

COLLEGE OF SCIENCE, UP DILIMAN

AUTHORSHIP GUIDELINES

INTRODUCTION

Authorship is an explicit way of assigning responsibility and giving credit for intellectual work. The two are linked. Authorship practices should be judged by how honestly they reflect actual contributions to the final product. Authorship is important to the reputation, academic promotion, and grant support of the individuals involved as well as to the strength and reputation of their institution. There are available guidelines for determining authorship credit and order. For example, the following references are cited [1-5] from which the guidelines that follow are mostly adapted.

Scholarly activity is an expected and rewarded enterprise for many professionals [6]. In academic settings, decisions regarding promotion, tenure, and salary are heavily influenced not only by the number of publications in peer-reviewed journals but also by the number of first-authored publications [7]. Similarly, in applied settings, professionals with strong publication records are often considered to have more competence and expertise than their less published counterparts.

Clearly, authorship credit and authorship order are not trivial matters. Because of the importance of authorship credit, dilemmas may arise when more than one person is involved in a scholarly project. Of particular significance are issues, which specifically address collaborative efforts between faculty and undergraduate or graduate students. The importance of authorship in the faculty—student research context was underscored by Goodyear, et. al. [8] who found that authorship issues were among the "critical incidents" identified by experienced researchers in faculty—student research collaborations.

Many institutions, including science schools and peer-reviewed journals, have established standards for authorship. These standards are similar on basic issues but are changing over time, mainly to take into account the growing proportion of research that is done by teams whose members have highly specialized roles.

In practice, various inducements have fostered authorship practices that fall short of these standards. Junior investigators may believe that including senior colleagues as authors will improve the credibility of their work and its chances of publication, whether or not those colleagues have made substantial intellectual contributions to the work. They may not want to offend their chiefs, who hold substantial power over their employment, research opportunities, and recommendations for jobs and promotion. Senior faculty might wish to be seen as productive researchers even though their other responsibilities prevent them from making direct contributions to their colleagues' work. They may have developed their views of authorship when senior investigators were listed as authors because of their logistic, financial, and administrative support alone.

The allocation of credit can be particularly sensitive when it involves researchers at different stages of their careers—for example, postdocs and graduate students, or senior faculty and student researchers. In such situations, differences in roles and status compound the difficulties of according credit.

Several considerations must be weighed in determining the proper division of credit between a student or research assistant and a senior scientist, and a range of practices are acceptable. If a senior researcher has defined and put a project into motion and a junior researcher is invited to join in, major credit may go to the senior researcher, even if at the moment of discovery the senior researcher is not present. By the same token, when a student or research assistant is making an intellectual contribution to a research project, that contribution deserves to be recognized. Senior scientists are well aware of the importance of credit in science and are expected to give junior researchers credit where warranted. In such cases, junior researchers may be listed as coauthors or even senior authors, depending on the work, traditions within the field, and arrangements within the team.

Disputes sometimes arise about who should be listed as authors of an intellectual product and the order in which they should be listed. When disagreements over authorship arise, they can take a substantial toll on the good will, effectiveness, and reputation of the individuals involved and their academic community. Many such disagreements result from misunderstanding and failed communication among colleagues and might have been prevented by a clear, early understanding of standards for authorship that are shared by the academic community as a whole.

Discussions of authorship in academic centers usually concern published reports of original, scientific research. However, the same principles apply to all intellectual products: words or images; in paper or electronic media; whether published or prepared for local use; in scientific disciplines or the humanities; and whether intended for the dissemination of new discoveries and ideas, for published reviews of existing knowledge, or for educational programs.

The Faculty of the College of Science has come up with these guidelines to make explicit the criteria for authorship among all collaborators. Familiarity with these conventions should enable collaborators to understand their rights and obligations. These guidelines should be able to provide the ethical and policy issues in research. Although authorship practices differ from one setting to another, and individual situations often require judgment, variation in practices should be within these basic guidelines.

AUTHORSHIP

1. Scientists take responsibility and credit, including authorship credit, only for work they have actually performed or to which they have contributed.
2. Principal authorship and other publication credits accurately reflect the relative scientific or professional contributions of the individuals involved, regardless of their relative status. Mere possession of an institutional position, such as

- Department Chair or Institute Director does not justify authorship credit. Minor contributions to the research or to the writing for publication are appropriately acknowledged, such as in footnotes or in an introductory statement
3. Everyone who is listed as an author should have made a substantial, direct, intellectual contribution to the work. For example (in the case of a research report) they should have contributed to the conception, design, analysis and/or interpretation of data. Honorary or guest authorship is not acceptable. Acquisition of funding and provision of technical services, or materials, while they may be essential to the work, are not in themselves sufficient contributions to justify authorship.
 4. Everyone who has made substantial intellectual contributions to the work should be an author. Everyone who has made other substantial contributions should be acknowledged.
 5. When research is done by teams whose members are highly specialized, individual's contributions and responsibility may be limited to specific aspects of the work.
 6. All authors should participate in writing the manuscript by reviewing drafts and approving the final version.
 7. One author should take primary responsibility for the work as a whole even if he or she does not have an in-depth understanding of every part of the work.
 8. This primary author should assure that all authors meet basic standards for authorship and should prepare a concise, written description of their contributions to the work, which has been approved by all authors. This record should remain with the sponsoring department.

ORDER OF AUTHORSHIP

Many different ways of determining order of authorship exist across disciplines, research groups, and countries. Examples of authorship policies include descending order of contribution, placing the person who took the lead in writing the manuscript or doing the research first and the most experienced contributor last, and alphabetical or random order. While the significance of a particular order may be understood in a given setting, order of authorship has no generally agreed upon meaning.

As a result, it is not possible to interpret from order of authorship the respective contributions of individual authors. Promotion committees, granting agencies, readers, and others who seek to understand how individual authors have contributed to the work should not read into order of authorship their own meaning, which may not be shared by the authors themselves.

1. The authors should decide the order of authorship together.
2. Authors should specify in their manuscript a description of the contributions of each author and how they have assigned the order in which they are listed so that readers can interpret their roles correctly.
3. The primary author should prepare a concise, written description of how order of authorship was decided.

4. A student is usually listed as principal author on any multiple-authored article that is based primarily on the student's dissertation or thesis.

DETERMINING AUTHORSHIP CREDIT AND ORDER ON FACULTY-STUDENT COLLABORATIVE PROJECTS

Three ethical principles are relevant to ethical dilemmas that arise with regard to authorship on faculty—student collaborative projects: beneficence, justice, and parentalism. These principles, from which ethical codes (e.g., the *Ethical Principles of Psychologists and Code of Conduct*) are developed, may provide guidance when the codes themselves are inadequate [9].

To be beneficent is "to abstain from injuring others and to help others further their important and legitimate interests, largely by preventing or removing possible harms" [6]. In the context of the authorship issue, *beneficence* implies that supervisors should help students further their careers by including them as authors when their contributions are professional in nature. In this light, to avoid harming students and others in the long run, beneficence implies that faculty should grant students authorship credit and first author status only when they are deserved.

Justice—the second ethical principle—refers to the ethical duty to treat others fairly and to give them what they deserve: "An individual has been treated justly when he has been given what he or she is due or owed, what he or she deserves or can legitimately claim" [6]. The principle of justice is often interpreted to infer that one should treat another unequally only if there is a morally relevant difference between them [6]. In the authorship setting, if students are not considered to be meaningfully different from professional colleagues, then they should be awarded authorship credit and order on the same basis as those of nonstudent colleagues. However, if one makes the contrasting assumption that students have less power and competence than nonstudent collaborators, then justice would be served by giving students differential treatment.

Parentalism—the final ethical principle—refers to "treatment that restricts the liberty of individuals, without their consent, where the justification for such action is either the prevention of some harm they might do to themselves or the production of some benefit they might not otherwise secure" [6]. Parentalistic actions are generally considered to be most appropriate when they are directed toward persons who are nonautonomous (i.e., lack the capacity for self-determination.) [6]. Thus, the appropriateness of parentalistic behavior in the authorship context depends on the student's level of autonomy.

A supervisor who is acting parentalistically might alone decide the level of authorship credit a student receives. Even if students are consulted in the decision-making process, supervisors may use their power to influence the nature of the decision and discount student input. Parentalism is also relevant to the issue of when authorship credit is decided. When the supervisor makes the decision after the work is completed, the student makes his or her contributions without knowing the extent of authorship that he or she will receive. Thus, even when the supervisor does not consult the student in the decision-

making process, later decisions are more parentalistic than those rendered before the work has been completed.

How do the principles of beneficence, justice, and parentalism, in aggregate, provide guidance in determining authorship credit and order? Two separate aspects of the authorship determination procedure need to be considered: (a) the process of how collaborators decide who will receive a given level of authorship credit for specified professional contributions and (b) the outcome resulting from the decision-making process.

As noted earlier, the principle of justice dictates that supervisors should treat students unequally only if there is a meaningful difference between them. With particular reference to the authorship decision-making process, faculty and students are not meaningfully different because faculty and students—particularly graduate students—have the autonomy, rationality, problem solving ability, and fairness to mutually decide on authorship credit. Therefore, both faculty and students should have the opportunity to participate in the process of determining authorship credit. In addition, it is inappropriate for supervisors to assume a parentalistic stance in this process.

It should not be misinterpreted to indicate that faculty and students are equals in power, status, competence, and expertise. There are typically substantial differences between them in these areas. Rather, faculty and students are both sufficiently autonomous to mutually decide on what level of authorship credit will be awarded to each collaborator for specified professional contributions.

The ethical dilemmas that arise when faculty collaborate with student on work worthy of publication stem from the unique nature of the faculty—student relationship. Although collaboration between two professionals can occur on an egalitarian basis, collaboration between faculty and their students is inherently unequal. By nature of their degrees, credentials, expertise, and experience, many faculty supervise students. Supervisors are responsible not only for facilitating the growth and development of supervisees but also for portraying supervisees' abilities accurately to others. For example, faculty may write letters of recommendation for their supervisees, evaluate their work, assign grades, or give critical feedback to representatives of their undergraduate or graduate programs. Thus, faculty who function as supervisors must balance the potentially competing duties of fostering the growth of their trainees and presenting them to others in a fair and accurate manner.

IMPLEMENTATION

1. Research teams should discuss authorship issues frankly early in the course of their work together.
2. Disputes over authorship are best settled at the local level by the authors themselves or the laboratory chief. If local efforts fail, the College of Science can assist in resolving grievances through its Associate Dean for Research and Extension Office.

3. Laboratories, departments, educational programs, and other organizations sponsoring scholarly work should post, and also include in their procedure manuals, both this statement and a description of their own customary ways of deciding who should be an author and the order in which they are listed. They should include authorship policies in their orientation of new members.
4. Authorship should be a component of the research ethics course that is required for all research fellows at the College of Science.
5. These policies should be reviewed periodically because both scientific investigation and authorship practices are changing.
6. As with citations, author listings establish accountability as well as credit. When a paper is found to contain errors, whether caused by mistakes or deceit, authors might wish to disavow responsibility, saying that they were not involved in the part of the paper containing the errors or that they had very little to do with the paper in general. However, an author who is willing to take credit for a paper must also bear responsibility for its contents. Thus, unless a footnote or the text of the paper explicitly assigns responsibility for different parts of the paper to different authors, the authors whose names appear on a paper must share responsibility for all of it.

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