) of peers (Brandon et al., 2015), or using writing workshops or retreats as noted by medical faculty (Reader et al., 2015) to increase accountability and encourage faculty to take small, forward steps in their efforts to publish or grant-write.

A clear reward structure for engagement in scholarly work can help faculty to understand better their unique roles as generators and disseminators of new knowledge (Mueller et al., 2016; Steinert & McLeod, 2006). This reward structure might also include recognition for inter- and intra-disciplinary collaboration (Smesny et al., 2007; Solis, 2017), especially between and among established, successful scholars and emerging scholars (Brandon et al., 2015; Wise et al., 2008).

This review also uncovered barriers of incivility and patterns of bullying that need to be eliminated (Cullen et al., 2017). Further, organizations need to recognize and eliminate gender (Mueller et al., 2016) and racial biases (Pfund et al., 2016) that inhibit faculty scholarly production. Additional resources may need to be provided for faculty who may not have learned scholarly skills in their educational programs. These might include consultants such as statisticians (Minnick et al., 2018) and financial support needed for presenting at national or international conferences or initiating a research career (McBride et al., 2017). A reoccurring theme noted in the literature to overcoming many of the barrier mentioned is the development of programs that foster a supportive atmosphere and positive relationships between experts and novices in all the allied health professions. These programs include structured mentoring programs (Cullen et al., 2017; Pfund et al., 2016) and skills workshops (Cullen et al., 2017) and the creation of faculty development programs to support faculty (Mueller et al., 2016). Table 2 represents a summary of implications for health care disciplines for enhancing the scholarship of discovery.

## Conclusion

This review of the literature reinforces the important need for intentional support of new and junior faculty members as they embark on academic careers. Without both material and social support of their institutions and strong mentors, it is unlikely that new faculty can be successful in scholarly endeavors. A culture of scholarship is strongest when it is developed across the layers of an institution. When administrators and institutions encode the importance of the work within their founding documents, and when a culture of scholarship is intentionally developed, faculty can and do find the time and resources to perform research, obtain grants, and present and publish their findings. More research is needed to determine which interventions are the most

helpful in advancing the careers of new nursing faculty members.

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