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Review

Required, but Not Developed: Academic and Grant-Writing Skill Development on the Path to the Professoriate

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Abstract: Scholarship and creative inquiry are a common professional responsibility across academia, regardless of institution type and geographic location. The message is clear—to advance, one must demonstrate success via various metrics such as publications, exhibitions, impact factor, citation counts, and the receipt of external funds. Despite the importance of academic and grant writing to navigating a successful academic career, we believe there is a mismatch between that professional expectation and the corresponding supports aimed at developing these complementary, yet distinct writing skills. As such, there is an opportunity to be more intentional about fostering academic and grant-writing skill development across the various stages of a faculty career, including the doctoral student stage. In this manuscript, we present literature on academic and grant writing followed by recommendations for developing the skills needed, along with corresponding professional development opportunities that can cultivate those needed skills. We conclude with future directions.

Keywords: academic writing; grant writing; professional development

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1. Introduction

"Let me live, love, and say it well in good sentences."
--Sylvia Plath, The Unabridged Journals of Sylvia Plath

One of the main contributions of academia is the production and dissemination of knowledge, primarily through written communications, such as publishing in scholarly journals and grant writing to fund that scholarly work. It is no secret to anyone in or on the path to the professoriate that academic writing and grant writing are essential tools to access many of the reward systems within academia [1]. The pressures to "publish or perish" are pervasive across academia globally, as evidenced by rising scholarly expectations, including at teaching-focused institutions [2,3]. While nuanced according to institution type (e.g., research university, comprehensive university, public vs. private), expanding conceptions of academic work, coupled with heightened expectations to pursue external grant funding as one means of managing dwindling institutional budgets, have increased the need for the intentional development of written communication skills for doctoral students and faculty alike [4,5].

Despite the currency associated with writing in academia, there is a disconnect between the writing requirements and the writing skills being developed. A ground-breaking study conducted more than twenty years ago by Golde and Dore [6] found that there was an incongruity among doctoral students' goals, their training, and their actual careers both in and out of academia. Despite this acknowledged skillset mismatch and efforts

to reform the purpose of doctoral education globally [7,8], doctoral education continues to predominantly focus on preparing researchers [9], thus signaling the need for greater attention to developing diverse writing skills along the path to the professoriate [10,11].

For researchers, scholarly writing disseminates the results of studies and new ideas, as well as clearly articulating plans for future projects in order to gain financial support. While both of these narrative types exist within the same life cycle of a research project, they are vastly different. Academic writing refers to a style of expression that researchers use to define the intellectual boundaries of their disciplines and specific areas of expertise [10]; this type of writing is carried out via academic publishing. Grant writing, or proposal writing, has been used as a strategy for obtaining resources to support scholarly activities [11]. While all writing varies based on the audience, academic and grant writing require different skill sets, both of which need to be developed to successfully navigate the current climate of higher education across disciplines.

Recognizing the importance of academic and grant writing as fundamental to a successful career in academia has become a global conversation [12]. Yet, there are few resources to help differentiate the type of writing skills required to be successful in these two distinct writing areas, nor are there widely available resources to provide the needed guidance to those tasked with supporting faculty as they develop their academic and grant-writing skills as necessary to career advancement. Thus, the aim of this manuscript is to both highlight the role of and differences between academic and grant writing in the professoriate, including at the doctoral student stage, and to offer recommendations to enhance existing institutional professional development portfolios. Through our work, we aspire to support future and current faculty as they advance throughout their careers, and to provide needed guidance and professional development recommendations to those tasked with supporting current faculty on their respective campuses.

2. Literature Review

2.1. Writing in Academia

Success in academia requires those seeking to join and those firmly planted in the field to become effective writers in order to advance in their careers [5]. In fact, establishing strong writing habits and skills early in one's career is necessary to traverse the ebbs and flows that accompany academic and grant-writing processes [13]. Yet, a one-size-fits-all approach to building the needed writing skills is ill-advised. Preparing a journal manuscript requires different writing abilities compared to articulating a persuasive argument that appeals to foundations and agencies, as one seeks funding support for scholarly and practice projects. In the following sections, we shed light on the role of and differences between academic writing and grant writing in terms of foundational skill development for a successful career in academia.

An important note about the systematic approach that guided our literature review: We conducted an extensive search guided by terms and phrases such as "academic writing preparation" and "grant writing preparation" in search engines including Google Scholar, ERIC, CORE, and ResearchGate. This strategy produced results in the thousands. To refine our review, we relied on targeted search terms and phrases including "academic writing versus grant writing", "academic writing compared to grant writing", and "professional development to support academic and grant writing" to identify articles that focused specifically on the professional development needed for these types of writing in academia, paying particular attention to any articles that compared academic and grant writing. The results of those searches informed our writing and the selected literature featured. In sum, there was limited literature that specified the targeted professional development needed to facilitate the skill development of academic and grant writing (less than 35 articles were

applicable). We were unable to find any articles that compared academic and grant writing, including strategies for skill building and corresponding professional development, as we do in this manuscript.

2.2. Academic Writing

We agree with Dankoski and colleagues [14] (p. 47), who stated "Scholarly publications and grant awards serve as academic currency for faculty throughout the academy". This observation has only increased in prominence globally over the decade since the date of this publication [15,16]. Yet, despite the prevalence of writing workshops (e.g., NCFDD 14-day writing challenge), writing coaches (e.g., Cathy Mazak) [17], writing retreats that also focus on wellbeing [18] and writing guides (e.g, Academic Writing for Graduate Students) [15], academic writing continues to be a "fraught and mysterious thing" [19] (paragraph 2) for doctoral students and faculty alike due to a lack of related literature on the process of academic writing and associated skill development. The resources that are available place the responsibility on the individual to improve their own writing skills rather than looking to the institutions to improve the overall pedagogical approach to academic writing in graduate education [19] or in terms of the professional development programming offered to support faculty learning and development.

The present-day academy has seen an increase in requirements of faculty for teaching, scholarly, and service expectations across all institutional settings [20]. In terms of scholarship, this includes increased expectations around numbers of publications [4], the quality of publications as measured by journal type and impact factor [5], and engagement in public scholarship and interdisciplinary collaborative projects [20]. Even to a potential outsider, the message is clear—in order to earn a faculty appointment and advance in academia, one must be engaged in academic writing to support scholarly pursuits. This is where the idea of "publish or perish" is more prominent than ever in academia [21].

Notwithstanding the importance of academic writing in career advancement, there is critical skill development that occurs as individuals are engaged in this practice. Within academic writing, scholarly identities are formed and displayed as future and current academics move throughout their professional careers [22,23]. Early-career investigators that are successful in obtaining grant funding write strong proposals and submit more frequently from the onset, which ultimately has a lasting positive impact on grant funding throughout their careers [24,25]. This demonstrated success in the early career makes a compelling case for investing in pedagogical practices and professional development to facilitate academic writing skill development along the faculty career trajectory, especially for early career academics.

2.3. Grant Writing

As budgets in higher education continue to tighten, scholars from all disciplinary backgrounds are relying more and more on external funding to support their scholarly activities. Success in receiving these external grants is key to the faculty reward systems of promotion and tenure. However, the skills needed to acquire external funding sources are explored minimally by the literature and developed minimally by doctoral programs and faculty development programs, but remain critical skills needed as a faculty member [26,27].

This external grant funding provides a plethora of research resources and professional development opportunities for faculty and doctoral students. Competition for this funding has become increasingly heightened over time. As illustrated in Figures 1 and 2, there has been a decline in the rate of successfully funded proposals from major US funders such as the National Institutes of Health (NIH) and the National Science Foundation (NSF) compared to twenty years ago. There was an apparent surge in grant applications

in 2021 to both NIH and NSF, reducing the funding rate due to increased numbers of competitive proposals. The number of submitted proposals has gradually decreased since then; however, competition remains relatively high.

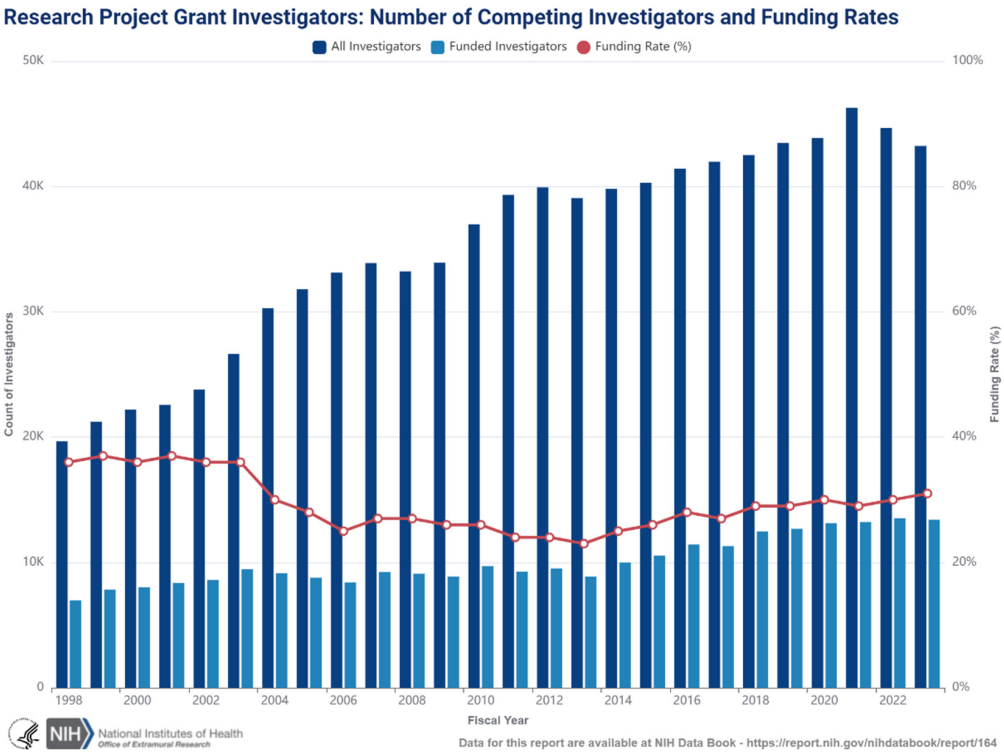


Figure 1. NIH Funding trends in the US [28].

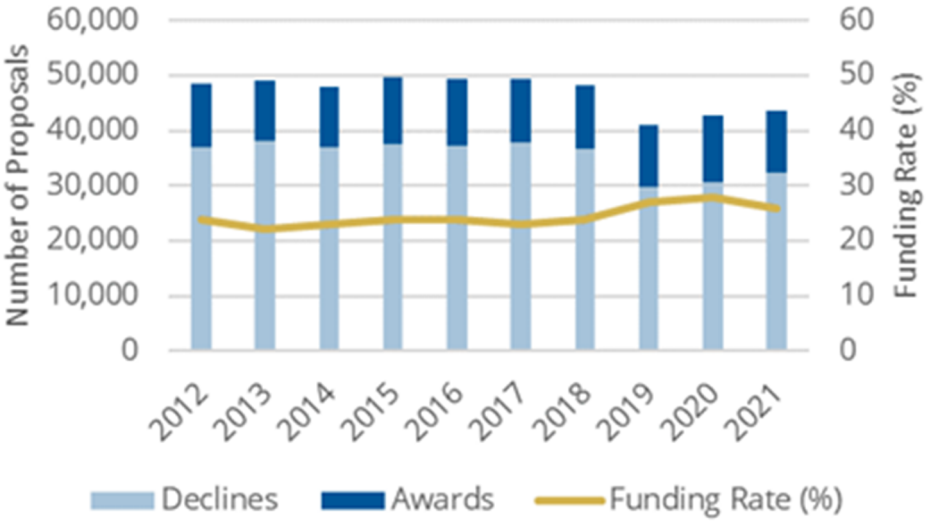


Figure 2. NSF Funding Trends in the US [29].

To compete in an ever-evolving funding landscape, higher education institutions have begun offering faculty development programs specializing in grant-writing development. Some of the main concerns being addressed in these faculty development programs are the lack of clarity in research planning and readability of grant proposals [30]. This may highlight the need for the specific development of grant-writing skills in addition to academic writing skills for scholars on the path to the professoriate.

While grant-writing and academic writing skills do share some similarities, success is achieved by drawing on vastly different writing skill sets, which are needed for success

in faculty roles [31]. Grant proposals tend to be shorter in length than many academic publications, thus requiring them to be very clear, concise, and direct. This writing is also persuasive in nature, due to the fact that it is being drafted for funding agencies for their financial support [32,33]. The likelihood of funding is dependent on the content of what is written in the proposal itself, such as wording choice, content, and research topic [34,35].

Aside from the emphasis on writing development, it is important to acknowledge the funding equity gaps that exist for faculty seeking research grants. There is a strong correlation between race and likelihood of receiving research funding [34,36–38]. Although White PIs are more likely to receive funding than all PIs of color, Black/African American PIs are less likely than all other racial groups to receive grant funding [36]. Additionally, there is a lack of diversity among faculty who receive awards [30]. Bias does seem to impact the scoring of grant applications due to familiarity of institutional affiliation [39]. Intra-institutional support and networking through mentorship facilitates the collaborative building blocks that early-career faculty need to develop their skills as grant writers to ultimately be successful in obtaining funding [39]. A study by Weber-Main et al. [40] demonstrates the effectiveness of grant-writing intensive workshops for new investigators to obtain valuable grant-writing skills that can strengthen a proposal. Such investment in skill development supports grant writers as they learn to align their proposal narrative with the budget, recognize the research priorities of the funding agency, and articulate the broader impacts of their work for the academic community and beyond.

Although gender and race have been identified as demographic factors that impact a researcher's likelihood of receiving grant funding, race is a stronger determinant than gender [37]. A study by Witteman et al. [41] suggests that gender gaps in grant-funding success are due to how women are assessed as scientists rather than the quality of their work. This is demonstrated in a linguistic analysis study by Kaatz et al. [42] that, despite a higher frequency of positive and praiseful language used in reviews for applications submitted by female scientists and more critical language used in reviews by male scientists, the award success rate indicates a potential paradoxical bias. Research in this area is limited, and additional inquiry is needed on the relationship between potential gender bias and grant award success [37,41].

In sum, at the core of an academic career is the need to be an effective writer. Two primary types of writing that dominate academia are academic and grant writing. While complementary, they are distinct given the role and importance of audience, impact, and dissemination opportunities, as evidenced by the literature discussed in this section. Despite their prevalence across academia, domestically and abroad, fewer resources in the form of pedagogy and professional development support have been directed towards helping aspiring and current academics foster these critical professional skills across all stages of the professoriate.

3. Discussion

Supporting Academic and Grant Writing: Recommendations

As scholarly expectations continue to expand globally across academia, one way to help academics achieve success is by investing in programs and practices the support skill development in academic and grant writing given the benefits to an individual's career advancement and institutional outcomes [42]. Enhancing pedagogical practices and investing in related professional skill development is one such means of support. However, we argue that such investments need to account for career-stage nuances given the unique aspects of the various stages of the faculty career, including doctoral education [43]. With that in mind, the following recommendations outlined in Table 1 are organized according to career stage and are written to both serve as a guide to the intended user as well

as a resource for those faculty members and faculty developers tasked with supporting individuals as they advance along their careers.

Table 1. Developing academic and grant-writing skills and programming.

	Academic Writing: Needed Skill	Academic Writing: Skill Development Activity	Grant Writing: Needed Skill	Grant Writing: Skill Development Activity
Doctoral Student				
	Cultivating a research agenda	Identify topics of interest; read related scholarship and practice; share interests with advisor and/or trusted mentor; refine thinking	*Awareness of grants*	Many doctoral students are unaware of the availability of grants to support dissertation research. Work with your grants office or advisor to identify potential funding opportunities.
	Developing a strong research topic	Prepare an "elevator pitch", articulating the focus/main aim of the topic (e.g., articulate the "so what" and "who cares" considerations)	*Learn how to write grants by reading successfully funded proposals*	Proposals funded by federal sponsors are publicly available. Review the writing style, key terms, and tone of the proposal narrative.
	Identifying primary and secondary literature sources	Target key word searches; find foundational studies and related recent literature	*Partner with faculty that have an active grant portfolio*	Faculty that are actively engaging in research are likely funded by grants. Find a faculty member with similar research interests (even outside of your department) to inquire about a graduate assistantship. Active faculty generally submit grant proposals often, and might welcome collaboration on their next grant proposal.
	Responding to feedback	Prepare a point-by-point response letter; hone active listening skills	*Get comfortable with rejection*	Review the feedback from the grant reviewers, and reach out to ask if none is provided. Apply the feedback, and try resubmitting the proposal again.
Assistant Professor				
	Refining a research agenda	Prepare a list of outstanding scholarly questions; prepare an action plan for answering questions	*Become aware of research priorities for sponsors*	Ensure that your topic of inquiry is a relevant area of study. Studies that seek to answer outstanding scholarly questions will be of interest to sponsors.
	Be knowledgeable about leaders in the field of inquiry	Identify leading voices (in favor/in opposition) of scholarly area	*Be knowledgeable about which faculty is being funded in your field of inquiry*	Network with these faculty, inquire about the possibility of collaborative research to potentially increase the likelihood of funding.
	Know your primary and secondary scholarly and practice audiences	Target journals, conferences, and networks in which your topic(s) of interest are studied and advanced; engage in related professional associations and present your work	*Designing proposals to meet research objectives of sponsors*	Read the grant solicitation to determine what kind of topics sponsors are looking to fund. Identify opportunities that align closely with your research topic, or could be modified slightly.
	Learn how to lead a collaboration; learn how to be a strong collaborator	Cultivate a robust scholarly and practice portfolio in which you serve as sole author, lead author, and collaborator	*Ensure your study is plausible*	Do not promise more than you can deliver. Design your study around the infrastructure in place so that the work could begin within a few weeks. Make sure your budget aligns with your narrative. All work should consider associated costs.

Table 1. *Cont.*

	Academic Writing: Needed Skill	Academic Writing: Skill Development Activity	Grant Writing: Needed Skill	Grant Writing: Skill Development Activity
	Develop strong writing practices	Calendar blocking; set writing session targets (e.g., word count); pre-arrange a friendly review with a due date to stay on time	*Start small, then scale up*	Try to not be tempted by high-paying grants with a million-dollar budget. These grants are highly competitive and generally awarded to more seasoned faculty. Apply for grants with a smaller dollar amount if you are going solo.
Associate Professor				
	Continue to develop strong writing practices (and associated skills)	Participate in writing sessions (e.g., on campus, through professional associations like NCFDD); seek regular feedback	*Scale up grant capacity*	Once you have been successful in obtaining a few grants, you can start scaling up your research. Consider building from a previously successful grant by expanding the research in a continued study. Contact program managers of federal sponsors to engage in conversations about your research.
	Serve as a friendly reviewer	Offer to serve as a friendly reviewer for peers and collaborators; accept invitations to provide scholarly reviews for conferences and publications	*Engage in collaborative research with other faculty members*	Partner with active principal investigators to engage in collaborative research, perhaps on a large-scale study. Submit a grant with other faculty both within and outside of your department/college/university.
	Write pieces for varied audiences Increase your presence in the field	Diversify the types and audiences of your writing (e.g., peer-review, popular press and media, blogs). Volunteer as conference session chair and/or discussant; take on leadership roles in related professional associations; attend conference business meetings for your division and/or related to your scholarly area(s) of interest	*Write research publications for a wide variety of audiences*	Sponsors place a great emphasis on broader impacts, specifically how the research will benefit society as a whole, not just within academia. Publications should be disseminated in areas outside of academic journals and conferences so the general public may benefit from the findings of your study. The readability of your publications is critical for reception by audiences at varied reading levels.
Professor				
	Refine writing and review skills	Pursue editorial board opportunities in your field/with your professional association(s)	*Develop proposals for larger research grants*	Engage with other faculty to design larger studies, potentially across multiple institutions.
	Expand scholarly reach	Cultivate a diverse network of peers and scholarly outlets in which your work is being discussed/published	*Apply to a wider variety of sponsors*	Consider applying to sponsors that you have never applied to before. Engage with other scholars conducting research in related areas to merge multiple topics across fields of study.
	Support rising scholars	Serve as a mentor to early-career colleagues; facilitate introductions in the field and provide entre to social networks	*Mentor graduate students, post-doctoral researchers, and junior faculty*	Ensure your study integrates scholars in multiple levels of expertise. Ensure that mentorship is intentional, and integrated into your research plan. Request that junior faculty and post-docs also participate in mentorship of graduate students.

Given the very limited literature that outlines needed skills *and* corresponding professional development activity/activities for both academic and grant writing employing a comparative lens, we offer recommendations informed by our 65 years of collective experience in academia (see Table 1). The first author is an internationally recognized leadership and professional development expert who consults with diverse institutions domestically and abroad and serves as a career coach for academics. The second author is a grants administrator from a nationally ranked research university who mentors faculty and staff throughout the life cycle of the grantmaking process; she has also served as a grants manager. The third author is a writing and editorial coach who previously worked in research and grants at a nationally ranked research university. In addition to our practical subject-matter expertise, our scholarship about the faculty experience, career-stage career advancement strategies [44,45], and grantmaking serve as foundational knowledge to the recommendations offered [46]. Note, our aim is to offer guidance on the act and associated skill development of writing itself *and* for navigating the various contexts of writing such as journals and funding agencies. The recommendations outlined in Table 1 serve as a starting point for others seeking to advance scholarly and practical endeavors in the area of professional development to support skill building in academic and grant writing.

4. Conclusions and Future Directions

While academic writing is not without its critics [16], it is a foundational currency across academia. Yet, not all writing is the same, nor are all writing tasks driven by the same skill sets. The purpose of this manuscript is to highlight two types of writing that dominate academia: academic writing and grant writing. Despite their prevalence in cultivating a successful career in higher education, there is often inadequate training and development for building the needed academic writing skills and experiences to engage in effective writing across all phases of the professoriate, including the doctoral education stage. Even less targeted training and support are provided for grant writing, which is becoming increasingly more necessary as faculty seek to secure external funding to support their scholarly and creative agendas in response to dwindling financial resources. We remind the reader of our aims in preparing this manuscript, which include (1) providing an overview of the limited literature that highlights the differences between academic and grant writing; (2) making a case for the importance of skill building in both types of writing; and (3) offering corresponding recommendations, organized according to career stage, to address the disconnect between needed skills and developed skills as foundational to success in academia.

As scholar-practitioners interested in helping those aspiring to academia, we hope that by applying a career-stage lens, along with outlining the needed skill and associated skill development activity, we provide a roadmap for those on the professoriate path and for those who serve as critical faculty development partners. What we outline in Table 1 is not an exhaustive list, but rather a starting point for action and resource (re)allocation considerations. Additionally, we envision future directions for scholarly inquiry and practice, as informed by the content outlined in Table 1.

First, we appreciate the importance of situating our recommendations in the context of one's disciplinary and/or divisional area. The needs of faculty in the humanities are quite different from those in the natural sciences. Thus, a one-size-fits-all approach to developing academic and grant writers on campus is ill-advised. Rather, attention and care must be given to critical considerations such as audience, readership, focus, and intended aims as guided by disciplinary norms. Targeted training and development opportunities must account for these factors; scholarly efforts must include these diverse perspectives. Such recognition is on full display in the STEM fields, for example, as outlined in the

National Science Foundation's new mentoring requirements for graduate students [47]. All proposals submitted on or after 20 May 2024 must outline mentoring plans, mentor training, and Individual Development Plans (IDPs) for graduate students engaged in NSF funded awards. The scholarly and practical outcomes that result from this requirement are sure to provide insight into many of the issues we raise in this manuscript.

Second, while writing is seemingly an individual endeavor, as evidenced by the needed skills and skill development activities noted in Table 1 and the relevant literature about writing retreats to support skill building and wellbeing [18], academic and grant writing are and should foster collaborative learning. The sharing of ideas, friendly reviews, writing consultations, and learning how to craft a compelling message require engagement with others. To achieve success in academic and/or grant writing, seeking collaborative partners outside of one's social (and professional) circle is advantageous. Such continued engagement fosters trust and allows for shared responsibilities to better manage workload as a necessary strategy to advance the aims of a given effort, whether preparing a journal article or grant proposal. Future research can build on the work of Sletto and colleagues [48], for example, to explore the identity development processes that occur for those engaged in varied writing collaborations, particularly for minoritized scholars. Knowledge gleaned can inform pedagogical and professional development programming investments along the path to the professoriate.

As we conclude this manuscript, we would be remiss if we did not reinforce one of our key messages—those along the path to the professoriate need targeted support to be successful academics and grant writers. That support needs to begin at the doctoral level and advance progressively according to one's respective career stage. At present, there are identified disconnects between the training that occurs in academia in relation to the careers pursued and the associated professional expectations, including preparation for faculty life [49]. We believe a career-stage lens is particularly apropos, given it acknowledges the diverse needs and associated experiences that accompany each stage. Writing is an art form, one in which passions and critical questions can be explored. The recommendations outlined in this manuscript, we hope, will be a conversation starter on the readers' respective campuses.

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