Reviewing to Learn: Graduate Student Participation in the Professional Peer-Review Process to Improve Academic Writing Skills

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Although expectations for graduate students' writing abilities are high, their actual writing skills are often subpar (Cuthbert & Spark, 2008; Singleton-Jackson, Lumsden, & Newson, 2009), even though academic writing is considered integral to graduate education and necessary for career preparedness (e.g., Mullen, 2006; Stevens, 2005). Today's scholars in any field must be prepared to communicate findings effectively to a variety of audiences and venues. As such, explicit support in academic writing and communication skills at the graduate level is vital, and yet this area of support is often neglected in graduate level programs (e.g., Pfeifer & Ferree, 2006; Surratt, 2006). Thus, we propose engaging students in the professional peer-review process to nurture this skillset. In this paper, we present support for and practical implications of involving students in the professional peer-review process, where graduate students serve as initial reviewers in double-blind (or similarly robust) review procedures for refereed journals. We discuss theoretical and empirical support for incorporating professional peer-review activities to facilitate growth in graduate students' academic writing skills and productivity, including constructivist theory, examining examples and non-examples, working within the zone of proximal development to engage in deeper levels of learning, and utilizing general student peer review to improve writing skills. Finally, we present a framework for incorporating this form of peer review into graduate programs across disciplines.

Although expectations for graduate students' writing abilities are high, faculty and researchers across disciplines have agreed that graduate students' actual writing skills are often subpar (Cuthbert & Spark, 2008; Diehl, 2007; Lavelle & Bushrow, 2007; Singleton-Jackson, Lumsden, & Newson, 2009). Further, it is widely acknowledged that academic writing is integral to graduate education and necessary for career preparedness (e.g., Bacon & Anderson, 2004; Fischer & Zigmond, 1998; Mullen, 2006; Singleton-Jackson et al., 2009; Stevens, 2005), and while academic writing skills may be considered more or less significant depending on the field of study, writing is central to any graduate program. Fischer and Zigmond (1998) posited four skills integral to graduate student success, the second being written communication skills, or, more "specifically, being able to convey the results of one's work through publications and oral presentations" (p. 30). Today's scholars in any field must be prepared to communicate findings effectively to a variety of audiences and venues, including peer-reviewed journals, conference presentations, practitioners, legislators, and grant funders. As such, explicit support in academic writing and communication skills at the graduate level in various disciplines is vital, and yet this area of support is often neglected in graduate level programs (e.g., Bacon & Anderson, 2004; Fischer & Zigmond, 1998; Pfeifer & Ferree, 2006; Rose & McClafferty, 2001; Singleton-Jackson et al., 2009; Surratt, 2006).

Improving graduate students' formal academic writing is particularly important, as scholarly writing and publication in refereed venues play paramount roles in both graduate education and graduate students' eventual careers (Kamler, 2008). Utilizing a practice-based approach that enables graduate students to participate in the publication process is ideal (Doyle, 2008), as productive student publishers more likely become productive scholars (Kamler, 2008). Thus, we propose engaging students in the professional peer-review process to nurture this skillset. In this paper we present support for and practical implications of involving students in the professional peer-review process, where graduate students serve as initial reviewers in double-blind (or similarly robust) review procedures for refereed journals. Our personal experiences as graduate student reviewers encouraged us to present this pedagogy here and we hope to encourage others to utilize this practice, which, in our experience, has the potential for affecting positive outcomes.

We construct the foundation of our argument for student participation in the professional peer-review process by first summarizing research and theoretical evidence concerning (a) the state of graduate students' writing skills compared to expectations and (b) the importance of academic writing in graduate school and beyond. Then, we discuss theoretical and empirical support for incorporating professional peer review activities to facilitate growth in graduate students' academic writing skills and productivity. Finally, we present a framework for incorporating this form of peer review into graduate programs across disciplines.

The State of Graduate Student Writing

The current expectation in graduate programs is that students will write as professional scholars and that they acquired this skill prior to their admittance

(Mullen, 2006; Singleton-Jackson et al., 2009). The reality, however, often does not meet this expectation (Singleton-Jackson et al., 2009) and little appears to be done to remedy the apparent discrepancy.

Several researchers have investigated the state of graduate students' academic writing skill levels. For instance, Singleton-Jackson et al. (2009) administered the SAT II: Writing Test, Part B writing—an assessment used to measure high school students' writing prior to college admittance—to students in US graduate programs (PhD and EdD), the majority of whom completed over 24 graduate credits prior to the assessment. Results suggested that graduate student scores were comparable to those of high school seniors. Similarly, Alter and Adkins (2006) addressed the writing skills of graduate students in social work programs. They found that approximately 25-30% were unable to pass a basic writing assessment, and demonstrated considerable academic writing deficiencies in direct contradiction to reported writing expectations (Alter & Adkins, 2006). Particular difficulties were linked to basic mechanical issues associated with paragraph organization and clarity, and utilizing evidence to build a focused case (Alter & Adkins, 2006). As building an argument based on evidence from text is often a staple of academic writing for professional scholars and in graduate programs, we posit that these findings depict barriers for many graduate students in attaining success academically and, eventually, as professionals.

Instructional Programs

Due to this evident lack of writing skill, some have argued for more direct writing instruction at the graduate level (e.g., Fischer & Zigmond, 1998; Lavelle & Bushrow, 2007; Surratt, 2006). Integral to improving graduate students' writing skills is explicit instruction designed to support students in developing their undergraduate-level writing skills into skills appropriate for the complexity of writing expected in graduate school (Lavelle & Bushrow, 2007). Gibbons and Farr (1998) noted that poor writing skills are not limited to students and recently graduated PhDs, but have also, unfortunately, described some senior faculty. As such, they called for graduate programs to "acknowledge the problem of flawed writing and begin to respond to it in a systematic way" (Gibbons & Farr, 1998, p. 468). Several writing programs have been implemented at the graduate level (e.g., Cuthbert & Spark, 2008). However, it appears that, although some disciplines and specific programs have offered courses in written communication skills, the practice is not a cross-disciplinary staple. Researchers have examined the implications of specialized courses and programs aimed at improving both graduate and undergraduate writing

skills through the use of several instructional strategies, such as peer review and peer writing assessment (Cho, Schunn, & Wilson, 2006; Whitehead, 2002), explicit instruction of structure and process (Lloyd, 2006), providing detailed feedback (Bacon & Anderson, 2004), co-authorship (Kamler, 2008), and repeated practice (Johnstone, Ashbaugh, & Warfield, 2002). However, in general, we found that these programs are not as prevalent as the stated need would suggest necessary, and few programs have been implemented to directly address and assuage the widespread concern.

Implications

These arguments for improved writing withstanding, we offer a question: What are the implications of poor academic writing skills left untended? Maintaining high expectations for potential, future, and present faculty members is a concern applicable to most areas of study (e.g., Staudt, Dulmus, & Bennett, 2003; Surratt, 2006). However, graduate students with little experience or skill in academic writing eventually move forward from graduate school to become academics or professionals where effective writing is essential to professional success and participation in the culture of academe (Staudt et al., 2003; Surratt, 2006). Graduate students pursuing research-oriented degrees in particular are expected to contribute to their fields through scholarly publication. However, research suggests that lack of direct experience with the task can breed anxiety, which can further impede growth in academic writing skills (Bloom, 1981, Kamler, 2008) in turn exacerbating the problem. Thus, focusing on improving writing and research skills at the graduate level is important for the success of these students as future professionals and as contributors to their fields of study (Staudt et al., 2003).

Proposed Solution

Researchers have demonstrated that many graduate students lack publishable writing skills and often fail to develop these skills throughout their graduate careers. In response to this clearly stated concern, we propose a solution that engages graduate students in the professional peer-review process to support them in improving not only their scholarly writing skills, but also their learning, higher-order thinking processes, and *transfer* of knowledge—one of the primary goals of higher education (Halpern & Hakel, 2003)—from coursework to professional venues. As Wood, Bruner, and Ross (1976) posited, "the learner must be able to *recognize* a solution to a particular class of problems before he is able to produce the steps leading to it without assistance" (p. 90). As such, engaging in the peer-review process, or recognizing scholarly work as

well as areas for improvement, may be an important step for graduate students when developing independence in their scholarly writing (Reynolds & Thompson, 2011). Thus, the professional peer-review process (i.e., that which is specifically for the acceptance or rejection of academic journal articles) can serve as part of the scaffolding process of learning to write in a scholarly fashion. Existing programs designed to improve writing at the graduate level, as far as we have determined, do not provide opportunity for the type of experiential learning we propose through reviewing manuscripts submitted for publication.

Theoretical and Empirical Support for Peer Review

Although research has begun to shed light on this issue, there is little to no information regarding graduate student participation in the professional peer-review process, or whether this participation can successfully strengthen academic writing skills. It is important to note that, in this paper, we argue for the full participation of graduate students in the peer-review process. Engaging students in evaluating manuscripts submitted for publication is not the same as giving students a few example articles for the purpose of "pretend" evaluation. Although participation in this process often should *begin* with one or two "practice run" reviews, there is reason to suggest that the student's participation will be more authentic, and the learning more profound, if it is understood that the student's evaluation will have real-world implications (i.e., it will impact whether or not an article is accepted or rejected; e.g., Jones, 2009; Wigfield & Eccles, 2000).

The purpose of this section is to explicate a four-part argument supporting the need to begin a discourse on this topic and ultimately evaluate the effectiveness of this approach. First, we use constructivist theory— specifically radical constructivist and sociocultural theory—as frameworks to discuss the importance of learning through personal, yet logical, constructions. Second, we apply the importance of exposure to both examples and non-examples to graduate student writing skills (Bruner, Goodnow, & Austin, 1956; Doolittle, 2000). Third, we frame participation in the peer review of journal articles as an opportunity for students to work within an appropriate zone of proximal development (Chaiklin, 2003; Vygotsky, 1978) and to engage in deeper levels of learning such as evaluation and synthesis (Bloom, Englehart, Furst, Hill, & Krathwohl, 1956). Fourth and finally, we apply recent research on the use of general student peer review to improve writing skills to this concept and argue for continued investigation (Cho & Cho, 2011; Cho et al., 2006; Couzijn, 1999).

Implications for construction of knowledge. The radical constructivist von Glasersfeld (1984), quoting Giambattista Vico's *verum ipsum factum*, asserted that

we only truly come to know what we make for ourselves. Only then do we understand the component parts and how they were assembled (von Glasersfeld, 1984). This concept lends itself well to the issue under consideration. Graduate students may be told, within classrooms or by their mentors, what is necessary for quality academic writing. However, some have argued that language is not sufficient to transfer conceptual structures from the expert to the novice (von Glasersfeld, 1998), and this knowledge will not become fully integrated, or implemented, until students have the opportunity to construct personally meaningful, yet valid, understandings of what it means for them to be a "good" writer. We suggest that participating in the peer-review process can provide this opportunity. It allows students to interact with academic writing and apply and re-evaluate their current understandings of good academic writing technique. The activity provides students with the space to construct their own meanings, which increases the likelihood that these meanings will be retained and used in the future. This participation also requires graduate students to interact with an important artifact within the culture of academe (i.e., the manuscript for review) and it is truly a dialectic relationship.

The graduate student's understanding is further constructed through interaction with the manuscript, while at the same time the manuscript is further impacted by the student's current understanding. This aligns with John-Steiner and Mahn's (1996) assertion that "the individual constructs the social and at the same time the social constructs the individual" (p. 196). Through the dialectic nature of professional peer review, graduate students continually evaluate and re-evaluate their own understandings of good academic writing. This provides students with the opportunity to expand on and refine novice understandings until this knowledge eventually matures into more expert understandings of academic writing. Using both radical constructivism and sociocultural theory as a framework, we argue that the professional peer-review process can contribute to the development of graduate student writing skills by requiring them to construct their own meanings and necessitating interaction with important artifacts of academia.

Importance of examples and non-examples. The importance of interaction with artifacts is related to the second aspect of the current argument: exposure to examples and non-examples. The theory of concept attainment (Bruner et al., 1956) is well established and applies to the topic at hand. The learner acquires concepts, both simple and complex, through exposure to examples and non-examples (Bruner et al., 1956; Doolittle, 2000). One of the factors affecting the ease with which a concept is attained is the complexity of the rule set that is used to judge the concept (Bruner et

al., 1956; Doolittle, 2000). When applied to graduate student writing skills, one can deduce that in order for students to understand the concept of good writing, they must be exposed to both good and bad examples of writing. In a classroom setting, however, graduate students are usually only exposed to examples of good writing in the form of primary sources and articles given as reading assignments and written by experts in the field who have already honed their writing skills. This neglects the non-example aspect of concept attainment. Participation in the professional peer-review process offers exposure to examples and non-examples alike; as any experienced reviewer knows, not all articles submitted for publication are worthy of publication. By evaluating both publishable and non-publishable work, we posit that graduate students can strengthen their conceptual understanding of quality writing. Further, the complexity of the rule set determining good writing makes this concept more difficult for learners to acquire (Bruner et al., 1956; Doolittle, 2000). As opposed to concepts involving simple rules alone, writing skill involves a host of conjunctive, disjunctive, and relational rules (Doolittle, 2000). Extended interaction with these rules gives graduate students the opportunity to develop a more complete understanding of quality writing.

Working within the zone of proximal development. The third aspect of the current argument is based on Vygotsky's (1978) *zone of proximal development*. The development of publishable writing skills is a crucial aspect of graduate student development, as this is a skill required for their future work. Although many graduate students have the opportunity to peer-review other graduate students' work in the context of class work, this is less likely to help them move toward a professional, publishable writing ability. Although graduate students may not yet have strong writing skills, the zone of proximal development encourages educators to focus on maturing skills and understandings, as opposed to skillsets that already exist (Chaiklin, 2003). When graduate students participate in the professional peer-review process, they are evaluating the work of individuals who will shortly be their peers in a very real sense. Interaction with submitted articles can help students successfully transition to a professional level of writing (Chaiklin, 2003). This interaction, which is understood to hold real-world implications (acceptance or rejection), also encourages deeper levels of learning (Bloom et al., 1956; Halpern & Riggio, 2003). Through the peer review process, students must engage in higher-order thinking processes, or *critical thinking*, which

> describe[s] thinking that is purposeful, reasoned, and goal directed—the kind of thinking involved in solving problems, formulating inferences, calculating likelihoods, and making decisions,

when the thinker is using skills that are thoughtful and effective for the particular context and type of thinking task. (Halpern & Riggio, 2003, p. 6)

Graduate students must synthesize their understandings of writing skill and then use this knowledge and skill to evaluate examples of writing and make a decision affecting manuscript acceptance, leading to more thorough or critical understandings of academic writing (Bloom et al., 1956). The application of the zone of proximal development to this example does assume the availability of assistance for the graduate student undergoing this process, either from a journal editor or faculty mentor. Obtaining feedback on "trial run" reviews and on subsequent reviews that prove challenging is an important aspect of the success of this approach.

Peer review as an instructional strategy. In addition to the theoretical foundations of this argument, research is emerging which suggests that serving as a professional peer-reviewer can indeed lead to improved writing skills. Much of this research investigates the use of general peer review within a classroom context (e.g., Cho & Cho, 2011; Cho & MacArthur, 2011; Cho et al., 2006; Reynolds & Thompson, 2011). Peer review in this context is defined as "the structuring of a process to allow peers to review each other's professional processes and/or products with the goal of improving such processes or products" (Woolf & Quinn, 2001, p. 22). What we suggest places graduate students in the role of "peer" to those who submit original research for review in a professional venue. Thus, students become participants in the professional activities for which they will be expected to assume as professionals and during their tenure as graduate students. Cho et al. (2006) investigated the validity and reliability of peer reviews and peer-generated grades. They found that, although students estimated that reviews and grades generated by their peers would be significantly less reliable than those of their professors, the reviews and grades that students actually generated were highly reliable and valid. These students received guidance on peer reviewing and used rubrics to generate grades (Cho et al., 2006). This study is relevant to our present argument because it can allay a predictable concern among journal editors: that graduate student reviews will be of a lower quality and less reliable than those of degreed professionals. As such, this study suggests that, despite their graduate student status, the resulting reviews of submitted articles will likely be of equal caliber to those already holding a degree.

Research by Cho and Cho (2011) and Cho and MacArthur (2011) made further contributions that are relevant to the present article. Within both of these studies, the researchers found that participating in a peer-review process in a classroom context improved the writing ability of the students who conducted the

reviews and those students who received the feedback. The students were reviewing the work of others in their courses, which is arguably different than reviewing the work of one who is not a peer or colleague. That being said, this research suggests that it is worthwhile to investigate the use of professional peer review as a means to improve graduate students' writing skills. Although this would involve reviewing work of those who are not peers, graduate students will soon become professionals and obtain this peer status. As it has been demonstrated that peer review is beneficial to the reviewer's writing skills, and that some training results in highly reliable and valid reviews, it becomes clear that more information is needed to determine whether professional peer review can truly improve the writing skills of graduate students.

Practical Implications

Our purpose is not to disseminate research, but to propose a method that may be worthy of future research endeavors. As such, in this section we offer suggested guidelines for formally engaging upper level graduate students in the professional peer-review process. These proposed strategies are derived from educational research, theory, and best practices, as well as our personal experiences with the task as veteran reviewers who engaged in the professional review process as PhD students. The role we propose for upper-level (e.g., doctoral) graduate students is as initial reviewers in a double-blind peer-review procedure for a mid-tier journal in their area of study. We propose the following be inherent to any program in which graduate students act as reviewers for professional journals:

- Reviewed manuscripts are within each student's area of study and/or reflect their prior experiences.
- Student agreement to review each manuscript is obtained in advance.
- One or two practice reviews are completed with constructive feedback prior to an actual review.
- Faculty and/or journal editors support students interpersonally and provide access to external supports.

Each of these points is discussed in greater detail in the following sections and involves the concept of *scaffolding*, or

> the process that enables a . . . novice to solve a problem, carry out a task or achieve a goal which would be beyond his unassisted efforts. This scaffolding consists essentially of the [expert] "controlling" those elements of the task that are

initially beyond the learner's capacity, thus permitting him to concentrate upon and complete only those elements that are within his range of competence. (Wood et al., 1976, p. 90)

By providing these scaffolds to graduate students as they participate as novice initial reviewers, several potential issues are assuaged. For instance, as the student's level of expertise is still in development, it is likely inappropriate for them to be responsible for issuing final decisions concerning manuscript acceptance. This potential problem can be avoided with professional support and clear guidelines during each step (especially initially), a built-in system in which the reviewed manuscripts represent areas of individual expertise, and a process whereby final reviews are approved by editorial staff. Another concern pertains to students' potential anxiety in making lasting decisions about others' scholarly work. Such ingrained scaffolds as we suggest here will support their confidence and perceived competence in decision making, especially considering that another with greater expertise (e.g., the managing editor) ultimately makes the final decision. We suggest that one or more expert reviewers (e.g., faculty mentors, editorial staff) should facilitate this guidance. We recognize that this requires a specific type of relationship, environment, and intrinsic support system wherein journal editorial staff are available to facilitate student reviewers.

Tailoring to Areas of Expertise

We suggest that it is essential to insure that manuscripts for review are within each student's general area of study or reflect their prior experiences (e.g., current or previous course work, professional experiences, graduate assistantship experiences, research interests). By attending to this point, especially at the beginning of the experience, mentors scaffold student success and efficiency by targeting their prior knowledge (Halpern & Hakel, 2003) and ensuring that they are comfortable with the jargon they will encounter during the task. A procedure for collecting these areas formally from each student is important. Further, these areas can be expanded as each student's knowledge and experience develops as they progress toward degree attainment such that manuscripts reflect their present level of expertise. When tailoring manuscript type and topic to students' prior experiences, as their expertise broadens, manuscript topic areas should likewise expand; thus, mentors gradually reduce the level of support (Chaiklin, 2003; Wood et al., 1976) such that students are eventually regarded as expert reviewers.

A PhD student in the social sciences, for example, will develop an understanding of research methodology

over a period of several years. Should a student be at the beginning of that process, it might be more appropriate to assign only theoretical, review, and instructional manuscripts. Then, as student confidence and knowledge expand, more advanced examples of empirical research can be assigned per their individual research foci (e.g., qualitative, quantitative, mixed methods) and interests. Eventually, the assumption would be that the students evaluate a variety of research manuscripts. In the end, these supports can be minimized as the mentor or editor sees fit, such that the student is considered an expert reviewer (Chaiklin, 2003; Wood et al., 1976). We suggest, however, that an open line of communication is present for students to communicate when they are uncomfortable offering an opinion on a manuscript, a point that segues to our next suggestion.

Peer Review Agreement

To ensure that a student is reviewing a manuscript s/he feels qualified to review, agreement to review each manuscript should be obtained in advance. Thus, students have the opportunity to assess their confidence and decline requests if they do not feel qualified to offer professional opinions. Further, this encourages perceptions of a safe learning environment while providing feedback to the individuals who assign manuscripts and act as mentor.

Providing Feedback

Rather than requiring students to immediately complete reviews that are formally submitted and disseminated to the authors, we suggest that the first one or two reviews be practice-oriented, time permitting. "Experience alone is a poor teacher" (Halpern & Hakel, 2003, p. 40) or, in this context, simply attempting to complete peer reviews is insufficient to improving writing skills without corrective and systematic feedback. Thus, the mentor should read the student's review and the manuscript (provided that the review process permits a third party access to the manuscript under review) in full to provide appropriate feedback. However, it is important to consider during this procedure that each reviewer offers a distinctive perspective. Thus, these meetings are not to assess whether or not the student considered the same points in a similar manner as the mentor, but that the student offered a unique perspective reasonable and appropriate to the task at hand. Example feedback might consider the following:

- professional phrasing (e.g., jargon, terminology, tone/manner),
- technical details of the review (e.g., length, organization, specificity),

- strong points made, and
- significant points overlooked (if any, and only if the mentor is permitted access to the manuscript).

In addition, we recommend mandatory meetings just prior to review submission during the initial reviews (e.g., five) and continued as needed. During these meetings, questions, expectations, and feedback should be discussed. The mentor might also use this time to ask students to justify their review decisions and the suggestions they offered in the reviews. Moreover, an open line of communication should be in place for needed guidance between meetings. Thus, some level of support is provided until students can serve in the role independently and efficaciously. We recommend that one or two reviews per month would be sufficient for the experience, and would not be too great a burden on the student or mentor.

External Supports

Many of the supports we have proposed thus far concern the review process with less attention given to further developing content knowledge; an intentional focus. Upper level graduate students should have a strong foundation in their fields of study and may even possess prior experience as professionals in their fields. Thus, content learning is less important when successfully navigating the reviewing process discussed here. For instructors to support transfer, content should be utilized in learning environments in which the information can be applied (Doyle, 2008), such as serving as a peer reviewer. Accordingly, greater attention is given to the scaffolds provided through interactions with faculty or journal editors and the information (e.g., guidelines, procedures, examples) provided in advance, such as:

- A description of the student's role and the double-blind review process (e.g., see Figure 1).
- A document describing the mission of the journal and submission guidelines (e.g., see International Journal of Teaching and Learning in Higher Education [IJTLHE], 2014a, 2014b).
- A clear rubric or explicit guidelines for the final review product (e.g., see Appendix; IJTLHE, 2014c).
- Several example or model reviews.

Providing scaffolds in this way will support students' learning and motivation for professional peer review by clearly communicating task objectives and outcome expectations (e.g., Bandura, 1986; Deci & Ryan, 2000, 2012; Schunk & Pajares, 2005). However, as noted
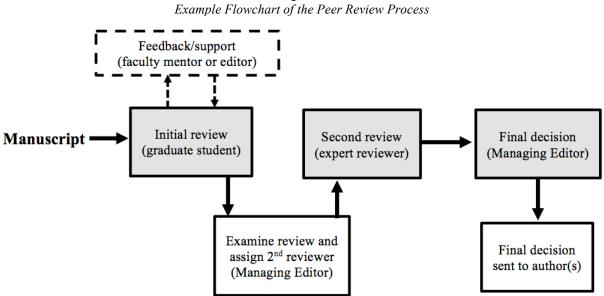
Figure 1
Example Flowchart of the Peer Review Process

Note. A flowchart similar to this can be provided to the student so that s/he understands the process and his/her role as an initial reviewer.

above, it is important that these supports gradually diminish over time as students develop expertise, which will help to prevent overreliance on external support (Wood et al., 1976).

We have described the theoretical and empirical support for engaging students in the professional review process, as well as several suggestions for implementation. However, where and how this learning experience is implemented depends on the unique structure of each graduate program. Our experience engaging in the peer review process as graduate students was part of our graduate assistantship responsibilities. Thus, our access to a mid-tier journal and its editors was perhaps easier than it may be for some. However, we believe there are many environments in which this learning experience might also be successful and that each program or mentor might consider adapting the experience per their department's (or institution's) unique structure. For instance, some might consider implementing peer review as a graduate program requirement (e.g., as one or more course assignments either in one course or across multiple courses, as an activity considered part of the advisee/advisor relationship, as a graduate assistantship responsibility) and others might incorporate it as an optional (or volunteer) activity (e.g., as a field study or independent study focus, as a professional seminar task). It is worth noting that access to a peer-reviewed journal, in some fashion, is necessary to implement

this approach. Faculty and departments interested in implementing this learning experience might consider contacting colleagues who have ties with journal editors or contacting journal editors directly, and then collaborating to formalize procedures for including their graduate students in the peer review process. Many faculty members already engage in peer review as part of their professional service; thus, such ties to one or more refereed journals could serve as a starting point for opening lines of communication. Although collaboration with managing editors would be necessary, as they assign manuscripts for review, it is not required that they serve as the primary support for the student reviewer. Associate editors, other current reviewers, or faculty members could easily fulfill this role. In making this decision, it is important for implementers to consult the journal's guidelines on whether or not assigned reviewers may show the manuscript to a third party. It is possible that mentors may only be permitted to read the student's review (rather than also reading the manuscript under review). Thus, ethical considerations regarding anonymity during the blind review process are pertinent to the design and implementation of this learning experience.

In the end, we were unable to locate scholarly literature indicating that this practice is used elsewhere. Thus, involving graduate students in the professional peer review process is an area for future development, dialogue among scholars, and research.

Conclusion

Although engaging in the professional peer review process is a far cry from developing a manuscript worthy of publication, throughout the process students are evaluating content and formulating a timely response—an activity common to graduate education and professional activities in academe (e.g., formal reviews, grading, collaborative research, advising graduate students). Further, research suggests that student writing should improve through regular analysis of both "good" and "bad" examples of scholarly writing (Bruner et al., 1956; Doolittle, 2000), as well as engaging in the critical process of determining strengths and areas for improvement (Bloom et al., 1956; Halpern & Riggio, 2003). Whitehead (2002) went so far as to suggest that academic writing skills are "probably the most important component in demonstrating scholarship" (p. 499). We posit that involving graduate students in the professional peer review process will support students in developing a variety of essential skills, thus serving as a bridge toward gaining independence as scholars.

References

Alter, C., & Adkins, C. (2006). Assessing student writing proficiency in graduate schools of social work. *Journal of Social Work Education, 42*(2), 337-354. doi:10.5175/JSWE.2006.200404109

Bacon, D. R., & Anderson, E. S. (2004). Assessing and enhancing the basic writing skills of marketing students. *Business Communication Quarterly, 67*(4), 443-454. doi:10.1177/1080569904271083

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.

Bloom, B., Englehart, M., Furst, E., Hill, W., & Krathwohl, D. (1956). *Taxonomy of educational objectives, handbook 1: Cognitive domain*. New York, NY: Longmans, Green.

Bloom, L. Z. (1981, March). *Why graduate students can't write: Implications of research on writing anxiety for graduate education*. Paper presented at the 32nd Annual Meeting of the Conference on College Composition and Communication, Dallas, TX.

Bruner, J., Goodnow, J., & Austin, C. (1956). *A study of thinking*. New York, NY: Science Editions.

Chaiklin, S. (2003). The zone of proximal development in Vygotsky's analysis of learning and instruction. In A. Kozulin (Ed.), *Vygotsky's educational theory in cultural context* (p. 39-64). Cambridge, UK: Cambridge University Press.

Cho, Y. H., & Cho, K. (2011). Peer reviewers learn from giving comments. *Instructional Science, 39*(5), 629-643. doi:10.1007/s11251-010-9146-1

Cho, K., & MacArthur, C. (2011). Learning by reviewing. *Journal of Educational Psychology, 103*(1), 73-84. doi:10.1037/a0021950

Cho, K., Schunn, C. D., & Wilson, R. W. (2006). Validity and reliability of scaffolded peer assessment of writing from instructor and student perspectives. *Journal of Educational Psychology, 98*(4), 891-901. doi:10.1037/0022-0663.98.4.891

Couzijn, M. (1999). Learning to write by observation of writing and reading processes: Effects on learning and transfer. *Learning and Instruction, 9*(2), 109-142. doi:10.1016/S0959-4752(98)00040-1

Cuthbert, D., & Spark, C. (2008). Getting a GRiP: Examining the outcomes of a pilot program to support graduate research students in writing for publication. *Studies in Higher Education, 33*(1), 77-88. doi:10.1080/03075070701794841

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*(4), 227-268. doi:10.1207/S15327965PLI1104_01

Deci, E. L., & Ryan, R. M. (2012). Motivation, personality, and development within embedded social contexts: An overview of self-determination theory. In R. M. Ryan (Ed.), *The Oxford handbook of human motivation* (pp. 85-107). New York, NY: Oxford University Press.

Diehl, S. H. (2007). Developing students' writing skills: An early intervention approach. *Nurse Educator, 32*(5), 202-206.

Doolittle, P. (2000). *Concept formation and development*. Unpublished course materials, Virginia Tech, Blacksburg, VA.

Doyle, T. (2008). *Helping students learn in a student-centered environment*. Sterling, VA: Stylus.

Fischer, B. A., & Zigmond, M. J. (1998). Survival skills for graduate school and beyond. *New Directions for Higher Education, 101*, 29-40. doi:10.1002/he.10103

Gibbons, D. C., & Farr, K. A. (1998). The good, the bad, and the ugly: Dealing with flawed writing in criminal justice. *Crime & Delinquency, 44*(3), 464-474. doi:10.1177/0011128798044003008

Halpern, D. F., & Hakel, M. D. (2003). Applying the science of learning to the university and beyond: Teaching for long-term retention and transfer. *Change, 35*(4), 36-41. doi:10.1080/00091380309604109

Halpern, D. F., & Riggio, H. R. (2003). *Thinking critically about critical thinking* (4th ed.). Mahwah, NJ: Laurence Earlbaum.

International Journal of Teaching and Learning in Higher Education (IJTLHE). (2014a). *Call for papers*. Retrieved from http://www.isetl.org/ijtlhe/cfp.cfm

International Journal of Teaching and Learning in Higher Education (IJTLHE). (2014b). *International Journal of Teaching and Learning in*

Higher Education (IJTLHE). Retrieved from http://www.isetl.org/ijtlhe/

International Journal of Teaching and Learning in Higher Education (IJTLHE). (2014c). *Manuscript review criteria*. Retrieved from http://www.isetl.org/ijtlhe/review/reviewCriteria.pdf

John-Steiner, V., & Mahn, H. (1996). Sociocultural approaches to learning and development: A Vygotskian framework. *Educational Psychologist, 31*(3-4), 191-206. doi:10.1080/00461520.1996.9653266

Johnstone, K. M., Ashbaugh, H., & Warfield, T. D. (2002). Effects of repeated practice and contextual-writing experiences on college students' writing skills. *Journal of Educational Psychology, 94*(2), 305-315. doi:10.1037/0022-0663.94.2.305

Jones, B. D. (2009). Motivating students to engage in learning: The MUSIC model of academic motivation. *International Journal of Teaching and Learning in Higher Education, 21*(2), 272-285. Retrieved from http://www.isetl.org/ijtlhe/pdf/IJTLHE774.pdf

Kamler, B. (2008). Rethinking doctoral publication practices: Writing from and beyond the thesis. *Studies in Higher Education, 33*, 283-294. doi:10.1080/03075070802049236

Lavelle, E., & Bushrow, K. (2007). Writing approaches of graduate students. *Educational Psychology, 27*(6), 807-822. doi:10.1080/01443410701366001

Lloyd, M. (2006). Developing academic writing skills: The PROCESS framework. *Nursing Standard, 21*(40), 50-56. doi:10.7748/ns2007.06.21.40.50.c4572

Mullen, C. (2006). Best writing practices for graduate students: Reducing the discomfort of the blank screen. *Kappa Delta Pi Record, 43*(1), 30-35. doi:10.1080/00228958.2006.10516456

Pfeifer, H. L., & Ferree, C. W. (2006). Tired of "reeding" bad papers? Teaching research and writing skills to criminal justice students. *Journal of Criminal Justice Education, 17*(1), 121-142. doi:10.1080/10511250500335692

Reynolds, J. A., & Thompson, R. J., Jr. (2011). Want to improve undergraduate thesis writing? Engage students and their faculty readers in scientific peer review. *CBE—Life Sciences Education, 10*(2), 209-215. doi:10.1187/cbe.10-10-0127

Rose, M., & McClafferty, K. A. (2001). A call for the teaching of writing in graduate education. *Educational Researcher, 30*(2), 27-33. doi:10.3102/0013189X030002027

Schunk, D. H., & Pajares, F. (2005). Competence perceptions and academic functioning. In A. J. Elliot & C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 141-163). New York, NY: Guilford.

Singleton-Jackson, J., Lumsden, D. B., & Newson, R. (2009). Johnny still can't write, even if he goes to college: A study of writing proficiency in higher education graduate students. *Current Issues in Education, 12*(10). Retrieved from http://cie.asu.edu/ojs/index.php/cieatasu/article/view/45/9

Staudt, M. M., Dulmus, C., & Bennett, G. A. (2003). Facilitating writing by practitioners: Survey of practitioners who have published. *Social Work, 48*(1), 75-83. doi:10.1093/sw/48.1.75

Stevens, B. (2005). What communication skills do employers want? Silicon valley recruiters respond. *Journal of Employment Counseling, 42*(1), 2-9. doi:10.1002/j.2161-1920.2005.tb00893.x

Surratt, C. K. (2006). Instructional design and assessment: Creation of graduate oral/written communications skills course. *American Journal of Pharmaceutical Education, 70*(1), 1-8. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1636900/

von Glasersfeld, E. (1984). An introduction to radical constructivism. In P. Watzlawick (Ed.), *The invented reality* (pp. 17-40). New York, NY: Norton.

von Glasersfeld, E. (1998). Why radical constructivism must be radical. In M. Larochelle, N. Bednarz, & J. Garrison (Eds.), *Constructivism and education* (pp. 23-28). Cambridge, UK: Cambridge University Press.

Vygotsky, L. (1978). Interaction between learning and development (M. Lopez-Morillas, Trans.). In M. Cole, V. John-Steiner, S. Scribner, & E. Souberman (Eds.), *Mind in society: The development of higher psychological processes* (pp. 79-91). Cambridge, MA: Harvard University Press.

Whitehead, D. (2002). The academic writing experiences of a group of student nurses: A phenomenological study. *Journal of Advanced Nursing, 38*(5), 498-506. doi:10.1046/j.1365-2648.2002.02211.x

Wigfield, A., & Eccles, J. S. (2000). Expectancy-value theory of achievement motivation. *Contemporary Educational Psychology, 25*(1), 68-81. doi:10.1006/ceps.1999.1015

Wood, D. J., Bruner, J. S., & Ross, G. (1976). The role of tutoring in problem solving. *Journal of Child Psychiatry and Psychology*, 17(2), 89-100. doi:10.1111/j.1469-7610.1976.tb00381.x

Woolf, N. H., & Quinn, J. (2001). Evaluating peer review in an introductory instructional design course. *Performance Improvement Quarterly, 14*(3), 20-42. doi:10.1111/j.1937-8327.2001.tb00217.x

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Appendix
Manuscript Review Criteria[1]

Review criteria for three styles of manuscripts—research, instructional/theoretical, and review—are listed below. During the review procedures, the peer reviewer accesses these criteria through a password protected system and is asked to rate each of the numbered criteria on a 4-point scale: 1 (*excellent*), 2 (*good*), 3 (*fair*), 4 (*poor*), and 5 (*missing*). In addition, a half- to full-page formal written review is required. Then, the peer reviewer selects one of three options: (a) accept, with revisions; (b) not accept, encourage resubmission; and, (c) not accept.

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Research Articles:

Research articles include 15-25 page manuscripts (4,000-7,000 words) that are theoretical or empirical in nature. Research articles are to be well grounded in the relevant literature and present knowledge, methods, and insights relevant to higher education pedagogy. The broad scope of the journal and its diverse readership necessitates that research articles address issues that have a wide appeal and significance to higher education practitioners.

1. **Focus:** Is the research manuscript's focus in congruence with the stated mission and foci of the journal? Specifically, all research manuscripts should focus on the study, development, application, and evaluation of higher education pedagogy.
2. **Problem:** Does the research manuscript clearly state and explain the problem or issue that is addressed by the completed research? This statement of the problem should be directly linked with and in alignment with the subsequent review of the literature.
3. **Literature:** Does the research manuscript identify the research that led the manuscript author(s) to propose the research completed, and has/have the author(s) indicated how the current manuscript adds to the previous research?
4. **Methodology:** Is the methodology described in the research manuscript well developed, clearly articulated, and appropriate given the expressed problem, literature support, and research approach (e.g., qualitative or quantitative)?
5. **Analysis:** Are the data that are collected, regardless of form (e.g., interview transcripts, achievement test scores, survey results), analyzed using appropriate procedures and are the results of these analyses reported accurately and fully within the research manuscript?
6. **Conclusions:** Are the conclusions discussed by the author(s) in the research manuscript supported by the data analysis? In addition, does the conclusion address both the original problem and the implications of the research findings?
7. **Cross-disciplinary:** Does the manuscript, either through the nature of the problem or the discussion of the results, reach beyond a single discipline or domain and address the applicability of the problem and results to higher education pedagogy, in general?
8. **Organization:** Is the research manuscript organized in accordance with current accepted formats for reporting qualitative or quantitative research? In addition, all quantitative research manuscripts should follow the latest version of the APA guidelines.
9. **Writing:** Is the manuscript free from grammatical, punctuation, and spelling errors, and is the manuscript written in an appropriate style? Uncertain issues of format or style should be answered using the latest version of the APA style guidelines.
10. **Format:** Does the manuscript conform to the organization, style, and format guidelines set forth by the latest version of the *Publication Manual of the American Psychological Association*?

Instructional Articles:

Instructional articles are 5-15 page manuscripts (1,500-4,000 words) designed to explain and clarify innovative higher education teaching methods. Instructional articles, while grounded in the literature on higher education

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pedagogy, focus on the explanation of tentative, emerging, or alternative teaching methodologies, rather than the strict reporting of empirical data.

1. **Focus:** Is the instructional manuscript's focus in congruence with the stated mission and foci of the journal? Specifically, all instructional manuscripts should focus on the study, development, application, and evaluation of higher educational pedagogy.
2. **Problem:** Does the instructional manuscript clearly state and explain the problem or issue that is to be addressed by the instructional method discussed later in the article? This statement of the problem should be directly linked with and in alignment with the subsequent review of the literature.
3. **Literature:** Does the instructional manuscript identify prior methods used to address the instructional problem at hand and has the author(s) indicated how the current manuscript adds to the body of knowledge to address the problem?
4. **Pedagogy:** Is the pedagogy described in the instructional manuscript well developed, clearly articulated, and appropriate given the expressed problem and literature support? The pedagogy description should be clear enough that others who may wish to adopt the pedagogy may do so.
5. **Analysis:** Is it clear how the pedagogy described in the instructional manuscript addressed the instructional problem at hand?
6. **Conclusions:** Are the conclusions discussed by the author(s) in the instructional manuscript supported by the analysis? In particular, are the conclusions logically consistent and do they logically follow from the problem statement, the literature, the pedagogy, and the analysis?
7. **Cross-disciplinary:** Does the instructional manuscript, either through the nature of the problem or the discussion of the results, reach beyond a single discipline or domain and address the applicability of the pedagogy and results to higher education pedagogy, in general?
8. **Organization:** Is the instructional manuscript organized in accordance with currently accepted formats for reporting pedagogical methods? In particular, is there a logical flow to the ideas presented therein?
9. **Writing:** Is the instructional manuscript free from grammatical, punctuation, and spelling errors and is the manuscript written in an appropriate style? Uncertain issues of format or style should be answered using the latest version of the APA style guidelines.
10. **Format:** Does the instructional manuscript conform to the organization, style, and format guidelines set forth by the latest version of the *Publication Manual of the American Psychological Association*?

Review Articles:

Review articles are 3-5 page manuscripts (1,000-1,500 words) that include commentaries and evaluations of recently published works—books, articles, or web sites—related to higher education pedagogy.

1. **Focus:** Is the manuscript and the material reviewed (e.g., books, articles, web pages) in congruence with the stated mission and foci of the journal? Specifically, all review manuscript and materials reviewed should focus on the study, development, application, and evaluation of higher education pedagogy.
2. **Problem:** Does the review manuscript clearly state and explain the problem or issue that is addressed by the reviewed material? This statement of the problem should be directly linked with and in alignment with the subsequent discussions of the reviewed material's contents and evaluation.
3. **Contents:** Does the review article adequately describe and explain the contents of the reviewed materials? The descriptions and explanations should include both what is addressed and what is missing.
4. **Evaluation:** Is the material reviewed evaluated with special attention given to the material's significance and applicability to higher education pedagogy? In addition, does the evaluation link the currently reviewed material to existing, but similar, materials?
5. **Conclusions:** Are the conclusions discussed by the author(s), in the review manuscript, supported by the discussions of the content and subsequent evaluations?
6. **Cross-disciplinary:** Does the manuscript, either through the nature of the problem or the discussion of the results, reach beyond a single discipline or domain and address the applicability of the problem and results to higher education pedagogy, in general?
7. **Organization:** Is the review manuscript organized in a logical and readable format?
8. **Writing:** Is the manuscript free from grammatical, punctuation, and spelling errors, and is the manuscript written in an appropriate style? Uncertain issues of format or style should be answered using the latest version of the APA style guidelines.
9. **Format:** Does the manuscript conform to the organization, style, and format guidelines set forth by the latest version of the *Publication Manual of the American Psychological Association*?