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Research article

The use of a book club to promote biomedical trainee professional development

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ABSTRACT

Professional development for biomedical doctoral and postdoctoral trainees is vital, especially due to the increase in individuals pursuing non-faculty career paths. We created a professional development-focused discussion group between trainees and faculty/staff by utilizing a book club format in which monthly small group meetings occurred over an 8-month period. A pre- and post-survey consisting of Likert and free-response questions was completed by participants. Results demonstrated that after the book club, trainees: 1) were more knowledgeable about a variety of career paths; 2) had improved awareness of their interests in relation to their career; 3) were more knowledgeable of their transferrable skills; 4) were more comfortable engaging with their PI and completing/updating an Individual Development Plan; 5) were more likely to find mentors in addition to their PI to address career specific needs; and 6) were more likely to seek opportunities to conduct informational interviews or experiential learning. Additionally, we found that faculty/staff: 1) were more knowledgeable about careers outside of academia; 2) had greater consideration for their mentee's values and interests in relation to their career; 3) had a better understanding of their mentee's transferable skills; and 4) were more comfortable engaging with their mentee about their career path and addressing an Individual Development Plan. Overall, we found that the utilization of a book club consisting of trainees and faculty/staff as a professional development tool was beneficial for both groups of participants, and this format is feasible for use in biomedical education professional development.

1. Introduction

The number of individuals acquiring a doctoral degree (PhD) is exceeding the available number of faculty positions, and many graduate students and post-doctoral scholars (hereafter referred to as trainees) decide during their training to no longer pursue a faculty career [1, 2, 3, 4]. With the limited number of faculty positions in the academic setting compared to the growing number of biomedical trainees and the growing interest in alternative, non-academic careers, the necessity to explore career options outside of academia is vital for all trainees [3, 5, 6, 7]. Professional or career development for trainees in the biomedical education sector is aimed at promoting and preparing trainees to consider or pursue and eventually obtain their desired career path following completion of their training [4, 8, 9]. Professional development initiatives in any graduate program should involve: 1) exploration of a variety of career paths; 2) opportunities to develop career path-applicable skillsets (including "soft or transferable skills"); 3) assistance with and knowledge of searching for jobs and networking with individuals in related job positions; 4) creating application documents, such as cover letters and resumes; and 5) preparing for interviews and salary negotiations. Presenting a variety of professional development opportunities also benefits trainees as it allows them to expand their knowledge of other career choices both within and outside of academia, which ultimately results in increased career readiness [8]. Collaborative efforts with faculty/staff mentors can increase career development opportunities and career preparedness for trainees by fostering a supportive and open environment for trainees to explore a variety of career options [8, 9, 10].

Current literature demonstrates the value of book clubs as an effective tool in a variety of specialized trainee demographics, such as with nursing students, pharmacy students, and medical residents; these tools supplement career and professional development along with their

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rigorous training [11, 12, 13]. We aimed to provide a novel professional development design in which biomedical trainees participate alongside faculty/staff mentors in a book club that included guided small group discussion between mentors and mentees. To our knowledge, this is the first evaluation of a book club format for professional development among biomedical research trainees.

We aimed to foster an open, professional development-focused discussion between trainees and faculty/staff within the biomedical research community at the University of Kentucky via a book club format, using the book *Next Gen PhD* by Melanie Sinche, PhD. The book was selected for this professional development book club due to the diversity of topics it covers and the interactive activities it provides to encourage readers to become introspective as they investigate career choices and career preparation [14]. The goals of the book club were: 1) to provide an opportunity for trainees to interact with faculty/staff in an informal setting and discuss professional development topics; 2) to facilitate discussion about career opportunities outside of academia and identify steps to develop skills for those opportunities; and 3) to encourage faculty/staff mentors to develop new skills they could apply when mentoring their trainees especially related to diverse career options.

2. Methods

The Graduate School at the University of Kentucky called for proposals to enhance doctoral student career readiness for the 2019–2020 academic school year, with funded proposals receiving $2,000 for this initiative. The Graduate School intended for these proposals to improve doctoral student preparedness for careers outside of academia through potential initiatives such as: 1) design and implementation of programs to promote effective mentoring for diverse careers; 2) creation of pilot seminars on career path diversity; 3) redesign of courses to develop critical skills to succeed in careers beyond academia; and 4) workshop creation on career exploration or decision making. In response to this call for proposals from the Graduate School, a small group of trainees and faculty/staff within the University of Kentucky College of Medicine drafted a proposal to develop a joint trainee-faculty-staff discussion series in the form of a book club utilizing *Next Gen PhD* by Melanie Sinche, PhD [14]. *Next Gen PhD* is one of a limited number of recently published books covering professional development topics specifically for biomedical trainees. The proposal was funded, and recruitment for the book club began in early September of 2019.

The $2,000 grant to fund this book club allowed for the purchase of 64 copies of *Next Gen PhD* for all of the book club participants. Additionally, some of the funds were used to purchase refreshments for the initial kick-off reception of the book club. Unfortunately, the plans to have a similar closing reception with refreshments purchased by the grant did not occur due to the COVID-19 pandemic. The participants did not receive financial compensation for their involvement in the book club.

Recruitment to participate in the book club was achieved by sending electronic flyers to trainees and faculty/staff within the research departments at the College of Medicine at the University of Kentucky, along with sending the flyers out to the Directors of Graduate Studies for departments with biomedical trainees. A total of 64 participants responded to the invitation to participate in the book club. At the time of writing this manuscript, the College of Medicine alone has 165 PhD students, 106 post-doctoral scholars, and 232 basic science faculty; while the recruitment expanded to more colleges at the university, the percentage of participants in the book club compared to the total population within the College of Medicine (about 12%) provides challenges with the book club being a representative sample size. Recruitment for the book club occurred approximately one month prior to an initial reception event, when the author, Dr. Melanie Sinche, joined the participants via Zoom for a short kick-off discussion focused on broad professional development topics. During the initial reception, which occurred in late September of 2019, participants were introduced to their small group, interacted with other participants, and learned from the author how to best utilize the book as a professional development tool for trainees. Additionally, faculty/staff recognized the benefits of the book to optimize mentoring and support of their trainees. Unfortunately, the COVID-19 pandemic prevented a wrap-up reception, so the initial reception was the only time that all members of the book club could interact in-person; subsequent book club meetings occurred in six small groups with 9–13 participants assigned to each group to facilitate in-depth and open discussion.

Each of the six small groups encompassed a combination of trainees and faculty/staff (assigned based on the timing of their availability). Each group had a designated faculty/staff and trainee leader to guide discussion among the small group members. There were a total of 8 small group meetings, occurring monthly between October 2019 and May 2020, and participants were expected to read one chapter each month, except for November and May when two chapters were read. The faculty/staff and trainee leaders for each small group were encouraged to facilitate discussion among the members of the group, but did not receive any specific training. If members were unable to attend their assigned book club group one month, they were encouraged to participate in another group depending on their availability. None of the small groups contained a pair of dissertation or post-doctoral mentors with their respective graduate student or post-doctoral trainee. By design, small group meeting times were scheduled in pairs such that two occurred at 9am, 12pm, and 4pm, respectively. This design allowed for expected attrition. If a group was too small one week, participants could join their counterpart. Trainees and faculty/staff were encouraged to perform the activities listed in the book by the author (e.g., ranking priorities for job searching, listing strengths and weaknesses, etc.) during their individual reading of the book and to bring the output of those activities for discussion of each chapter.

At the first small group meeting, participants took part in a pre-survey based on their classification as a trainee (graduate student or post-doctoral scholar) or faculty/staff. The trainee pre-survey encompassed 7 multiple choice questions that asked participants to reflect on their beliefs or knowledge regarding career paths outside of academia, 2 open-ended questions, along with a question asking trainees to identify as a graduate student or a post-doctoral scholar. Similarly, the faculty/staff received a pre-survey encompassing 7 multiple choice questions regarding their involvement in aiding mentees to explore and expand their knowledge of non-academic career paths, 2 open-ended questions, and a question asking them of their current position at the University of Kentucky. The trainee survey and the faculty/staff survey can be found in Appendix A and Appendix B, respectively. The questions were developed by the book club directors (NLV, SS, and EO) to directly address each chapter in the book. The questions were designed to gauge the impact and effectiveness of the book club as a professional development tool. For the trainee pre-survey, there were 26 responses, with a majority of the participants being graduate students (19/26, 73%) compared to post-doctoral scholars (7/26, 27%). For the faculty/staff pre-survey, a total of 15 faculty/staff participants took part in the pre-survey, with representation from research professors (1/15, 7%), assistant professors (3/15, 20%), associate professors (2/15, 13%), full professors (4/15, 27%), and staff (5/15, 33%).

At the beginning of the last book club meeting, the trainees and faculty/staff received a post-survey that was similar to the pre-survey, with the only difference from the pre-survey being that the open-ended questions were tailored to gauge the knowledge gained from participating in the book club. Likely due to the timing of the book club and the COVID-19 pandemic, there were fewer responses in the post-survey for both groups: the trainee post-survey had a total of 11 participants, with a majority still being graduate students (9/11, 82%) compared to post-doctoral scholars (2/11, 18%); and the faculty/staff post-survey had 12 responses encompassing assistant professors (3/12, 25%), associate professors (2/12, 17%), full professors (3/12, 25%), and staff (4/12, 33%).

De-identified data from the pre-survey and post-survey were assessed by: 1) summarizing the frequency of responses to the 7 multiple choice questions for which participants could respond based on a Likert scale (1 indicated "none" or "not at all," and 5 indicated "a lot" or "very"); and 2) analyzing the themes of the responses to the 2 open-ended questions. Due to a difference in the number of responses in the pre-survey compared to the post-survey (for both the trainee group and the faculty/staff group), the percentages for each response were reported. For analysis purposes, the responses for the 7 Likert questions were re-coded to the following: 1) disagree (combination of those responding with a 1 or 2); 2) neutral (response was 3); 3) and agree (combination of those responding with a 4 or 5). Due to the low sample size, no statistical tests were performed for the Likert data, but trends comparing the pre and post-survey can be observed from the frequencies/percentages. The open-ended question responses were analyzed to determine general themes and to determine any changes in themes from pre to post.

The evaluation of the book club was approved by the University of Kentucky Medical Institutional Review Board (IRB protocol #: 54299). Participants consented upon reading a cover letter describing the study and engaging the survey.

3. Results

3.1. Trainee responses

Table 1 summarizes pre and post-survey responses from the trainees with regard to the 7 Likert questions. We observed an increase in the percentage of trainee participants who responded with a 4 or 5 (agree) in the post-survey compared to the pre-survey for all of the Likert questions as follows: 1) being knowledgeable about the variety of career paths available to them; 2) thinking about how their interests and values relate to their career path; 3) how the skills they have learned during their training translates to careers outside of academia; 4) how comfortable they are engaging with their PI about their career path; 5) the likelihood of regularly completing and updating an Individual Development Plan; 6) the likelihood of searching for mentors other than their PI to address needs for their specific careers; and 7) the likelihood of seeking out opportunities for informational interviews and/or experiential learning beyond the bench.

Table 1. Summary of trainee likert question responses.

		Disagree*	Neutral*	Agree*
How knowledgeable are you about the variety of career paths (academia, science writing, policy, industry, etc.) available to PhDs in biomedical science?	Pre-Survey	23	58	19
	Post-Survey	9	18	73
How much have you thought about your interests and values (what excites you, what are you passionate about, what do you enjoy) as they relate to your career path?	Pre-Survey	4	38	58
	Post-Survey	0	18	82
How much have you thought about how the skills you learn (ed) in graduate school (and in a postdoc) (problem solving, communication, project management) translate to careers outside of academia?	Pre-Survey	46	23	31
	Post-Survey	0	18	82
How comfortable are you engaging in a conversation with your PI about your career path?	Pre-Survey	19	15	65
	Post-Survey	9	9	82
How likely are you to complete and regularly address an Individual Development Plan?	Pre-Survey	23	38	38
	Post-Survey	18	18	64
How likely are you to find mentors other than your PI to address specific needs for your career?	Pre-Survey	12	31	58
	Post-Survey	0	18	82
How likely are you to seek out opportunities for informational interviews and/or experiential learning beyond the bench?	Pre-Survey	23	27	50
	Post-Survey	0	27	73

* Response of participants as a percentage.

In addition to these Likert questions, the trainees were also asked two open-ended questions: 1) what were they hoping to learn from the book club; and 2) what are their major concerns regarding the future of their career path. Themes identified by trainee participants included: 1) hoping to identify different career opportunities outside of academia and industry; and 2) how to best develop skills to make one competitive for these jobs. When asked about their major concerns regarding their future career path, trainees were primarily concerned with selecting a career they would not be passionate about and not having the correct skillset to be competitive at a job they desire. The responses from the trainee pre-survey open-ended responses questions can be found in Appendix C. In the post-survey, the major takeaways the trainees had from the book club were identifying more career options and becoming more informed about the next steps to achieve success in their desired career. Additionally, the major concerns regarding future careers were having too many career options and selecting one they would desire. All of the responses to the post-survey open-ended questions can be found in Appendix D. Trainees were also asked about the main strength of the book club, which was identified as the combination of trainees and faculty/staff within the small groups.

3.2. Faculty/staff responses

The faculty/staff received a similar pre and post-survey to determine the likelihood of engaging with their mentees about their career development, along with their own knowledge of careers outside of academia. The breakdown of the results from the Likert questions in the faculty/staff survey is summarized in Table 2. We found an increase in the percentage of "agree" responses between the pre-survey and post-survey for the following questions: 1) the knowledge about the variety of career paths outside of academia; 2) considering the role of their mentees' values and interests in relating to their career; 3) thinking about how the skills learned by their mentees during their training will translate to careers outside of academia; 4) how comfortable they were with engaging with their mentee about their career path; and 5) the likelihood of encouraging their mentee to regularly complete and address an Individual Development Plan. The same percentage of faculty/staff participants answered with a 4 or 5 in response to how likely they were to encourage their mentees to find mentors to address specific needs for their career between the pre and post survey; however, there was an increase in the percentage of those answering with a 5 in the post-survey compared to the pre-survey. Finally, the only decrease observed in the percentage of responses answering "agree" in the post-survey compared to the pre-survey occurred when asked how likely they were to encourage their trainees to seek opportunities for informational interviews or experiential learning beyond the bench.

The survey also included two open-ended questions: 1) what they hoped to learn from the book; and 2) what were their major concerns regarding the future career paths of their trainees. In response to what they hoped to learn from the book club, participants hoped to: 1) improve their ability to mentor their students regarding their career path; and 2) learn about other career development resources to provide their trainees. When addressing major concerns for the future career paths of their trainees, the participants highlighted: 1) students not finding a satisfying job; and 2) fear their trainees would not be confident in their skillset to pursue a wide range of jobs. All of the responses to the faculty/staff pre-survey open-ended questions can be found in Appendix E. In the post-survey open-ended questions, faculty/staff were asked: 1) what they

Table 2. Summary of faculty/staff likert question responses.

		Disagree*	Neutral*	Agree*
How knowledgeable are you about the variety of career paths other than academia (science writing, policy, industry, etc.) available to PhDs in biomedical science?	Pre-Survey	27	47	27
	Post-Survey	0	50	50
How much have you thought about the role played by the interests and values of your mentees (what excites them, what they are passionate about, what they enjoy) as they relate to their career path?	Pre-Survey	7	20	73
	Post-Survey	0	8	92
How much have you thought about how the skills learned by your mentees in graduate school (or in a postdoc) (problem solving, communication, project management) will translate to careers outside of academia?	Pre-Survey	7	20	73
	Post-Survey	0	0	100
How comfortable are you engaging in a conversation with your mentee about their career path?	Pre-Survey	20	20	60
	Post-Survey	0	8	92
How likely are you to encourage your mentees to complete and regularly address an Individual Development Plan?	Pre-Survey	0	20	80
	Post-Survey	8	0	92
How likely are you to encourage your mentees to find mentors other than yourself to address specific needs for their career?	Pre-Survey	0	0	100
	Post-Survey	0	0	100
How likely are you to encourage mentees to seek out opportunities for informational interviews and/or experiential learning beyond the bench?	Pre-Survey	0	7	93
	Post-Survey	0	17	83

* Response of participants as a percentage.

had learned from the book club; 2) the main strength of the book club; and 3) the major concerns they had regarding the future career paths of their trainees and if these were affected by the book club. The complete list of responses from the post-survey open-ended questions can be found in Appendix F. Some key observations from the responses for each question listed above, respectively, are as follows: 1) the major themes in the post-survey regarding the knowledge gained by the faculty/staff were about the variety of jobs available for students and ways to improve mentoring their students; 2) similar to the trainees, the faculty/staff identified the main strength of the book club as the combination of trainees and faculty/staff in small groups; and 3) the major concern the faculty/staff had in regards to the future career paths for trainees was helping them find a satisfying job.

4. Discussion

When comparing the trainee post-survey with the pre-survey, we saw an increase in the percentage of trainees who responded with "agree" for all of the Likert questions. This outcome suggests that the book club improved trainees' likelihood to: 1) be knowledgeable about different career paths; 2) consider their interests and values in relation to their career path; 3) understand the transferrable skills learned during their training; 4) engage with their PI and regularly complete and update an Individual Development Plan; 5) seek out additional mentors other than their PI to address their specific career needs; and 6) pursue opportunities for informational interviews and/or experiential learning beyond the bench. Additionally, there was no major change in the concern of finding a desirable job within the trainees' field before and after the book club; however, the concern about not being a competitive applicant was mitigated, and transitioned into trainees identifying their individual skillsets, realizing the wide range of careers they were suitable for. This shift suggests that trainees benefitted from the book club by being exposed to a variety of career options and understanding the multitude of transferable skills they had developed during their training.

Comparing the faculty/staff Likert portion pre-survey with the post-survey, we saw an increase in the percentage of participants who responded "agree" for all questions except for the one asking if faculty/staff were likely to encourage mentees to seek out opportunities for informational interviews and experiential learning beyond the bench. This decrease in faculty/staff who would encourage their mentees to seek these opportunities may result from faculty, particularly, being more resistant to allow trainees time away from the bench to facilitate career exploration. However, overall, our results demonstrate faculty/staff are more likely to: 1) encourage mentees to seek mentors needed for their specific career needs; 2) engage with trainees about career paths and complete Individual Development Plans with their trainees; 3) consider the transferable skills trainees develop during training and how to utilize those skills in careers that fit their trainees' values and interests; and 4) have knowledge of other careers outside of academia. Overall, the increase in the amount of participants who "agreed" on the survey questions between the pre- and post-survey are complementary between the faculty/staff and trainees. For example, the increased positive responses in both trainees and faculty/staff in completing an Individual Development Plan could facilitate better guidance and planning for the trainees' professional and career development. However, it is important to note that at our institution, an Individual Development Plan is not required (but strongly encouraged) through the college or university for trainees unless the trainee is NIH funded and it is then required by their funding source. Additionally, no follow-up occurred as part of this study to determine the number of trainee participants who utilized this tool in their own professional development with their mentor. Nevertheless, this observation is one example of how this format can facilitate communication and utilization of professional development tools between trainees and their mentors.

These findings support other studies demonstrating the overall positive results associated with the use of a book club as a professional development tool [11, 12, 13, 15]. Additionally, the feedback from both groups of participants indicated that the combination of trainees and mentors participating in the small groups allowed for clear communication between mentors and mentees in an informal setting. The outcome is similar to other book clubs in that trainees become more aware of different career opportunities, identify transferable skills, and become aware of their values and interests regarding their career as also seen in more formal professional development settings, such as in a class [8]. Traditionally, professional development topics are addressed in a formal classroom setting and our initiatives demonstrated an added benefit for the participants of our study to engage in open dialogue created through the use of small groups. As indicated in Table 1 and Table 2, there was an increased likelihood of trainees and mentors engaging with each other regarding the career path of the trainees. This observation suggests that a more open and communicative relationship between trainees and their mentors could result in improvements for their professional development, such as completing Individual Development Plans and having support from both peers and mentors compared to a peer-only support system [16, 17, 18]. In addition, a longitudinal study conducted to assess the value of the advisor and trainee mentoring provided unclear outcomes when analyzing the benefit of the relationship solely between the primary doctoral advisor and the student [19]. The increase in trainees between the pre- and post-survey to seek additional mentors other than their primary advisor may facilitate improved professional development outcomes as the advisor mentoring may not be able to provide all of the needs of the trainee. Overall, these benefits demonstrate the effectiveness and significance of this informal setting in providing similar positive outcomes to a more formal setting, such as a career development class [8].

In addition to the benefits for the trainees in their professional development, it is important to note the observation that mentors

(faculty and staff) felt more knowledgeable about careers outside of academia following the book club (as seen in the results in Table 2). Findings from the Broadening Experiences in Scientific Training supported by the National Institute of Health demonstrated that many mentors of post-doctoral scholars and graduate students felt that their limited knowledge of careers outside of academia greatly hindered their ability to mentor their trainees [20]. Additionally, it has been suggested most mentors of biomedical trainees strongly favor their trainees entering an academic faculty position compared to alternative careers, despite some of the challenges faced with trying to obtain a faculty position [3, 21]. Ultimately, our findings demonstrate a book club format could be used to positively influence faculty's perception of careers outside of academia. Future studies utilizing a similar professional development program should rigorously assess if there are changes in perception regarding these non-academic careers in faculty and staff, which may result in improved guidance and mentoring for trainees seeking these positions.

Future studies could also analyze how other career development methods (such as a formal career development class, a workshop or even individual development plan processes) compare to a book club format. Additionally, it would be important to assess the career development impact and outcomes of those trainees who participate in such activities versus those who do not. Overall, the findings from this study support the idea that this book club format benefitted trainees, as well as faculty/staff. Utilizing a book club as a professional and career development tool seems likely to encourage trainees to seek guidance from other mentors, allows trainees to openly discuss their potential career options with peers, and creates an open dialogue between trainees and faculty/staff leaders. The notable benefits for faculty/staff were learning how to improve mentoring skills and improved knowledge of the breadth of career options available to their students. However, there are some potential modifications that can be implemented if other universities would like to utilize a similar program; for example, providing compensation for participation may improve recruitment of faculty/staff and trainees. Additionally, the benefits of having a book club in-person compared to online may also appeal to potential participants; our required shift to an online format due to the COVID-19 pandemic could have impacted participants' experiences. The pre- and post-assessment may also be modified based on the overall goals of the professional development program to better measure potential pitfalls and areas of improvement. Overall, our book club design may serve as a model for other organizations to utilize this method of professional development for their biomedical trainees. The success of this study and positive feedback from participants will hopefully encourage other biomedical training programs to consider this format as a professional development tool for trainees, mentors, and staff.

5. Limitations

There are a few limitations of the study that must be considered. First, the incomplete participation of the pre and post-survey from all who originally signed up to participate in the book club. Second, the interruption due to the COVID-19 pandemic that caused a shift from in-person meetings to virtual meetings for the last 2 meetings of the book club, which could have caused a decline in participation as a result of the shift to a virtual format, Zoom fatigue, or mental health implications caused by the pandemic [22]. Third, presence of faculty may have prevented some trainees from participating in the book club and/or discussing freely in the small groups; in fact, we did have some requests to switch groups due to this issue and these requests were accommodated. Fourth, the fact that some participants may have previously been engaged in other professional development activities, and the survey responses from those individuals may reflect a familiarity with different career options and/or were more open to approach their trainees/mentors regarding their career. Additionally, a relatively small number of trainees, faculty/staff participated in the book club making it difficult to generalize the findings to others at the University of Kentucky and beyond. The observations made from this study are also based on one book and one cycle of the book club format; more cycles of the book club would be beneficial. Other career development books aimed at PhD level trainees may also provide significant insight to the trainees and their mentors and additional rounds of the book club format should be assessed. Lastly, our study design does not allow us to determine the impact of the book relative to the conversations that occurred in each discussion session. Future studies could provide the trainee and faculty/staff leaders within each group with training to allow for better documentation of how these conversations flowed and more structure to the discussions. Despite the limitations, to our knowledge, this is the first report to demonstrate a book club format can be utilized as an effective method of career development for biomedical trainees and facilitate open discussion with mentors of the trainees.

6. Conclusion

In summary, the goals first set out for the book club were accomplished by having positive outcomes such as: 1) providing the opportunity for trainees to interact with faculty/staff in an informal setting, which facilitated an open dialogue about professional development topics; 2) encouraging the discussion of career options outside of academia and identifying how to improve the likelihood of obtaining those jobs; and 3) providing faculty/staff mentors new skills that could be applied to mentorship of their trainees, especially related to more diverse career options. Overall, the design and results from implementing a book club as a professional development tool may encourage other professionals in biomedical education to utilize a similar format to benefit both trainees and their mentors.

Declarations

Author contribution statement

Stacy Smith, Erin Oakley and Nathan L. Vanderford: Conceptualized the study; Acquired funding; Curated the data; Analyzed and interpreted the data; Wrote the paper.

Jenni Ho: Analyzed and interpreted the data; Wrote the paper.

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Data included in article/supplementary material/referenced in article.

Declaration of interests statement

The authors declare no conflict of interest.

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