Examining Doctoral Student Education for Collaborative Authorship in LIS

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ABSTRACT

Doctoral students in Library and Information Science (LIS) are encouraged to publish formally by themselves, but also with faculty and peer collaborators. Ethical practices for evaluating authorship contribution in collaborative research projects are not, however, generally included as a formal aspect of doctoral education. How, then, can LIS doctoral students best learn about the ethical enactment of co-authorship? This paper presents and synthesizes literature and standards on authorship collaborations relevant to doctoral students and their mentors, and makes three recommendations to supplement authorship education in the curriculum of LIS doctoral programs. Special attention is devoted to interdisciplinary collaborations.

ALISE RESEARCH TAXONOMY TOPICS

information ethics; scholarly communications; students; curriculum

AUTHOR KEYWORDS

authorship criteria; authorship practices; doctoral education; student research

AUTHORSHIP IN DOCTORAL EDUCATION

Authorship is a critical component of a career in academia and one of the many metrics on which faculty are evaluated. For many doctoral students, publishing during the PhD program is not only a crucial milestone, but for some, publishing is a criterion for remaining in good standing in their programs and for graduation. Students who publish gain experience in research and the publication process, start a record of scholarship, and build confidence as academicians, better situating themselves as future academics and as successful researchers. With what seems to be across-the-board pressures for doctoral students to publish, collaborative writing projects can be appealing – for doctoral students in library and information science (LIS), this can mean writing with advisors, with peers, with practitioners, and others, including collaborators outside of LIS. To this end, doctoral curricula need to devote focus to "a stronger orientation to induction

and participation in the world of peer-reviewed publication" (Lee & Kamler, 2008, p. 511) in support of these authorship initiatives.

Doctoral students formally learn about research through coursework, mentored experiences, and ultimately the dissertation. Mentorship, especially as it relates to learning to be a researcher, is an important element of the doctoral experience, and mentored co-authorship opportunities between students and faculty can be a mutually beneficial way of supporting the successful publishing record of both. For students, mentorship has been shown to be positively linked to scholarly activities such as conference participation and productivity (Cronan-Hillix et al., 1986; Hollingsworth & Fassinger, 2002), increased student retention (Brill et al., 2014), and student satisfaction (Clark et al., 2000; Cronan-Hillix et al., 1986). Faculty mentorship of doctoral students through co-authorship is a logical part of the mentorship experience, but one that potentially leaves students vulnerable (Geelhoed, 2007; Goodyear et al., 1992). As mentioned, mentorship is not the only way that doctoral students learn about research, and it does not need to be the only way they learn about co-authorship, either; formal coursework and activities supporting co-authorship practices that can be made to be part of the curriculum are explored below.

Complexities of authorship for student authors

Authorship remains the 'coin of the realm' in academia. When doctoral students participate in collaborative research, determining who receives authorship credit and how to order authors in the byline is sometimes obvious. For example, the *American Psychological Association* [APA] stipulates any research based on a student's dissertation usually lists the student as the principal author (APA, 2017, Section 8.12). Unequal power dynamics, inexperience, or extent of participation, however, can potentially cause confusion as to whether an individual is credited as an author, or in what order vis-à-vis other authors. For example, ambiguity in determining authorship order may occur in cases where all members of a research team are contributing equally and in ways that merit authorship credit, which in turn would make the quantification (and subsequent authorship order) of contribution level difficult. Furthermore, interdisciplinary collaborations, which are common in LIS (Chang and Huang, 2012), present an extra layer of complexity as opinions on what constitutes authorship differs by discipline (Marušic et al., 2011).

Questions about authorship order (Goodyear et al., 1992), and questionable practices such as plagiarism (Howard, 2008) and gift or ghost authorship (Oberlander & Spencer, 2006) emerge as genuine problems of authorship that doctoral students and their co-authors will be required to navigate. When collaborating with faculty or other senior researchers, doctoral students and their contributions become vulnerable due to the unequal power dynamic (Geelhoed, 2007; Goodyear et al., 1992). Students may be taken advantage of by being uncredited or not receiving enough credit for their work, or even having their research stolen from them (Howard, 2008).

Recommendations exist on how faculty should navigate authorship conversations with students (see Fine & Kurdek, 1993; Oberlander & Spencer, 2006), as do recommendations for early-career researchers (see Albert & Wager, 2003), but they are incomplete with respect to LIS. Given the increase in interdisciplinary collaborations (Chang & Huang, 2012) and that the majority of LIS researchers publish in outside disciplines (Larivière et al., 2012), special

attention to preparing doctoral candidates to navigate authorship in these types of collaborations, along with LIS-based collaborations, is essential. Further, research experiences may be new to students who matriculate into LIS doctoral programs, especially for those who completed a non-thesis master's program, particularly one designed for practitioners. Given the problematic nature of authorship uncertainty for doctoral students and the often unique, practice-focused educational background of doctoral students in LIS, best practices in authorship education for doctoral students, as relevant to LIS, need to be reviewed.

Research objectives

This paper aims to synthesize relevant literature and recommendations on collaborative authorship for doctoral students and recommend how instruction can be integrated into the doctoral curriculum in LIS through formal, course-embedded learning activities.

LITERATURE REVIEW

Authorship criteria

Numerous organizations have established criteria for authorship. Two of the most notable sets of authorship criteria are the *International Committee of Medical Journal Editors Criteria* [ICMJE] (ICMJE, 2020), and the publication credit policy defined in the American Psychological Association's *Ethical Principles of Psychologists and Code of Conduct* [APA] (APA, 2017, sec. 8.12). Overall, the two policies for awarding authorship are largely consistent. The major points of deviation are APA's inclusion of criteria related to author status, and how to order authors when student work is involved. ICMJE and APA are compared in Table 1.

Component	ICMJE (2020)	APA (2017)
Authorship Credit	Substantial contribution to:	Substantial contribution
Author Status/Position	n/a	Based on contribution level Rank or status does not justify authorship credit
Dealing with Minor	Minor contributions are	Minor contributions are
Contributions	not awarded authorship	acknowledged in

	Acknowledgement recommended	footnotes or introductory statement
Publishing with Students	n/a	Student is listed as principal author on work based on the dissertation
Authorship Discussion	Research team decides credit and order before the work begins, and confirms before manuscript submission	Faculty advisors discuss publication credit with students early and often
Responsibility/Accountability	The fourth of authorship necessitates agreeing to take accountability for the work	Authors are responsible for work they have performed or substantially contributed

Table 1. Comparison of ICMJE and APA Authorship Components.

The application of authorship criteria must be learned. Studies of faculty have demonstrated strong agreement with established authorship criteria (i.e., ICMJE and APA) that authorship credit should only be awarded to individuals who have contributed significantly to the project and should not be awarded as a token of gratitude or to researchers of notoriety (Sandler & Russell, 2005; Spiegel & Keith-Speigel, 1970). Studies involving student understanding of authorship criteria were not as consistent. Costa and Gatz (1992) showed students evaluations of dissertation authorship vignettes were not in line with APA guidelines. Students and faculty did agree that as contribution increases, more authorship credit should be awarded. When it came to attributing authorship credit, however, faculty awarded more credit to students for work than the students awarded to themselves. A more alarming finding of the study was that a significantly high number of both students and faculty awarded the advisor first authorship in scenarios where APA criteria would indicate the student be awarded first authorship. These findings demonstrate students can be overly generous in the assignment of credit to their advisors, which creates an environment where they may be exploited.

Education and mentorship are key to learning to apply the criteria. Rose and Fischer (1998) found that when provided with the APA criteria on authorship, student perception of ethics of authorship between an advisor and student was impacted and students were more likely to attribute credit in accordance with the criteria. Although knowledge of authorship criteria is helpful for students, some authors note the language is open to interpretation (Keith-Spiegel & Koocher, 1985; Oberlander & Spencer, 2006), which may introduce additional problems if students are not formally taught to interpret the criteria and to implement them.

Collaborative research in (and out) of LIS

Collaborative research has become the norm in Library and Information Science, both within the discipline and in interdisciplinary research (Chang & Huang, 2012; McNicol, 2003).

The rate of interdisciplinary collaborations is increasing faster than that of intradisciplinary collaborations (Chua & Yang, 2008), and the majority of LIS researchers publish in disciplines outside of LIS (Larvière et al., 2012), implying they might be working with collaborators from other disciplines who might have different background or training in awarding authorship credit.

No matter the career path they ultimately choose, no matter their potential collaborators, doctoral students in LIS (and in all disciplines) need to understand the norms and practices of their chosen discipline in terms of authorship (Lee & Kamler, 2008). Ideally, they will also develop an appreciation for other approaches to authorship, but within the parameters of standards promoted by the publishing industry. Regardless of their present and future collaborators, however, doctoral students in LIS should be equipped to discuss authorship intelligently.

LITERATURE ON COLLABORATIONS BETWEEN SENIOR AND JUNIOR (E.G. STUDENT) RESEARCHERS

Three articles with strong foundations in studies on authorship collaborations involving graduate students are analyzed here: Fine and Kurdek (1993) and Oberlander and Spencer (2006) were selected based on citation count, and alignment with the APA guidelines; although Albert and Wager (2003) is geared more toward faculty work with new researchers than with graduate students, it was selected due to its alignment with the ICMJE standards. Each provides recommendations regarding authorship credit and order (Table 2), discussing authorship (Table 3), and handling disputes (Table 4). All three provide similar recommendations for dealing with minor contributions, authorship discussions, and creating written agreements to clarify roles and duties. Authorship order, disputes and ethical dilemmas, and student support were the most disparate categories.

Recommendation	Fine and Kurdek	Oberlander and	Albert and Wager
Category	(1993)	Spencer (2006)	(2003)
Authorship Credit	Contribution that is integral to the paper	Refer to authorship criteria from journals	Refer to ICMJE criteria
	Collaborators decide activities which merit credit		
Authorship Order	Based on scholarly importance, not time spent on task; weighting schema may be useful	Descending order of relative contribution	Decided by authors
Minor Contributions	Acknowledge in footnotes	Acknowledge in footnotes with permission from contributors	Acknowledge in footnotes

Table 2. Comparison of Authorship Credit and Order Recommendations

Recommendation	Fine and Kurdek	Oberlander and	Albert and Wager
Category	(1993)	Spencer (2006)	(2003)
Authorship	Discuss early in the	Discuss early and	Discuss early
Discussions	process	often	
			Make decisions
		Mentors convey	during the planning
		beliefs on	stages and keep a
		contribution	written record
		Acknowledge power	
		differential and work	
		to reduce it	
Roles, Contributions,	Balance the tasks	Clarify roles with a	Establish agreement
and Contracts	required and the	written agreement	before writing the
	abilities of each party	_	manuscript
	to complete them		

	Written agreement is		
	optional, but		
	potentially useful		
Student Support	n/a	Motivate students to	Encourage a culture
		take initiative,	of ethical scholarship
		identify projects, and	
		publish	

Table 3. Comparison of Faculty-Student Discussion Recommendations

Recommendation	Fine and Kurdek	Oberlander and	Albert and Wager
Category	(1993)	Spencer (2006)	(2003)
Disputes and Ethical	Supervisors should	Discuss options for	Refer to written
Dilemmas	consult colleagues;	resolving complaints	agreement
	students should		
	consult faculty and		Determine if problem
	peers		is a dispute or an act
			of misconduct by
			referring to ICMJE
			criteria; discuss and
			resolve accordingly

Failure to Resolve a	Ad-hoc third-party	n/a	In disputes, appeal
Dispute	arbitration		the mentor's
			supervisor
			In acts of misconduct,
			remove names or
			contact the journal
Renegotiating	Revisit written	Revisit written	n/a
Authorship	agreement if project	agreement throughout	
	scope or direction	the process	
	changes		

Table 4. Comparison of Disputes and Renegotiation Recommendations

All of these guidelines provide commendable recommendations for mentor-based research experiences. However, they are incomplete with respect to LIS doctoral programs, where students might be collaborating with faculty advisors, mentors, other students, practitioners, or collaborators in other disciplines, all of whom may have very different views on co-authorship. The next section provides additional recommendations to supplement current guidelines for fostering the growth and development of emerging LIS scholars.

INCLUDING AUTHORSHIP IN THE DOCTORAL CURRICULUM

Understanding authorship criteria and the ability to navigate authorship conversations are especially important skills for all doctoral students to develop and should be approached in a formal, systematic manner for all students equally. In LIS in particular, due to the field's increasing interdisciplinary nature (Chang & Huang, 2012; McNicol, 2003), and because LIS researchers are encouraged to collaborate with practitioners (Abbas et al., 2016; Knapp, 2012), researchers must understand basic tenets of collaborative authorship practices.

Due to the unequal power dynamics, however, faculty mentors should not be the only ones teaching authorship ethics. In order to better support LIS doctoral students' understanding of criteria and the complex procedure of assigning authorship credit and order, below are three recommendations for formally integrating support for doctoral students into the LIS curriculum, as a supplement to any mentorship activities that may already take place.

Recommendation 1: Supply authorship criteria and contributor roles

Rose and Fischer (1998) found students made better decisions regarding authorship credit when they were provided with authorship criteria. LIS programs should therefore incorporate authorship criteria into the curriculum as part of formal research experiences. The most common sets of criteria used in LIS (i.e., ICMJE and APA) should be included as part of the curriculum (e.g., research methods classes, doctoral seminars, or orientation). Students should also be encouraged to appreciate the breadth and depth of the writing process by assessing their own

activities vis-à-vis the Contributor Role Taxonomy (CRediT; (http://credit.niso.org/); identifying these roles in their own work will support an broader understanding of the complexity of the authorship task. This will be especially important as students learn different methodologies and skills and tools supporting the research task, including ones that may be more or less common in LIS or in related disciplines. Instructing students on where to find authorship criteria and contributor roles used by specific journals or professional organizations both within LIS and outside the discipline to prepare for interdisciplinary collaborations should also be included in standard coursework, whether or not students are working collaboratively or independently. Furthermore, if an institution maintains an authorship policy, students should be made aware of how to locate it (e.g., a university research handbook).

Recommendation 2: Incorporate learning activities

To better support doctoral students' understanding of the complexities of defining authorship, advocating for position in authorship order, and how to deal with disputes or instances of misconduct, we recommend formal course-embedded activities to support understanding the real-world application of criteria. Some examples of activities are a reflective essay on authorship criteria, a critical analysis of an authorship rubric (e.g., Belwalkar & Toaddy, 2014; Warrender, 2016), or role-playing authorship negotiations or disputes (drawing from Spiegel and Keith-Spiegel (1970), Costa and Gatz (1992), or Rose and Fischer (1998)). Special emphasis on activities related to interdisciplinary collaborations will prepare students for potential scenarios they may experience after graduation if they collaborate with scholars from other disciplines.

Recommendation 3: Encourage authorship discussions

Previous research supports the practice of holding authorship discussions early and often in the research process (Goodyear et al., 1992; Netting & Nichols-Casebolt, 1997), and is a suggested practice by all three recommendations reviewed previously (Albert & Wager, 2003; Fine & Kurdek, 1993; Oberlander & Spencer, 2006). The practice of holding authorship discussions should be emphasized at all levels of instruction, in reflections, critical analysis, role playing simulations, and applied practices. None of the reviewed recommendations discuss interdisciplinary collaborations. As perceptions of what constitutes authorship are influenced by disciplinary cultures (Mauršic et al., 2011), conversations and mutual understanding within interdisciplinary teams are especially important, and should be practiced formally in a classroom setting to prepare students for collaboration in a variety of potential circumstances.

Overarching goal: Expertise in co-author practices

Ideally, by the time a doctoral candidate aims to publish dissertation research with an advisor, the student has a robust understanding of the authorship task and a solid skillset of self-advocacy and negotiation to alleviate or prevent disputes and mitigate misconduct. Students need to practice establishing and revisiting authorship credit and order throughout the research

process. If using an authorship rubric, students should ensure it aligns with the agreed-upon criteria and be able to vocalize any concerns to their supervisor and research team.

CONCLUSION

Collaborations involving students can sometimes result in disputes over authorship (Geelhoed et al., 2007). Although students can be found guilty of plagiarism and theft of scholarly work, they can also be the victims of scholarly theft or ghost authorship (Howard, 2008). Additionally, a substantial percentage of researchers believe they have been involved in incidents of unfair authorship practices, many attributing the problem of assigning too much or too little credit to students (Netting & Nichols-Casebolt, 1997; Sandler & Russell, 2005). Both scenarios have negative implications not only for students (Welfare & Sackett, 2010), but for the integrity of science (Caruth, 2014; Drummond et al., 1997; Gasparyan et al., 2013; Ngai et al., 2005). Students' supervisors must take responsibility for ensuring appropriate authorship in research papers (Goodyear et al., 1992; Welfare & Sackett, 2010) and proactively address practice; likewise, curricula in LIS doctoral programs are responsible for educating students across-the-board about authorship in collaborative research experiences; mentorship is good, but it does not suffice.

The recommendations presented in this paper aim to assist LIS doctoral programs with supplementing existing mentorship experiences with formal curricular activities related to navigating the complex and often difficult task of authorship, in both present and potential future (e.g., interdisciplinary) collaborations. Formal learning opportunities will allow students to gain experience in a structured environment, receive feedback from professors to improve their skills, and better prepare them to participate on research teams while in the doctoral program, and in research positions beyond graduation, including with their own future doctoral students.

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