Ready to Leave the Nest? Education Graduate Students' Voices on Publishing

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Graduate programs typically expect students to publish their scholarly work; however, few researchers have investigated their experiences in publishing. What literature does exist suggests that mentorship through co-authorship is helpful in supporting the development of emerging scholars. Importantly, there were no studies exploring the perspectives of education graduate students regarding their publication experience. The researchers of this article were all affiliated with an education journal run by and for graduate students who encountered student-authors who were not well prepared to engage in the publication process. In order to understand these student-authors' needs, the researchers conducted a needs assessment through the framework of Experiential Learning Theory (Kolb, 2014). Specifically, this needs assessment provided voice to thirty education graduate students regarding their career aspirations, previous publishing experience, helpful influences, barriers, and needed supports to engage in the publication process. The findings suggested that the students in this needs assessment lacked formal instruction on how to navigate the publication process, and they perceived mentorship from supervisors, when it existed, as helpful. Implications for graduate training based on the findings are also discussed.

Guiding and collaborating with students to conduct research, or at least to be literate in research methods, is a critical function of graduate training (Feldon, Shukla, & Maher, 2016; Gardner & Barnes, 2007). In particular, research-focused graduate programs often have a clear expectation that their students demonstrate competency in research literacy through peer-reviewed dissemination of their scholarly work (Doran, Somerville, Harlem-Siegel, & Steele, 2014). Despite this expectation, there is no guarantee that graduate students will receive formal training in publication in their program (Pfeifer & Ferree, 2006). Moreover, a lack of training in publishing could discourage emerging scholars from engaging in publication due to their perceptions that they are not competent in the publication process (Huerta, Goodson, Beigi & Chlup, 2017; Lambie & Vaccaro, 2011). Learning to publish requires a unique skill set, one that differs from the typical academic environment when the student is in study (Garbati & Samuels, 2013; Hatch & Skipper, 2016); for example, rather than set deadlines like in a course, scholarly journals have extended times from submission to publication (Syeda et al., 2017). Without training, graduate students may not be aware of these differences, which is key to being successful in the peer review process.

The training that does exist depends on the program and its requirements; for example, some supervisors may informally guide students through the publication process and even write with them, but this is not necessarily the case for all students (Syeda et al., 2017). When there is no formal mentorship for the publication process, it can leave a gap in graduate students' training and research literacy. This gap can have implications for their ability to participate in publication, prepare to be competent academics, and advance as scholar-practitioners (Davies & Felappi, 2017; Garbati & Samuels, 2013; Lambie & Vaccaro, 2011; Ni Uigin, Higgins, & Mchale, 2015).

Although researchers have put forward recommendations for graduate programs to implement to improve student engagement in the publication process (e.g., having graduate students as journal peer-reviewers; Chittum & Bryant, 2014), limited research has examined the effectiveness of these recommendations in graduate programs with respect to student publications (Knutson et al., 2014). Importantly, the voices and experiences of graduate students are not represented in identifying relevant training and experiential learning opportunities that they have, or would find beneficial, to successfully engage in the publication process.

Given that presently there is no empirical evidence highlighting the barriers the students encounter or the support that could enable them to overcome these barriers, research investigating students' experiences with publication is imperative to creating relevant and effective graduate training policies and programs. Therefore, in order to start addressing this gap in the literature, the current needs assessment sought to understand graduate students' experiences with publishing. To this end, this article first includes a description of the existing literature to situate the needs assessment, then describes the current needs assessment along with the findings. Finally, the article concludes with implications for graduate student training, limitations, and future research ideas.

Literature Review

Although the expectation of publishing in research graduate programs is ubiquitous (Manov & Milenkova, 2017), there are only a handful of articles addressing this topic. In a recent study by Robbins and LePeau (2018), the authors used a case study to investigate pre-tenured faculty members and their transition from doctoral

students to independent researchers. A key finding from this study was that completion of a dissertation study alone did not necessarily equate to the development of skills in converting the dissertation into a publishable manuscript. This suggests that training in the publication process is needed along with mentorship through the dissertation process and beyond.

In another study, Pinheiro, Melkers, and Youtie (2014) tracked the lifetime publication record of scientists and engineers and found that there is an increasing prevalence of articles in journals that are co-authored by students and their supervisors. Moreover, those scientists and engineers that engaged in co-authorship during graduate training had greater publication productivity in their career. This publication productivity is particularly critical in academia, given the philosophy of "publish or perish" in terms of faculty members' employment success (Davies & Felappi, 2017). These findings support the premise that mentorship in research writing and publication plays an important role in the development of emerging scholars. In research by Feldon et al. (2016), the authors looked at the quality of students' research writing skills depending on if they co-authored with a faculty member or not. Their findings indicated that students who co-authored with a faculty member demonstrated higher quality writing than those who did not. This finding provides evidence that when students engage in the publication process with a mentor, they enhance their research writing skills.

More specific to the education field, Garbati and Samuels (2013) explored the prevalence of articles published by education graduate students. Specifically, they reviewed published research in the fields of education and found that only 8.60% of all authors in educational research were graduate students and that a lesser percentage ($n = 4$) of the published papers were sole-authored by graduate students. Importantly, Lambie and Vaccaro (2011) noted that there were few studies looking at the research interest and experiences of education graduate students. The authors explained that they found that students who had experienced publishing were more likely to describe themselves as competent and interested in research, while students without publication experience described themselves as lacking competence and interest to engage in publication. These findings are noteworthy because of the academic and personal benefits known to be associated with publishing, such as graduate students' preparations for academic jobs or engagement with empirical research for evidence-based practice (Austin & McDaniels, 2006).

In light of this research indicating low engagement in the publication process among graduate students and the potential benefits of mentorship in publishing, there is a need for graduate programs to employ effective

ways to train and engage students in publishing. Addressing this need, however, is challenging as there are currently few empirical studies looking at how to engage graduate students in the publication process (Gardner & Barnes, 2007).

Current Needs Assessment

The authors of this article were affiliated with an education journal operated by and for graduate students. A unique feature of this journal is that graduate students receive individualized mentorship as they are engaging in publication with the journal. After starting the journal operations, the editorial board of this journal noticed that the graduate students who submitted manuscripts often lacked content knowledge (e.g., how to find and select a relevant journal) for successfully engaging in the publication process, as corroborated in the literature described above (Syeda et al., 2017). Moreover, the student-authors seemed to lack confidence in their skill set and some of them described being unsure about the steps to take in order to develop that skill set, and cultivate the confidence to publish. As such, the editorial board acknowledged the need for additional insights into graduate students' experiences with publishing to identify barriers and helpful influences (Syeda et al., 2017). This observation informed the purpose of the current needs assessment, which was to add to the understanding of the overall publication experience of graduate students. The editors applied for and received local university grant funding to conduct a needs assessment. Specifically, the aim of this needs assessment was to begin to identify what helped and hindered graduate students to publish their scholarly work. Furthermore, the needs assessment aimed to identify supports that graduate students perceived would or could be helpful to engage in the publication process. Given that the journal is aimed at education graduate students, this was the target population for this needs assessment.

Theoretical Framework: Experiential Learning Theory

As there are few studies available in this topic area, the researchers used Experiential Learning Theory (ELT), as described by Kolb (2014), to frame the needs assessment. The researchers chose ELT as it focuses on the experiences of learners, as well as how they make sense of these experiences to inform future learning opportunities, in a cyclical and continuous manner (Kolb, 2014). Specifically, Kolb noted one way of understanding the learning process is through four stages: learners engage in (a) concrete experience, (b) observations and reflection about the concrete experience, (c) formation of abstract concepts/generalizations, and (d) testing implications of

concepts in new situations. Researchers have used ELT to investigate and understand a range of areas such as engineering, music, and agriculture, thus demonstrating its cross-subject applicability (Morris, 2019). ELT, when applied, can help learners to master a specific skill set (Russell-Bowie, 2013), increase knowledge in a relevant area (Bethell & Morgan, 2011), and develop self-efficacy (Chan, 2012). According to Kolb (2014), applications and efficacy of ELT across disciplines have also attracted its implementation in higher education as well.

While Kolb's model (2014) is regarded as one of the most influential and cited models in the literature for ELT, it had also faced criticisms in the past for its lack of clarity to specify what constitutes "concrete experience" to foster effective learning (Bergsteiner, Avery, & Neumann, 2010). To address the criticism, Morris (2019) conducted a systematic review of recent, empirical studies employing experiential learning to examine what constituted concrete experience in those investigations. Morris's (2019) findings highlighted that in order to foster effective learning, the learners should actively engage and participate in the learning process, as well as be exposed to novel situations that may involve risk-taking and real-world problem-solving.

Learning to publish in an academic journal could mirror the cyclical stages of Kolb's ELT (2014). In particular, the graduate student (i.e., learner) may first need a concrete experience with a journal and the publication process in order to then observe the relevant skills necessary for publishing (Kolb, 2014). From these observations, the graduate student could form skill sets for engaging in publishing across journals and test these skills in further publication experiences. Furthermore, aligned with the revisions made to explain the nature and extent of what constitutes concrete experience in ELT to facilitate learning (Morris, 2019), it could be implied that in order for graduate students to effectively learn about publishing, they should explicitly be exposed to publishing (e.g., a novel), given a role of an active participant in the publishing process, and be guided on how to problem-solve when faced with barriers in the publishing process. If graduate students are unable to, or ineffectively, engage in the first stage of learning and gain appropriate concrete experience on publishing, then further development may be impeded. As such, the researchers focused this needs assessment on the first and second stages of ELT in order to inform training in the publication process for graduate students.

Guiding questions. Informed by ELT, there were two main foci for this needs assessment. The first area of focus was to gain some contextual information about education graduate students including their career aspirations and their publication experience (i.e., motivation to publish and first stage concrete experience). As such, the guiding questions for this area were: (a) What are education graduate students career aspirations (i.e., practice, research, other)? and, (b) What are the experiences of education graduate students in publication process? The second area of focus was on the perceived helpful influences, barriers, and supports needed to publish (i.e., second stage observation and reflection). The specific questions guiding this area were (c) What have education graduate students found helpful when engaging in the publication process? (d) What barriers have education graduate students encountered in trying to publish? (e) What supports do education graduate students think are needed to help them engage in the publication process?

Needs Assessment Design

After receiving ethics approval from the university of affiliation, the researchers shared an invitation email with the school of education at their university for administrators to send to education graduate students. The researchers also created recruitment posters and hung them on different locations in order to increase respondent numbers. As well, the researchers approached the university's graduate student association to post the recruitment poster on the association's Facebook page. The email and the recruitment poster contained a link through which interested students could access an online questionnaire, which remained open for three months to collect responses. Before answering the questionnaire, all participants needed to provide informed consent and the researchers indicated that participants could refuse to answer any of the questions and could respond to them with as much detail as they felt comfortable sharing.

The questionnaire contained four sections. The first section aimed to capture participants' demographic information, including age, gender, degree, year of study, area of specialization, research-stream or course-stream degree program, previous graduate degrees, and their status as domestic or international students. The second section focused on the career aspirations of the participants, as well as the number of publications, such as peer-reviewed articles, conference proceedings, book chapters, and book reviews. The first two sections were important to better understand the participants and contextualize their responses. The next section explored participants' experiences on publishing, which included practices that were helpful, as well as the barriers that impeded their efforts to publish. The last section inquired about suggestions for needed supports when trying to publish (i.e., supports that were not available, but if they had been, would have been helpful). In these open-ended questions (e.g., publication experience, helpful influences, etc.), students were not limited to a singular choice and were encouraged to generate responses based on their experiences. After the questionnaire was filled out, all participants received a $10 gift card as an honorarium.

Table 1
Participants' Preferred Career Focus

Code	*n*
Practice-Based	18
Post-Secondary	13
Research-Based	3
Unsure	1

Note. n indicates the frequency with which participants endorsed the code.

Participants. There was a total of 30 graduate students who elected to participate in this survey, all from the researchers' university of affiliation in western Canada. These participants were enrolled in education graduate programs. Of the participants, 27 identified as women, two as men, and one declined to indicate gender. Participants' ages ranged from 23 to 49 ($M = 35$, $SD = 8.60$). For level of education, 12 participants indicated being enrolled in a doctoral program (i.e., Doctor of Philosophy or Doctor of Education), and 18 participants indicated being enrolled in a masters' program, including Master of Education, Master of Science, or Master of Arts. Regarding their student status at the university, 25 students were domestic students and five were international students.

Data analysis. Although the survey was open-ended, participants' responses tended to be short (i.e., a few words or two to three sentences). As such, the researchers chose to use summative content analysis as this approach allows researchers to sort broad and brief responses in the raw data with other like responses to form themes (Hsieh & Shannon, 2005; Lichtman, 2013). Specifically, the researchers looked for key phrases within each participant's responses to questions and created preliminary codes based on their understanding of these key phrases. The researchers then compared these individual codes for similarities and dissimilarities across participants' responses to each question. The researchers then created formal codes based on these group comparisons and calculated the frequency with which participants endorsed each code (Hsieh & Shannon, 2005). These frequencies do not represent the importance of the code to the participant and instead provide insight into how common of an experience it was among participants in this needs assessment.

After completing the data analysis, the researchers invited an independent reviewer to evaluate the codes based on Yardley's (2000) criteria for qualitative research. Specifically, the reviewer determined the codes' (a) sensitivity to context (i.e., is the method appropriate to the type of data and material of the data?), (b) commitment and rigor (i.e., do the findings appropriately address the research questions?), (c) transparency and coherence (i.e., is it clear how the

codes were formed?), and (d) impact and importance (i.e., do the codes share critical insights?). Based on this evaluation, the researchers further refined the codes.

Findings

The aim for this needs assessment was to investigate education graduate students' experience in publishing. As such, this section starts with a review of participants' contextual information regarding their career aspirations and publication experience. There is then a discussion around the specific influences relevant to their experience in publishing, including influences that were helpful or barriers to engaging in the publication process, as well as supports that could be helpful.

Contextual Information

Within academia, there could be a perception that education graduate students who are focused on practice may not be interested or involved in publishing their scholarly work (Lambie & Vaccaro, 2011; Ramli & Muchsini, 2019). To explore whether or not that was the case for our participants, we asked for their career aspirations along with their experiences, or lack thereof, with the publication process. By understanding their career aspirations and their publication experience, we aimed to understand if, for the participants in this needs assessment, there is evidence for this perception. For career aspirations see Table 1; specifically, in this needs assessment, a majority of participants indicated being, or wanting to be, involved in a practice-based setting (e.g., teaching or counseling within schools). Almost half of the participants reported being or wanting to be in a post-secondary setting where they would have shared focus on practice as well as research. Only three participants shared a preference for a primarily research-based focus for their career.

Turning to experience in the publication process, participants indicated having diverse previous publishing experience, as shown in Table 2. Almost half of participants shared that they had prepared a manuscript, and of those, almost all indicated that they had submitted the manuscript to a peer-reviewed journal for publication. Of those that submitted their

Table 2
Students' Previous Publishing Experience

Code	n
Manuscript Prepared	14
No Experience/Attempt	13
Manuscript Submitted	12
Manuscript Accepted	8
Conference Presentation	5
Thesis-Based	4
Research Assistant Project-Based	2
Acknowledgement	1
Poster Presentation	1

Note. n indicates the frequency with which participants endorsed the code.

Table 3
Influences Participants' Found Helpful to Publishing

Code	n
No Responses/Not Applicable	11
Encouraging & Specific Feedback	9
Supervisor	7
Instructor	4
Journal Status	5
Personal Motivation	3
Research Team	3
Mentor	2
Course Structure	1
Familiarity with Publishing	1
Institutional Culture of Research	1
Workplace Expectation of Publishing	1

Note. n indicates the frequency with which participants endorsed the code.

manuscript for review, over half reported being accepted for publication. This is a surprising result as acceptance rates for peer-reviewed journals tend to be low; however, participants did not indicate the relative status of the journals into which they were accepted (e.g., impact factor), nor did they indicate their position in authorship (e.g., first author).

Some participants did indicate how they were involved in the publication process, including through content based on their thesis research or work as a research assistant, or through an acknowledgement. As well, for the participants that at least prepared a manuscript for publication, four indicated having an encouraging experience, and six shared having a discouraging experience with publication. This suggests that, although being accepted for publication is a prestigious and valuable experience for any graduate student, the process could be further enhanced to constructively support graduate students' development as emerging scholars.

Although almost half of participants in this needs assessment indicated that they had some experience with at least preparing a manuscript, nearly all in the other half reported that they had no experience or had not attempted to engage in publication or present at academic conferences. Only five participants endorsed giving conference presentations, including poster presentations, even though it was included as an explicit example in the survey question, given that conference presentations tend to be students' first steps into the peer-review process. Taken together with their career aspirations, these findings suggest, for the participants in this needs assessment, having practice-focused career aspirations did not preclude them from engaging, and having success in, the publication process.

Helpful Influences

Shifting to what education graduate students found helpful when engaging in the publication process, participants identified a variety of influences, noted in Table 3. About half of participants referred to a range of individuals who were helpful to their publication

success, either by offering guidance, information, or encouragement. In particular, participants' responses suggested a hierarchy of individuals who were helpful. Most frequent were supervisors, which is not surprising given that supervisors would likely have the most interaction with students and knowledge of their work and skills. Next were course instructors, followed by research teams, and finally mentors (i.e., peers or faculty who were not supervisors or course instructors). This hierarchy of individuals suggests that students prefer and/or need direct support (i.e., mentorship) when first engaging with the publication process.

Along with indicating a range of individuals, about a third of participants shared that helpful influences to engaging in the publication process were receiving specific and positive feedback from journals (e.g., how to improve the manuscript, as well as areas of strength). This suggests that students benefitted from the mentorship and scaffolding provided through engagement with journals.

A few participants each mentioned that being familiar with the publication process (e.g., working as an admin support for a journal), having personal motivation to publish (e.g., to see work disseminated), and being in a course, work, or academic environment that had the expectation or culture of publishing was a helpful influence for engaging in the publication process. These findings suggest that having knowledge about the publication process, along with being part of an environment where there is an expectation of publication, could facilitate engagement with publishing. Of note, when indicating what was helpful in engaging in the publication process, over a third of participants did not report any experience or person.

Barriers

The barriers encountered by participants in this needs assessment mirrored the helpful influences, as shown in Table 4. Specifically, almost two-thirds of participants in this needs assessment indicated that they had insufficient knowledge about the publication process, which prevented them from engaging in it. Specifically, many participants shared that they did not understand the publication process (e.g., the steps to publish a manuscript or which journals to target). This finding suggests that these participants perceived that they required this background knowledge before they could engage in the publication process. Over half of participants in this needs assessment indicated that a lack of support from a mentor (e.g., either their supervisor, course instructor, or a peer) prevented them from engaging in the publication process. This finding corresponds with the finding noted earlier in helpful influences that participants perceive support from others as important for engaging in the publication

process. These findings also align closely with previous research findings (e.g., Doran et al., 2014) that highlighted a potential lack of formal teaching of publication skills in graduate courses and curricula.

Additionally, a third of participants did not feel confident or secure about their skills and the quality of their work to write a publishable manuscript; their responses reflected their uncertainty about the publication process (e.g., not knowing where to begin), as well as fear and worries of receiving harsh criticisms from journals. Moreover, these participants reported thinking that they did not have the ability or skills to translate their academic work into publishable manuscripts. These findings potentially highlight the need for graduate programs to support students in developing not only the skills for engaging in the publication process, but also the confidence in those skills and their scholarly work to do so.

Lastly, close to one third of participants also reported not having enough time in their graduate studies as a barrier to engaging in the publication process. Three participants indicated a perceived lack of opportunities to publish throughout their degree as a barrier to engaging in the publication process. These findings suggest that, even though there is often an inherent expectation within graduate programs that students engage in publishing, the participants in this needs assessment lacked explicit requirements to allocate their time in the program to publishing, as well as lacked identification of publishing opportunities in which they could engage.

Of note, there was only one participant who indicated that they were not interested in publishing, which suggests that lack of desire to publish was not a frequent barrier to publishing. Unfortunately, given the static nature of online surveys (Lefever, Dal, & Matthiasdottir, 2007), additional contextual reasoning for this participant's lack of interest is not known.

Supports Needed

Participants identified various supports that they perceived as potentially being helpful to engage in the publication process, as detailed in Table 5. Over half of participants indicated that both formal education in how to publish and write for a journal, as well as writing mentorship (i.e., supervisors, instructors, peers), would be helpful to develop a publishable manuscript. Participants elaborated that they needed structured education regarding information about the general publication process, as well as the practical skills and steps to publish (e.g., transforming scholarly work into a journal manuscript format). Moreover, participants shared that they needed opportunities to receive individualized and ongoing guidance and learning from mentors throughout the manuscript development

Table 4
Barriers Participants Encountered in Trying to Publish

Code	n
Lack of Knowledge	18
Lack of Support (i.e., mentor)	16
Lack of Confidence/Ability	10
Lack of Time	7
Lack of Opportunities	3
Lack of Interested	1

Note. n indicates the frequency with which participants endorsed the code.

Table 5
Supports Participants Described to be Needed to Help them Engage in the Publication Process

Code	n
Writing Mentorship	19
Publication and Writing Education	16
Supervisor	5
Program Structure/Time	7
Publication Opportunities	2
Confidence	1
Funding	1

Note. n indicates the frequency with which participants endorsed the code.

process. Participants indicated that their publication mentors could be supervisors, another faculty member, advisor, instructor, peers, or a research team. These findings complement those in the helpful influences and barriers sections. Specially, many participants in this needs assessment indicated that explicit instruction and mentorship were the keys to whether or not they engaged in the publication process.

Additionally, almost one third of participants reported that having more time in their program would potentially enable them to engage in the publication process. Two participants indicated that being explicitly informed of opportunities would be helpful for them to be involved in publishing. One participant noted that improving personal confidence and funding could also support them to take part in publication. These findings imply that some of the participants in this needs assessment would benefit from requirements to publish.

Discussion

Due to the gaps in the literature about graduate students' experiences with publishing, the researchers conducted a needs assessment using the ELT model, developed by Kolb (2014) and then revised by Morris (2019), to conduct an empirical inquiry on this topic. Specifically, the needs assessment aimed to explore how education graduate students were learning to publish with respect to the first two stages of Kolb's ELT model (2014): concrete experiences with

publishing and students' observation and reflections on their experiences with publishing, i.e., what helped or hindered them from publishing and what supports were needed to facilitate engagement with publishing. The key findings from the current needs assessment suggest that, for participants, in-person mentorship was the most useful influence for them, as they reflected that it was this concrete experience that helped them to develop skills in publication. When participants did not have this concrete experience, then they reflected that they struggled to engage in the publication process. These findings are consistent with Pinheiro et al. (2014), who found that co-authorship with mentors or supervisors resulted in greater publication productivity.

Implications for Education Graduate Student Training

Based on the findings from this needs assessment, there were three implications for education graduate student training in the publication process. First, the students in this needs assessment reported experience in the publication process even though they also indicated that their career aspirations were primarily practice-focused. This suggests that students did not need to be interested in a research career to have engagement in publication. From an ELT perspective (Kolb, 2014; Morris, 2019), this is an important implication for education graduate training programs to be mindful of providing concrete publication training to students who

are interested in acquiring this skill set, regardless of their degree focus. A potential benefit of encouraging future practitioners to participate in publication is that there will be a greater influence of research in practice, as well as practice informing research (Knutson et al., 2014; Ramli, & Muchsini, 2019).

Second, from the majority of the responses in this needs assessment, it was clear that support from knowledgeable mentors, such as supervisors and instructors, was critical to engaging in the publication process. Conversely, most participants in this needs assessment were clear that lack of content knowledge related to the publication process (e.g., journal selection) kept them from engaging. These two findings were corroborated by participants' responses to supports that would be helpful to engage in the publication process. These findings reflect the second step of ELT in that the participants observed that mentorship and content knowledge training was integral to success in publishing. Without this mentorship and learning, education graduate students may lack the ability and self-efficacy to progress to the third stage of ELT (i.e., generalize skills for future publication opportunities).

Last, journals provide the learning space in which graduate students develop as emerging scholars in the publication process. As gatekeepers of scholarly works, journals, through the review process, inherently provide feedback which contributes to the scholarly development of authors, including graduate students. The participants in this needs assessment indicated that encouraging and constructive feedback was helpful in engaging in the publication process. An important implication for journals is that some participants in this needs assessment noted feeling insecure about their skills or thinking that their work was not of good enough quality for publication (i.e., low self-efficacy), which may prevent students from engaging in the publication process (Huerta et al., 2017). Moreover, the findings suggest that students highly regarded journal feedback as they indicated worrying about receiving overly critical feedback. As this feedback is an opportunity to learn and to be mentored by esteemed scholars in the field, according to ELT (Morris, 2019), students need feedback that provide them with specific guidance to effectively problem-solve to advance into developing independent application of publishing.

Limitations and Future Research

This needs assessment had limitations that are important when considering the findings. In particular, participants who identified as men were underrepresented, which means that their voices regarding the publication experience are not comprehensively represented in the findings. Moreover,

as participants contributed responses through an online questionnaire, the researchers were unable to include follow up questions to gain further detail about specific experiences and perceptions (Lefever et al., 2007). Finally, although the findings in this needs assessment are not generalizable to the general graduate student population, the experiences shared in this needs assessment may have aspects that are transferable to other academic disciplines and provide a base upon which to engage in future exploration on this topic.

Future research could address these limitations by exploring the experiences of gender diverse graduate students to represent their voices. Alternatively, future research could use semi-structured interviews to follow up on findings in this needs assessment and gain a more nuanced understanding of graduate students' experiences. Through these semi-structured interviews, researchers could also expand upon the ELT framework in order to understand how students move from these concrete publication experiences and reflections to formation of abstract concepts regarding publication skills, then testing these concepts in different academic situations (i.e., steps three and four of ELT). Finally, it would also be helpful to understand the perspectives of supervisors, instructors, and graduate programs regarding how they support graduate students to publish. From these multiple perspectives, researchers could obtain a more comprehensive understanding of education graduate students' publication experiences.

Conclusion

The goal of this needs assessment was to explore education graduate students' voices on publishing. Based on participants' responses, almost half of the participants shared that they had prepared a manuscript and submitted it to a peer-reviewed journal for publication. Most participants reported that they received support at some point throughout the publishing process. Particularly, supervisors played a role in students' engagement in publishing. Regarding barriers, most students reported a lack of knowledge in the publication process, as well as a lack of support from a mentor. In terms of needed supports, most participants indicated that they wanted structured formal education and training, as well as writing mentorship, on publishing. Overall, if the expectation of education graduate students is that they engage in the publication process (Lambie & Vaccaro, 2011; Ramli & Muchsini, 2019), then based on the participants' experiences in this needs assessment, graduate students need formalized training, such as tiered mentorship and concrete instruction regarding publication. This training may help graduate students to feel more supported in their publication experiences and encourage further participation as they move beyond training.

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