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ETHICS OF COLLABORATION

Joseph and Ryan are two undergraduate psychology majors collecting data for their senior project on the effect of race and socioeconomic status on jurors' perceptions of witness credibility. They are required to work in pairs to design and carry out their capstone project. Ryan becomes increasingly frustrated with Joseph's work habits as he expects Joseph to complete his work at the same pace and respond in a timely manner to his emails about the project. To minimize the frustration they are both experiencing, Joseph and Ryan choose to collect data separately and then combine the data for the final analyses. Once Ryan collects his data, he decides that he is not going to "share" the data with Joseph because he does not feel that Joseph has contributed equally to the project.

Who owns the data in this joint project? Can Ryan ethically keep his half of the data from his collaborator? In this chapter, we will discuss ethical dilemmas that can arise in collaborative research. Next, we will explore the guidelines for determining who owns the data and who is allowed to present or publish the research.

ETHICAL VALUES IN COLLABORATIVE RESEARCH

It is rare for scientists to work by themselves when conducting research. Most often, colleagues, graduate students, paid research assistants, and even undergraduates contribute

to a research project. Student researchers almost always work with peers and under the supervision of a faculty mentor. These working relationships have the potential to increase productivity and, just as important, can be very rewarding on a personal level. However, interpersonal and ethical issues can easily arise. Shamoo and Resnick (2015) identified five key values that lead to the most successful collaborations: cooperation, collegiality, trust, fairness, and accountability.

Researchers must share information and resources and coordinate efforts to attain a mutual goal. *Cooperation* requires collegial and trusting relationships. When working with others, researchers must *trust* that their collaborators will provide accurate information. This includes things like following the approved research protocol, keeping accurate records, and sharing information openly and honestly with all collaborators. *Collegiality* includes treating all members of a research team or lab with respect and dignity. When researchers collaborate, they still retain some individual incentives or rewards. These may include such things as intellectual property rights and authorship or acknowledgment on the publication of the research. Therefore, when working with other scientists, all contributing parties should be treated with *fairness* and their contributions acknowledged appropriately. Lastly, *accountability* means that all parties involved in a research project must be able to justify the work that has been done.

These five values should be considered before a project begins, and should continue after it is completed. Most completed research is documented and presented in some form, and this report may exist for years to come, particularly in peer-reviewed publications. Each individual on a research team is accountable for that final product, regardless of which tasks they completed (i.e., recruiting participants, data collection, data analysis, writing up the final paper). If mistakes were made or questionable actions were taken during the research, an individual may not be responsible for that particular action but may be held accountable for lack of oversight, review, or supervision (Shamoo & Resnick, 2015). Thus, teams that are open, collegial, and accountable work together to make sure each task is carried out correctly, accurately, and ethically.

DATA OWNERSHIP

Most students assume that if they design a study and collect the data, then they own the data. However, that is not necessarily the case. In fact, even your professor may not be able to claim ownership. When a university provides resources, such as lab space, equipment, computers, and wages, it owns the data collected in the research activities generated by faculty, staff, and students. Why does it matter who owns data? Ownership is connected to both the responsibility to maintain, share, and store data records as well as who is entitled to benefit from the data. Specifically, this determines who is able to present, publish, or share the data.

Data ownership should be established when a research project is initiated. All of the parties involved should determine this agreement: those who collected the data, those who funded the collection of data, those who have access to the data, and those responsible for storing and maintaining the data (Horner & Minifie, 2011). Although ownership technically goes to the university, most decisions regarding the use of data go to the **principal investigator** (often referred to as the PI), *the lead researcher on a study*. The PI has the unique knowledge, skills, and training to design and carry out the research. Therefore, institutions generally assign the principal investigator to be the custodian of

the data. The **custodian** is *the person in charge of collecting, accessing, analyzing, storing, protecting, and maintaining the data*. The custodian also can publish the data in research papers and give presentations of the results.

Data ownership can be a complex matter at the professional level. For example, when researchers receive grants from governments or nonprofit foundations, the grant money is given to the university, not the individual researcher. In most cases, the institution owns the data, but the funding agency has the right to access the data for its own purposes. Interestingly, if a PI leaves to take a position with another university, he or she typically remains the custodian, even though ownership remains at the original institution. With students, however, ownership is usually less complicated and is often stipulated in a university-wide policy. One example of a data ownership policy for students comes from the University of New Hampshire (UNH, 2016). The policy states that UNH owns all research data generated by students in *any* of the following circumstances if the student investigator:

1. Performed the research while supported by university funds, including salary, wages, or a stipend.
2. Used facilities or equipment owned by the university for the research project.
3. Earned course credit or conducted the project for a thesis or dissertation.

What about when students graduate or leave a lab? Can they take data with them? The answer is maybe. Some institutions have stipulations granting data ownership to faculty and students, and this accounts for the fact that students are, by definition, at the university only for a very limited time. The UNH policy stipulates that when a student investigator leaves the institution, he or she may take a copy of the data but the principal investigator retains the original data.

If you are engaged in research, it is almost certain that others are involved: peer collaborators, a mentor, and perhaps your mentor's colleagues from other departments or even universities. Before beginning any research project, the responsibilities and expectations should be mapped out. It is important for students, mentors and collaborators to review the data ownership policies of their institutions as related to the presentation and publication of data. In the opening vignette, Ryan and Joseph struggled in part because they did not understand who owned the data that they collected together. Further, the research supervisor failed to discuss the issue with the students before they began collecting data. So, how was the situation resolved? In this case, the research supervisor intervened, albeit a little late, to clarify that neither of them own the data. The supervisor explained that they developed the research idea, design, experimental materials, and protocol together. Therefore, they share custody of the data. This means they are both entitled to have a copy of the data for analysis and final write-up. Because the college provided the resources to support the research, the college owns the data.

The primary goal of conducting research is to share the findings with the scientific community or public. Sharing the results of a research study takes the form of either a presentation at a conference, meeting, or a written report, journal article, or book. When researchers publish their study in a journal or book, they sign over the ownership or **copyright**, *the legal right to print and publish the research*, to a publisher. However, copyright law is limited to the written work and does not apply to data or ideas. It is not until the research is written up for publication that a copyright license is granted and then transferred to the publisher.

Not understanding who owns your data or not having an agreement with the owner of your data may interfere with sharing your research findings—a topic we turn to next.

AUTHORSHIP

Ashley has worked in her psychology professor's lab for two years on a series of experiments to determine if engaging in risk-taking behaviors increases impulsivity. She has helped conduct three experiments, including setting up the experiments in the lab, recruiting participants, and entering data. Last year, she even presented results at a psychology conference with her professor. Ashley is heading to graduate school next year to earn a PhD in behavioral neuroscience. She was surprised to find out that she would not be included as an author on the research publication. Ashley was very disappointed that her work would not be acknowledged.

Ashley's professor failed to include her in a discussion about authorship. How did her professor come to this decision? How do you determine if someone should be listed as an author?

In the academic world, authorship represents more than just having your name listed on a paper. It represents your professional productivity, status, and expertise. Faculty are often evaluated on the quality and number of publications in consideration of tenure and promotion decisions, both of which are related to job security and salary. In addition, having multiple publications often provides access to additional funding through grants and awards. Being the first author carries prestige as it signifies that you were the principal investigator and main contributor to a project. Some institutions may even require a certain number of first author publications for tenure and promotion. Being listed second or later in the list of authors does not say nearly as much about your level of contribution; you may have contributed almost as much as the PI or you may have contributed only enough to earn a spot on the author list.

Authorship goes beyond individual rewards. Authorship also comprises accountability. If your name appears on a publication as an author, you are accountable for the accuracy and truthfulness of the work in the research report. You should be able to explain and defend the methodology and results. Although not every individual on a research collaboration may contribute equally or participate in every step of the research process, each author is responsible for his or her individual contribution as well as the entire project (Shamoo & Resnick, 2015). So, who should be included as an author? Determining authorship may be more difficult than you think. Professional organizations offer authorship guidelines for publication of research. For example, the American Psychological Association's *Ethical Principles of Psychologists and Code of Conduct* (2010, Section 8.12, p. 11) includes the following criteria for authorship of a scholarly work:

1. Psychologists take responsibility and credit, including authorship credit, only for work they have actually performed or to which they have substantially 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, does not justify authorship credit. Minor contributions to the research or to the writing for publications are acknowledged appropriately, such as in footnotes or in an introductory statement.

3. Except under exceptional circumstances, a student is listed as principal author on any multiple-authored article that is substantially based on the student's doctoral dissertation. Faculty advisors discuss publication credit with students as early as feasible and throughout the research and publication process as appropriate.

The APA principles bring up several important concepts related to the values of collaborative research. The first relates to fairness—take credit only for work that you performed and be sure that you made a *substantial contribution* if you are to be listed as an author. The second is trust. When collaborating with other researchers, authorship expectations should be discussed from the beginning of the project, and substantial contributions should be acknowledged with authorship credit. Of course, this raises an important question: What distinguishes a substantial or professional contribution from a minor contribution? Several research studies have explored questions of authorship and authorship order. Two research activities are deemed important in the authorship debate (Wagner, Dodds, & Bundy, 1994). The first is the conceptualization or idea for the research. Many agree that if a researcher came up with the idea, research question, or design, he or she has made a substantial contribution. The second is writing the manuscript for publication. However, there are many other roles and responsibilities in carrying out a research project such as data collection, analysis, and interpretation. It is important to establish roles and responsibilities from the outset of a project so that authorship can be negotiated more easily. A recent study found that when researchers relied on guidelines to determine authorship and authorship order, authors were more satisfied with the outcome (Geelhoed, Phillips, Fischer, Shpungin, & Gong, 2007). However, a little over a quarter of those surveyed felt there was some unethical decision making with regard to authorship credit. Therefore, we recommend guidelines, author agreements, and a process for adjudicating disagreements.

Guidelines for Establishing Authorship and Authorship Order

First, you will need to negotiate authorship credit, that is, who gets to put their names on the presentation or publication. As noted in the APA principles, not everyone involved in a research project ends up as an author on the paper or presentation. For example, research assistants who help recode data or enter data into a spreadsheet may not earn authorship credit but may be acknowledged in a footnote on the first page of the journal article. Second, you will want to determine the order of authors so that each researcher can determine how much they will contribute to the final write-up of the research. Shamoo and Resnick (2015) provide fairly specific guidelines for how authorship and authorship order should be determined. They suggest that first authors should have contributed to the research idea or design, performed data analysis and interpretation, contributed most of the writing of the article, and be responsible for the final draft to be published. Further, they suggest that any coauthor must

contribute in at least two of the aforementioned activities. Authorship order should reflect the relative contribution of individuals to a publication or presentation with multiple authors. Usually, the principal investigator or lead researcher's name is listed first. We must note that authorship order has some discipline-specific implications. For example, in the biomedical sciences, it is common practice for the head of the lab that produced the research to list his or her name last.

Student-Faculty Research Projects

When students collaborate with one another on a project, they may be able to more easily negotiate author order. However, it may be more complicated when students work with faculty on research. Student-faculty collaborations are inherently unequal, as professors have more power, authority, and status than their students. Fine and Kurdek (1993) identified two significant ethical issues in faculty-student collaborations: unearned authorship credit by faculty and unearned authorship credit by students. In the first case, faculty claim at least some of the authorship credit earned by the student. This can include putting their names as first author based on seniority, even when they contributed minimally, or adding their names for minimally supervising the research. It might be a student's senior research project or another project where the student is the primary investigator. At times, students may wish to include a professor's name to raise the status of the research—an ethical problem called *honorary or guest authorship*.

The second issue identified by Fine and Kurdek (1993) occurs when a student earns authorship credit without making a substantial or meaningful contribution to the research. Fine and Kurdek identified three reasons why this is an ethical problem. First, unearned authorship credit gives employers and graduate schools an expectation of competence that the student may or may not have. This impacts the student as well, potentially setting them up for failure. Finally, a student who has a publication compared to one without a publication may have an unearned advantage when applying for a job or to graduate school. Of course, this would come at the expense of other applicants who may have followed authorship guidelines more appropriately.

Disagreements and misunderstandings about what constitutes a significant or professional contribution can arise; therefore, Fine and Kurdek (1993, p. 1145) define a professional contribution as one “that is creative and intellectual in nature, that is integral to completion of the paper, and that requires an overarching perspective of the project.” A professional contribution goes beyond just looking for relevant research articles, collecting or entering data, or running research participants. Fine and Kurdek specify that professional contributions include tasks such as contributing to the design and methodology of the research study, creating materials or assessments, making decisions about how to analyze and interpret the data, and writing sections of the manuscript. They further clarify that students and faculty should decide how many of these activities are required for authorship and that receiving payment for work on a project should not include or exclude someone from earning authorship. Research agreements and assessments, such as Winston (1985), are useful tools for determining authorship and authorship order.

In the scenario describing Ashley's experience, it appears that she contributed mostly to data collection. As Winston (1985) notes, some very important tasks involved in a research project, such as data collection, do not require significant

research training or experience. According to the APA guidelines, those contributions may be appropriately acknowledged in a footnote. However, there is some indication that authors who primarily contribute to data collection are included as authors, but not first or second (Geelhoed et al., 2007). It is clear that Ashley's professor did not discuss authorship credit with her during the two years that she assisted on the project. It is possible that Ashley's professor did not believe she had the expertise to be accountable as an author on the publication. In addition, she may not have made a significant contribution to the overall project from initial conceptualization to execution and writing up the results for publication. Her professor may also have felt that giving a presentation at a conference acknowledged her role in the project and served as her reward.

In Appendix A (pp. 28–34), you will find an example of a research agreement for students working with a faculty member (Roig, 2007). The agreement includes a schedule of work to be completed as well as a quantitative evaluation of a student's contribution to a project. We are particularly fond of this agreement because it asks students to acknowledge both the professional code of ethics in the discipline as well as the institution's academic integrity policy. It also addresses data ownership and the long-term maintenance, storage, and access to the data (further addressed in Chapter 9). This form can be modified to establish agreements between student researchers as well.

Revisiting Authorship Agreements

What happens if someone fails to meet his or her obligations to a research project? This is an opportunity to revisit a research agreement and renegotiate the roles, responsibilities, and authorship credit. If there had been a research agreement between Joseph and Ryan, the research supervisor could have reviewed the roles and responsibilities and renegotiated authorship credit or order. At the end of the chapter, we have provided several resources for addressing and revisiting authorship agreements. Some take the form of checklists, and others take a quantitative approach assigning points to different research activities. We recommend choosing an approach that fits the type of research you are conducting and the level of collaboration expected.

Chapter Summary

- Cooperation, collegiality, trust, fairness, and accountability are key values in research collaboration.
- Principal investigators may serve as the custodian of research data, but ownership is determined by institutional policies.
- An individual should make a significant contribution to the research to earn authorship credit. Unearned authorship poses several ethical problems.
- In collaborative research, research agreements are useful for determining authorship and authorship order.
- Collaborators should revisit authorship credit throughout the research process.

Discussion Questions

1. Using the additional resources at the end of the chapter, how could Ashley approach her professor about her authorship concerns? Consider what questions she should ask and how her professor might answer them based on the ethical guidelines for authorship.
2. Since Ashley plans to begin a PhD program after graduation, she will likely continue a similar line of research working in her new lab. Can she take the data she collected with her? Why or why not? Under what circumstances might she be allowed to take the data with her to use in the future?
3. Does your institution have a specific data ownership policy? What about your department? If not, how might a research agreement address issues of ownership and authorship?

Additional Resources

APA's Tips for Determining Authorship Credit

The American Psychological Association (APA) offers tips and resources for negotiating authorship. It also includes a list of common reasons for changing authorship, a helpful tool for students who would like to initiate a conversation with a faculty supervisor.

<http://www.apa.org/science/leadership/students/authorship-paper.aspx>

Determining Authorship Order in Research Publications

In his article, Winston (1985) provides a very useful point-based method for determining authorship. This procedure is helpful for establishing authorship and authorship order as well as renegotiating throughout the research process.

Winston, R. B. (1985). A suggested procedure for determining order of authorship in research publications. *Journal of Counseling and Development*, 63, 515–518.

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APPENDIX A

A Student–Faculty Research Agreement

The purpose of this document is to formalize the terms of research collaborations between students and their mentor for the project described below. The **Student–Faculty Research Agreement** addresses some of the specific tasks, responsibilities, and other relevant issues associated with the conduct of scientific research (e.g., research ethics, data ownership, authorship). Please read and complete this form.

Title of Proposed Study: _____

Name of Faculty Member or Project Supervisor: _____

Name of Student Investigator: _____

Names of other students involved in project (each student will complete a separate Student–Faculty Agreement): _____

1. Detailed description of research project (to be completed by the student):

2. Indicate in detail how the semester is to be divided by student tasks and by deadline dates. (e.g., first two weeks will be devoted to reading and discussing secondary sources; next three weeks will be devoted to primary source research at the library; submission of an outline in the sixth week)

1st week _____

2nd week _____

3rd week _____

4th week _____

5th week _____

6th week _____

7th week _____

8th week _____

9th week _____

10th week _____

11th week _____

12th week _____

13th week _____

14th week _____

Agreement Statement

I, _____, recognize that scientific research is a labor-intensive enterprise that demands a high level of personal commitment, time, and effort. This is particularly true when the research project is being undertaken for academic credit (e.g., independent research, senior seminar) and the project must be completed within the temporal limitations of a semester-long course. By signing this document, I promise to dedicate the necessary time and effort to complete this project in accordance to the schedule drawn above. I will also uphold the principles of scientific integrity as exemplified by the APA Ethics Code <http://www.apa.org/ethics/code/index.aspx>, particularly Principle C and Standard 8, Research & Publication, which I have read and understood. I have also reviewed our institution's academic integrity policies, and I am fully aware of the seriousness of these issues and of the consequences of violating such policies. Based on the APA ethical principles and our own institution's academic integrity policies, I recognize that any form of data falsification, data fabrication, or plagiarism in the conduct of research is not only an academically dishonest act, but also a most severe form of scientific misconduct.

If this research project involves the recruitment and testing of human subjects, I agree to take a tutorial on the protection of human subjects (as determined by our university) before commencing work on the project.

Similarly, if the project involves using animals as subjects, I agree to complete a tutorial on the use of animals as research subjects (e.g., <http://grants.nih.gov/grants/olaw/tutorial/>).

I shall also abide by the stipulation that all research data (e.g., questionnaires, data files, records, observations) from this project become the property of the institution and will be retained by the faculty member who will determine who and under what circumstances others may have access to such data. I also understand that authorship of any resulting conference presentation or journal article will depend on the extent of my contributions to this project as stipulated in Standard 8.12 of the APA Ethics Code.

Student's signature _____ date _____

Faculty member's or supervising investigator's
signature _____ date _____

Chairperson's signature _____ date _____

Do not copy, post, or distribute

Project Grade and Authorship Determination Rating Guide

Extent of Student Contribution to the Project (to be completed by faculty mentor)

Please circle the item that best describes the extent to which each of the following statements describes the student's performance in the project. Leave blank if not applicable.

Introduction

- Conceptualized the study/origin of idea/hypothesis/variables

1	2	3	4	5
Not at all	To a little extent	To a moderate extent	To a great extent	To a very great extent

Method

- Carried out the literature search (identified relevant literature, retrieved articles, summarized articles)

1	2	3	4	5
Not at all	To a little extent	To a moderate extent	To a great extent	To a very great extent

- Made contributions to the research design

1	2	3	4	5
Not at all	To a little extent	To a moderate extent	To a great extent	To a very great extent

- Constructed stimulus materials/Set up-calibrated study equipment/
Carried out ratings

1	2	3	4	5
Not at all	To a little extent	To a moderate extent	To a great extent	To a very great extent

Data collection

- Recruited and consented subjects

1	2	3	4	5
Not at all	To a little extent	To a moderate extent	To a great extent	To a very great extent

- Ran subjects/Recorded observations

1	2	3	4	5
Not at all	To a little extent	To a moderate extent	To a great extent	To a very great extent

- Debriefed subjects

1	2	3	4	5
Not at all	To a little extent	To a moderate extent	To a great extent	To a very great extent

Data analyses

- Entered data in database

1	2	3	4	5
Not at all	To a little extent	To a moderate extent	To a great extent	To a very great extent

- Checked data for accuracy

1	2	3	4	5
Not at all	To a little extent	To a moderate extent	To a great extent	To a very great extent

- Contributed to data analysis decisions

1	2	3	4	5
Not at all	To a little extent	To a moderate extent	To a great extent	To a very great extent

- Carried out data analyses

1	2	3	4	5
Not at all	To a little extent	To a moderate extent	To a great extent	To a very great extent

Writing

- Wrote Introduction and literature review

1	2	3	4	5
Not at all	To a little extent	To a moderate extent	To a great extent	To a very great extent

- Wrote Methods section

1	2	3	4	5
Not at all	To a little extent	To a moderate extent	To a great extent	To a very great extent

- Wrote Results section

1	2	3	4	5
Not at all	To a little extent	To a moderate extent	To a great extent	To a very great extent

- Wrote Discussion section

1	2	3	4	5
Not at all	To a little extent	To a moderate extent	To a great extent	To a very great extent

Presentation

- Constructed poster

1	2	3	4	5
Not at all	To a little extent	To a moderate extent	To a great extent	To a very great extent

- Made presentation

1	2	3	4	5
Not at all	To a little extent	To a moderate extent	To a great extent	To a very great extent

Other contributions

- Identified potential confounds

1	2	3	4	5
Not at all	To a little extent	To a moderate extent	To a great extent	To a very great extent

- Identified possible directions for future research

1	2	3	4	5
Not at all	To a little extent	To a moderate extent	To a great extent	To a very great extent

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- Organizational skills

1	2	3	4	5
Very Poor	Poor	Fair	Good	Very Good

- Dedication to the project

1	2	3	4	5
Very Poor	Poor	Fair	Good	Very Good

- Other 1: _____

1	2	3	4	5
_____	_____	_____	_____	_____

- Other 2: _____

1	2	3	4	5
_____	_____	_____	_____	_____

Additional Notes
