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Authorship Policies for the Conduct of Graduate Research in Puerto Rico

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Abstract

Authorship credit is one of the areas addressed by research integrity. Policies established by graduate academic programs and academic institutions in Puerto Rico are analyzed by describing authorship principles included. Twenty-six percent of the policies specify that students are authors of their research work. Four percent of the policies mention activities that do not qualify a person for author, and only 7% include a statement regarding the process to address authorship disagreement. Implications for institutional policy are discussed.

Resumen

El crédito de autor es una de las áreas abordadas por la integridad en la investigación. Se analizaron las políticas establecidas por programas académicos de post-grado e instituciones académicas en Puerto Rico describiendo los principios de autoría incluidos en éstas. Veintiséis por ciento de las políticas especificaban que los estudiantes eran autores de su trabajo de investigación. Cuatro por ciento de las políticas mencionaban actividades que no cualifican a una persona como autor; mientras que solo el siete por ciento incluía una declaración acerca del proceso a seguir cuando hay desacuerdos de autoría. Se discuten implicaciones para políticas institucionales.

Keywords

authorship, higher education, institutional policy, Puerto Rico, graduate students

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Academic programs in higher education value research as an opportunity for students to engage in the application of research concepts, gain experience as researchers, initiate their publication record as professionals or scholars, and develop skills as lifelong learners (Middle States Commission on Higher Education, 2003). To avoid any misinterpretation or laxness with regards to research integrity, policies pertaining to ethical authorship should be well delineated by programs and academic institutions where research is performed by students and is supervised through faculty. The Office of Research Integrity (ORI, 2000) of the U.S. Department of Health and Human Services has published recommended core areas in research integrity for instruction at universities conducting research. Of particular interest is the area of responsible authorship. Authorship credit serves to recognize the legitimate work of an individual and his or her accountability of such work (Committee on Science, Engineering and Public Policy, 2009).

Setting institutional policies on authorship credit for graduate research could prevent ethical dilemmas such as (a) lack of recognition of legitimate intellectual contributions by advisors/mentors; (b) granting authorship to people who have made minimal, technical, or inconsequential contributions; or (c) lack of recognition of the student as the main author of their projects.

Morse (2009) and Oberlander and Spencer expressed concern and caution on the inequality of power relations between graduate students and faculty, where the student is at a disadvantaged position as approval of his or her work is dependent on advisor and other committee members. According to Silva (2005), most supervisors and directors impose their names as authors on the written works of their subordinates, even when not participating in the writing or contributing minimal input or effort. Sullivan and Ogloff (1998) state that in the faculty–graduate student relationship, lack of detailed academic definitions on authorship could result in either poor or no credit or too much credit received by the student or the faculty. Order of authorship (i.e., first author) can be equally challenging (Louw & Fouché, 1999; Oberlander & Spencer, 2006). The importance of authorship negotiation early in the process of project development has been emphasized in the literature as a strategy to prevent authorship dilemmas (Justice, 2010; Newman & Jones, 2006; Washburn, 2008).

On the other hand, students' lack of experience in research may demand extensive contribution of faculty in the research process. Morse (2009) comments that faculty advisors usually provide students with such significant input as to deserve authorship rights in publications, considering that the student project is usually the student's first research experience and that extended advice is given by faculty. Although not the norm, Morse also recognized that there has been the case where students have been able to work independently, with mere supervision from faculty; therefore, sole authorship of the publication belongs to the student.

To set ethical standards for granting authorship in publications, the International Committee of Medical Journal Editors (2007) has published their position on authorship, emphasizing that authorship credit requires significant contributions and that supervision of a research project by itself does not merit authorship. Steneck (2006b) and Steinbok (1995) advocate for increasing awareness of unethical practices in

publications, such as ghost and guest authorship, not disclosing potential conflict of interests, duplicate publications, and dividing publications (also known as "salami publications" or "least publishable units"). These guidelines have been adopted not only by most peer-reviewed journals but also by professional associations (Greenberg, 2006). However, communication and adoption of these standards among higher education institutions and their academic programs has not yet been evaluated.

In a survey conducted among 268 graduate schools in the United States, only 21% had policies on authorship credit (Louis, Swazey, & Anderson, 1988). A more recent survey that sampled the research policies of 156 institutions revealed that only 15% of policies included authorship credit (CHPS Consulting, 2000). These statistics represent a rather small percentage of university policies on authorship, considering the importance of such policies in academic institutions to guide graduate students in the publication process (Rose & Fischer, 1998). At present, no study has been conducted in higher education academic institutions in Puerto Rico examining the content of authorship policies. These institutions enroll 199,800 Hispanics (U.S. Census, 2003). A proportion of Hispanics educated in Puerto Rico with graduate degrees migrate to the United States (Instituto de Estadísticas de Puerto Rico, 2009).

The goal of this study was to analyze the content of authorship policies established by higher education academic programs and institutions in Puerto Rico for compliance with established standards. The research questions were

Research Question 1: How do both universities and graduate programs' written policies in higher education institutions in Puerto Rico define authorship credit in graduate research?

Research Question 2: What are the areas of need in university and graduate program policy in authorship in graduate research?

Methods

Sample

The population of interest for this study was universities and graduate academic programs in private and state-funded universities in Puerto Rico, licensed by the Council of Higher Education of Puerto Rico that granted masters or doctoral degrees upon the completion of graduate education and required a formal research project, thesis, or dissertation as a criterion for graduation. Seventeen institutions of higher education were found to comply with the inclusion criteria. All these institutions are considered Hispanic-serving institutions and have a 99% to 100% enrollment of Hispanic students (U.S. Department of Education, 2007). Within these 17 institutions, there were 280 graduate programs that required students to do research to complete the degree. The sample consisted of written authorship policies of both graduate academic programs and universities. A nonprobabilistic quota sampling was used to select 25% of the population of graduate programs ($N = 280$): 71 programs were reviewed.

Table 1. Sampling of Authorship Policies of Graduate Programs and Institutions in Puerto Rico

Policies analyzed	Public Institutions	Private Institutions
Masters programs	15	30
Masters/doctorate programs (shared policies)	11	1
Doctorate programs	4	10
Whole institution policies on authorship	2	2
Total number of policies	32	43

Note: $n = 75$ policies.

Of the population of 17 institutions, only 4 had authorship policies that comprised the final sample, for a total of 75 policies of both institutions ($n = 4$) and graduate programs ($n = 71$; Table 1). Written policies on responsible authorship were accessed through the official institutional website and through personal contacts with research coordinators, mentors/advisors, or program directors.

Instrument

To conduct content analysis on authorship credit policies, an Authorship Policy Review Form was developed based on the responsible core instructional areas developed by the ORI (Steneck, 2006a) and authorship uniform requirements established by the International Committee of Medical Journal Editors (ICMJE), last revised in October 2007. A review of the literature was also used to further develop the form. Several drafts were developed and discussed with the research team until a final form was agreed upon. The instrument consists of nine major topic areas, with subtopics within, requiring the coders to choose between "present" and "absent." These topic areas were (a) reference to institutional policies as a source of data; (b) statement regarding authorship in graduate student–faculty collaborative research, including authorship criteria for written reports, oral, and poster presentation; (c) activities that do not qualify individuals for authorship; (d) order of authorship; (e) practices that should be avoided; (f) early written agreement with faculty on tasks, contributions, and efforts required to warrant authorship and to determine order of authorship; (g) acknowledgment/contributorship; (h) conflict of interest; and (i) process to address disagreement on authorship decisions.

Procedures

Prior to data collection, Institutional Review Board (IRB) approval was obtained. Training was conducted to obtain an acceptable level of interrater reliability. Three coders analyzed the policies: the principal investigator, the coprincipal investigator, and the analyst. To evaluate intercoder reliability, for the analysis of content of institutional

policies, a point-by-point reliability percentage of agreement was calculated; 85% agreement was obtained.

Data Analysis

As this is a content analysis study, each policy was examined for presence or absence of the specific content included in the Authorship Policy Review Form. If the content was included, the frequency for each item was calculated. The items that obtained the lowest frequency and those that obtained the highest frequency among programs sampled were identified. Based on these frequency ratings, we were able to describe the specific authorship policy principles that were most frequently and less frequently addressed in written policies. Data were entered and analyzed using Microsoft Excel.

Results

Graduate program policies included references to institutional policies on protection of participants in human research projects (IRB policies, $n = 7$), graduate program bylaws ($n = 5$), institutional authorship policies ($n = 4$ policies at program or departmental level), student bylaws ($n = 4$), ethics ($n = 2$), academic honesty ($n = 2$), and graduation requirements ($n = 1$). Eleven policies (15%) had a statement regarding authorship in publications resulting from a research project that was the product of graduate student–faculty collaboration. Results are summarized in Table 2.

A total of 32 (43%) policies included authorship criteria for publication or presentation of student's projects (project, thesis, or dissertation). Twenty of these policies recognized that students were the authors as they have received credit for the project as academic requirement. Three policies stated that a criterion for establishing authorship was "making substantial contributions to conception and design of the study, acquisition of data or analysis and interpretation of data." The criterion for authorship pertaining to the drafting or revising the article for intellectual content was mentioned twice, and the criterion of approval of the final version to be published was mentioned once. Other authorship criteria listed were

- Authorship is shared with the director of the dissertation committee or its members ($n = 2$).
- Written permission from the program, school, department, or institution is needed for publishing ($n = 3$).
- Written permission from student is needed for publishing ($n = 1$).

Three policies (4%) mentioned activities that do not qualify a person for authorship, such as providing laboratory space or use of instrumentation; having a supervisory position; proofreading or editing a manuscript; providing encouragement, funding, patient care, access to sample, time and effort without scholarly contribution; and routine technical work.

Table 2. Frequency of Authorship Items Present in Graduate Program and Institutional Policies

Description	Frequency
Does it refer to institutional policy as an additional source of information?	25
Statement regarding authorship in student–faculty collaboration	11
Authorship criteria for written reports, oral, and poster presentations	
• Substantial contributions to conception and design and acquisition of data or analysis and interpretation of data	3
• Drafting the article or revising it critically for important intellectual content	2
• Final approval of the version to be published	1
• Having received credit for the project as academic requirements	20
• Other, ex. contributor–guarantor model	6
Activities that do not qualify individuals for authorship	3
Order of authorship	
• Position of person who makes maximum contribution	4
• Position of the supervisor/mentor/advisor	6
• Specifications on number of authors	0
Practices that should be avoided	
• Honorary/gift/unjustified/undeserved/guest authorship	1
• Noninclusion of individual as author despite being qualified—ghost author	1
• Salami publication (least publishable units—dividing the article into two or more to obtain a higher number of publications for the same study)	1
• Duplicate submissions (submit the same article to different journals for publication)	1
• Premature public statements (make results public without going through the editorial process)	0
Early written agreement with faculty on tasks, contributions, and efforts required to warrant authorship and to determine order of authorship	
• Statement regarding written agreement	2
• Specify contributions from mentors/advisors, readers, and students	2
• Renegotiation of agreement with faculty	0
Acknowledgment/contributorship	
• Criteria for acknowledgments	15
• Permission to be acknowledged	1
Conflict of interest	
• Full or adequate disclosure of financial and personal conflict by each author	1
• Authorship independent from undue sponsorship influence	0

(continued)

Table 2. (continued)

Description	Frequency
• Potential conflict: circumstances that could be construed or perceived as influencing the interpretation of results	1
Process to address disagreement between supervisor (faculty) and student on authorship-related decisions	2
Process to address disagreement on authorship (general statement, not specific to faculty and students)	3

Note: $n = 75$ policies.

Ten policies (13.33%) specified the order of authorship and 4 policies mentioned practices that should be avoided. Four policies considered establishing early, written agreements between graduate students and faculty regarding authorship.

Regarding acknowledgment and contribution statements, 15 (20%) of the policies mentioned criteria for acknowledgments and one policy specified that permission was needed from the person before being acknowledged. Two policies have a statement regarding conflict of interest in publications, and a statement regarding the process to address authorship disagreement was present in five policies (7%).

Discussion

The results of our study showed that 43% of the 75 policies surveyed ($n = 32$) included a criterion on authorship regarding publication or presentation of students projects. Although the results of our study are higher than previous studies (CHPS Consulting, 2000; Louis et al., 1988), the fact that approximately half the sample did not have a policy on authorship is of utmost concern, considering the importance of such policies in guiding graduate students in the publication process.

To define authorship credit on graduate research, according to the written policies examined, frequency on items that described authorship was considered. The most frequently cited authorship criterion in the policies was that credit belonged to students as the project, thesis, or dissertation completed was partial requirement for their degree and students received credit for this work. Nevertheless, only 20 policies recognized this authorship credit, leaving the majority of academic programs without a policy statement on authorship on students' work. Most often recognized by academic programs on authorship was the criterion for acknowledgments with 16 program policies specifying it.

Forty three of the 71 programs sampled in this study were covered by the institution's policy on authorship. However, discrepancy between institutional policy and program policies were found in several occasions. Authorship practices that do not adhere to institutional policies but were included in the documents handed to students as guide for their project, thesis, or dissertation, were

1. requiring permission of the institution (school, department, or program) for publication or dissemination or establishing that authorship rights of student's project, thesis, or dissertation belongs to the institution ($n = 3$);
2. having the director of the project, thesis, or dissertation as coauthor, based on a customary practice ($n = 2$) regardless of actual contribution; and
3. entering into contracts with students, to publish the student project after a period of time has passed and no publication has been produced by the student with no clear statement on authorship credit, authorship order, or authorship right on the publication ($n = 1$).

Although the frequency of the above authorship criteria was low, it is still worrisome. These authorship practices in programs might not reflect the intention of the institutional policies and, therefore, should be avoided. The authorship institutional policies examined in this study clearly established that authorship rights belong to the students for their project, thesis, or dissertation, as the work was developed and completed by students, as partial requirement for a degree. For the four institutions that had institutional policies, the following excerpts from these policies illustrate the intention of giving title to students for work they completed:

- When publications are based substantially on a doctoral student's dissertation, the student should be listed as the senior author.
- "Title to thesis or dissertations prepared by students as part of the requirements for an academic degree belongs exclusively to the student, except in such cases where the author has given written license to the University for its reproduction, distribution, or to keep a limited number of copies to be accessible to the public."
- Title to thesis work and other academic requirements belongs to students who receive credit for this work. Title over a work does not exempt the author from the responsibility to give explicit due acknowledgment. It does not exempt the student to disclose that the work was developed as part of a course or degree requirement. In any case, the institution retains the right to claim such acknowledgment.
- Title to thesis work and other similar required academic requirements belongs to the student or students (though they receive academic credit for them), unless otherwise provided. Holding the title as author does not exempt one from explicitly giving the university the recognition due for contributions, support, or collaboration that have facilitated the design, development, or dissemination of work. It does not exempt students from their responsibility of so indicating if their works were developed as part of the requirements for courses or academic degrees. The university retains the right to require such recognition.

The above statements contradict the practice of establishing norms requiring authorship credit to the director of the dissertation committee without prior evaluation of faculty input in the project (Morse, 2009).

It is understandable for faculty to wish to have the results of faculty–graduate students collaborative project disseminated, and they may feel the need to establish contracts geared to enhance this dissemination. According to Timmons and Park (2008), reasons given by graduate students for not publishing their project include life demands such as work or family, lack of time, lost of enthusiasm in the project, and dissatisfaction with the quality of the project. Faculty, thus, might have the time, commitment, and publishing experience needed to achieve dissemination.

Guidelines that included information or reference to unethical publication practices had a very low frequency in the review conducted. It is recommended that this content is presented to students not only in their research handbooks but also in their research courses or in orientation sessions on the research project. Instruction on the ethics of authorship and the process of publication has been advocated as part of the graduate curriculum, as a way to discourage inappropriateness in these areas and enhance the publication of research (Justice, 2010; Oberlander & Spencer, 2006; Timmons & Park, 2008). Case studies on authorship dilemmas have been presented in the literature and could serve as resources for faculty in discussing ethical authorship decision-making process (Fine & Kurdek, 1993; Funk, Barrett, & Macrina, 2007; Louw & Fouché, 1999; Rose & Fischer, 1998; Washburn, 2008).

It was found that only 4 institutions out of 17 institutions whose programs were sampled for this study had a policy on authorship. These four institutional policies, however, need to be revised to include more specificity regarding activities that do not qualify an individual for authorship, conflict of interest, and questionable authorship practices such as ghost and guest authorship (ICMJE, 2007; Yoshikawa & Ouslander, 2007). Ambiguous language such as "unless otherwise provided" should be removed from policies, as it opens door for faculty or researchers to specify authorship guidelines that deviate from the integrity standards set by the institution (Steneck, 2006b). There is a need for all institutions to develop policies that will serve as guiding principles for academic programs to adopt. An authorship committee should be charged with developing an authorship policy on collaborative faculty–graduate student research policy based on available guidelines (ICMJE, 2007), reviews of literature (Nguyen & Nguyen, 2006; Strange, 2008), and professional association's ethical standards on authorship and publication practices. A model policy published by Washburn (2008) on authorship is another recommended source of reference. This policy aims to promote ethical authorship decisions, with special consideration for students who might be in vulnerable positions when it comes to the decision-making process with faculty.

Sample authorship agreements or contracts that protect the authorship rights of graduate students and faculty need to be developed. Institutions have legal resources that can be consulted to create sample contracts, and an institutional authorship committee can be assigned to this task. These contracts should be fair, recognizing legitimate authorship practices, with a due process for resolving conflicts and appeals.

Finally, there is a need for one clear institutional voice on authorship to be reflected in student guidelines. Although it was found that four institutional policies have clear statements on authorship credits on student work, the message was not passed to students in research handbooks or guidelines. It is recommended that institutions

disseminate, discuss, and enforce adoption of institutional authorship policies, if these are already developed. A strategy could be to require the revision of program guidelines by an institutional authorship committee before adoption in order to ensure their compliance with the institutional policies.

Conclusion

Four institutions of higher education in Puerto Rico have developed authorship policies with a clear statement on authorship in a student's project, thesis, or dissertation. There is a need for all higher education institutions to create authorship policies and for programs to adopt and disseminate them in student research manuals and handbooks and to enforce the policies to ensure ethical authorship.

A limitation of this study was the use of a sample of convenience, thus limiting generalizations of results. Recommendations for future studies include describing practices related to divulgation and enforcement of authorship policies. It will be also important to understand how authorship is conceptualized among graduate students and faculty in graduate programs in Puerto Rico, in order to identify the factors that affect integrity in faculty–graduate student collaborative authorship practices. These findings serve as a basis for academic institutions to develop and evaluate authorship guidelines for faculty–graduate student collaborative research as well as to plan and evaluate educational activities on responsible authorship.

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