

Introduction

The door closes and you breathe a deep sigh of relief. The final subject has been run. Things went well with hardly a glitch. The difficult part is over.

Not so fast. Maybe the hard part has just begun. You still have to run the data analyses. Examine the results. Maybe run more analyses. You have to write up the study; you think: “Let’s see, the introduction is almost done. How much of the method section have we written? Do we have descriptions from other studies that used some of the same methods? What journal should we send the manuscript to? Are the data ready to show other people?”

Well, at least the ethical considerations are behind you. You have followed the prescribed rules of conduct in the way you treated the subjects. You used the approved consent form. You obtained informed consent from everyone who took part. All the subjects were debriefed and went away satisfied—okay, perhaps bored but not annoyed.

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Ethical Choices in Research: Managing Data, Writing Reports, and Publishing Results in the Social Sciences, by H. Cooper

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Not so fast. Maybe there are still some tough ethical choices ahead: “When we write the study up, do readers need to know about the procedures we tried and modified *before* the ones we ended up using? Should we report *every* analysis of the data we performed? (Where are those files?) Let’s see, do we know possible journals (and editors) to send this research to? Who might be asked to review the manuscript? If someone asks to see the data, did we write down somewhere the links between the data set variable names we used and their full descriptions? (Where are those notes?)”

Who Will Benefit From This Book

This book takes up ethical (and some etiquette) issues. These issues usually are addressed in only a few pages in typical introductory research methods texts that are aimed at those learning how to conduct research with human subjects. This book deals primarily with ethical and compliance issues that arise after the data have been collected, though some topics earlier in the process are also covered. Although the book is principally aimed at graduate students and new researchers in psychology, much of what I discuss is relevant to anyone learning to do research with humans in social and behavioral science disciplines, be they studying anthropology, sociology, political science, or economics, or applied disciplines such as education, public policy, and social services. New researchers in the health sciences and those doing research with animals also may find the topics covered valuable (e.g., how to assign authorship and avoid plagiarism and duplicate publication), but some topics important to them need to be explored elsewhere.

The book is written assuming that the reader has taken or is taking an introductory course in research methods, one that covers topics such as research design and measurement, and introductory courses in statistics that cover descriptive and inferential statistics, such as analysis of variance and multiple regression.

The book can be used as a supplemental text in a graduate-level (or an advanced undergraduate) course in research methods or professional behavior. It can also be used as an organizing text in an introductory course on research ethics in the social and behavioral sciences, supplemented by materials that explore each topic in more depth. Finally, new researchers (and maybe even some seasoned ones) may find the book important to have on their shelves and to share with the students they mentor.

The Ethical Treatment of Human Subjects and the Institutional Review Board

Because introductory methods texts typically cover the topic, this book does not get into issues regarding how subjects are treated while they are participating in a study. Of course, the ethical treatment of subjects in research is the researcher's most important obligation. So, let me spend a few paragraphs on this issue.

Put simply, ensuring that subjects leave experiments with no adverse effects for having taken part in the study is the *sine qua non* of scientific research with human subjects. And, to safeguard that this happens, research must not proceed without a community-validated certification that (a) this is the intention of the researchers and (b) proper procedures are in place to make it happen. This process is overseen by Institutional Review Boards (IRBs). If you are doing research at a university, before you begin you will be required to write a *research protocol* and submit it to the IRB for approval. Independent IRBs also exist for researchers not working in university settings.

IRBs must have at least five members, at least one of whom is a scientist and one a nonscientist. In addition to other elements, the IRB will require several topics be addressed in the research protocol. When you submit an IRB form, you will be asked for the names of the responsible researchers and assurances that the work will not begin until the protocol is approved and will not be changed without approved amendment. You must provide a description of the study's purpose and methods and an assessment of the study's risks and benefits. The protocol must include the procedures that will be used to ensure subjects have provided informed consent. You will be asked whether deception is being used, and if so, why and what procedures you have in place for debriefing subjects once their data have been collected. You will need to describe how you will ensure the confidentiality of the data after the subjects have gone.

Suppose you and some colleagues decide to do research on parents' involvement in their children's lives. You decide to go to a youth soccer match and ask parents about their children's after-school activities and how much they are involved in them. If you work for a university and this study is approved by your institution's IRB, you are good to go. If you did not get institutional approval, this is an ethical violation because the protocol and questionnaires have not been scrutinized by an independent group of community representatives. This is true even if you intend to ask parents for consent to interview them and their

children. In addition, if you attempt to present or publish what you find in your study without securing IRB approval, you may find it difficult to get the paper accepted. Most psychology journals require that you indicate that a research protocol has been approved by an IRB before a paper can be considered for publication. If you cannot attest to this, most reputable journals will not publish your paper.

A Scientist's Responsibilities

That said, ethical considerations do not stop when the last subject leaves. However, the *focus* of ethical consideration does change. Now you must consider your obligations—ethically, as a scientist—to the scientific community and beyond to the people who provided support for your research. You also must consider your obligations to an audience around the world who will have access to your research report and might act on its results. Finally, let us not forget that you have obligations to your collaborators, to yourself, and to your career.

What are your responsibilities as a scientist? The National Academy of Sciences (NAS), National Academy of Engineering, and the Institute of Medicine (2009) prepared the monograph *On Being a Scientist: A Guide to Responsible Conduct of Research*. It speaks directly to a scientist's responsibilities:

The scientific enterprise is built on a foundation of trust. Society trusts that scientific research results are an honest and accurate reflection of a researcher's work. Researchers equally trust that their colleagues have gathered data carefully, have used appropriate analytic and statistical techniques, have reported their results accurately, and have treated the work of other researchers with respect. (p. ix)

The monograph also says scientists have obligations to themselves. Responsible conduct in the laboratory is a prerequisite if you want your efforts to make a lasting contribution and want to maintain your personal and professional sense of integrity and advance professionally.

Clearly, the NAS sees "trust" as the essential element in the conduct of science. No argument there. But trust is essential in any source we might go to for knowledge about the world, be it scientists, parents, friends, teachers, political and religious leaders, and even our own senses and thought processes. What makes science unique is *how* scientists claim they have acquired the knowledge they share—the nature of the evidence the knowledge is based on.

For evidence to be considered scientific, it must have been collected in a particular way. It cannot be based on one person's observations or

thoughts or something one person heard or read, no matter how authoritative the source may seem. For scientific knowledge to be trusted, the evidence for it must reside outside any given scientist; it must be observable by all and uncolored by the filters of belief of the person who collected it. When we learn research methods in psychology, we learn how to collect evidence scientifically.

Science is also self-critical. More than other sources that claim to provide knowledge about the world, scientists “trust, but verify.” Even researchers who claim to have evidence establishing scientific knowledge remain critical of their own evidence (“What might I have done incorrectly?”). They encourage independent efforts—replications—that test whether findings stand up to rigorous scrutiny and repeated testing (“If others repeat my investigation, will they obtain the same result?”).

For this reason, according to the NAS, the ethical considerations in the *process* of collecting scientific evidence emphasize honesty, accuracy, the careful execution of appropriate data collection and analysis, and respect for the contribution of others. I would add to this list transparency and completeness in how a study is described when it is shared with others. Without transparency and completeness in reporting, replication can be difficult (this topic is discussed in greater detail in Chapter 6).

These broad ethical principles may seem daunting. They should not. Here are a few reasons why. First, research methods rest on a theory of knowledge and evidence. The theory grows, is modified, and replaced, just like a theory in any substantive area of social science research. Today, things new researchers take as “givens” in the research process were once not only not *de rigueur* but they were controversial. For example, in your research you will calculate effect sizes (and confidence intervals) and report them alongside your results of null hypothesis significance tests. Today, you do this as a matter of course. Twenty years ago, not so much. In addition, if some researchers prevail, significance testing may disappear as a “given” (this topic is covered in Chapter 5). As another example, 50 years ago, experimenter expectancy effects were hardly a blip on methodologists’ radar. Today, researchers are expected to report safeguards that were taken in the research protocol to ensure experimenter expectancies could not have influenced the data.

Second, new researchers are expected to adhere to the highest of standards of science. These often set benchmarks for evidence that were distant hurdles to their mentors. But it is also the case that new researchers are given more latitude than are their elders by many scientific journal editors and others who evaluate research. Of course, the rules cannot be relaxed; an attempt to collect unbiased evidence applies regardless of the scientific discipline, although how this is accomplished may differ somewhat from discipline to discipline. But evaluators of research

and journal editors do have leeway in judging a mistake in a research report and submitted manuscript. They can label it as anything between “Here’s a teaching moment, let’s get this fixed and give this manuscript another chance” and “This person should have known better; reject.” Peer review, discussed in Chapter 9, assists immensely in making this decision.

Third, whether you are new or experienced at conducting scientific investigations, you are human. All humans make errors, and honest mistakes are not viewed as ethical lapses; they are viewed as errors that need correcting. I have yet to see the perfect study and doubt anyone else has. What is essential is not that your work be perfect but that you look at it critically, identify its weaknesses, and report them. You must remain open and receptive to corrections suggested by others. Other scientists know this, and know even they make mistakes. This is the best way for science to progress. It is also how we become better scientists.

Fourth, different areas of research within psychology have different expectations about what makes for a sound contribution. Psychologists use methodologies ranging from ethnography to brain imaging. Each method has different sources of potential bias, some of which are better understood than others. The rigor of evidence for a contribution can be different depending on the level of sophistication in current explanations of the problem under study. Scientists know this.

American Psychological Association Ethical Principles

Many disciplines have written ethical standards. For this book, I rely heavily on the American Psychological Association’s (APA, 2010a) *Ethical Principles of Psychologists and Code of Conduct* (hereafter referred to as the APA Ethics Code). The Ethics Code is quite exhaustive and covers most of what is covered in other social science ethical guidelines. I supplement APA’s Ethics Code when appropriate with other disciplines’ standards, such as those of the American Statistical Association, as well as guidelines prepared by some overarching organizations, such as the Department of Health and Human Services’ Office of Research Integrity and the Committee on Publication Ethics.

The APA Ethics Code is divided into 10 sections. Although the main focus is on providing psychological services, ethics in research also is covered extensively. Appendix A reproduces sections of the APA Ethics Code that relate most directly to research ethics other than the treatment of subjects. Other APA principles are general and relate to psychologists regardless of whether they are engaged in clinical services or

research. For example, some principles relate to competence. Chapter 1 discusses the topic of competence as it relates to the choice of a problem for research.

A Road Map for the Book

Every stage of the research process raises ethical issues. So, as an organizing device, I proceed through the stages of research, from the choice of a problem and methods, to data management and analysis, report writing, and (it is hoped) publication. I discuss ethical issues that can arise *after* an article is published. Of course, the *in vivo* process is never as linear as the textbook description suggests. As you proceed, you may find that decision points I covered at a later stage may influence your planning earlier in the research process. That is why it is good to be familiar with the contents of this book from start to finish, before you apply it to your research plans and activities. It is also why I visit some topics more than once. For example, issues associated with copyrighted material are discussed in Chapter 1, in relation to planning your research because you may want to use a copyrighted measurement device (e.g., a psychological scale) or stimulus (e.g., a video) in your study. Copyright issues also arise when you write a paper for publication if you use a table, figure, or long text excerpt from someone else's published article.

In Part I of the book, I deal with ethical and some legal issues that precede conducting your study but do not relate to the treatment of subjects. In Chapter 1, I ask you to consider whether you have the interest and competence to conduct the study you propose and whether you can do so without a conflict of interest. I also ask you to consider where the methods you plan to use came from and to ensure that you have obtained proper permission for their use. Before you begin, you also must consider your obligations to society and the people with whom you are working.

Chapter 2 deals with issues of authorship, both in terms of what constitutes authorship and how authorship credit should be assigned. Authorship issues appear in Chapter 2, which is about issues related to the early part of the research process, because they should be discussed among researchers as part of planning and then reconsidered throughout the process.

Part II of the book focuses on data collection issues that is not related to how subjects are treated while they take part in your study. Chapter 3 examines how you manage the data you have collected: how to keep records and how to keep records confidential. It also examines who owns the data you collect and how to store data sets. It discusses

who should have access to data before your results are published. How long data should be retained and how it should be disposed also are covered. Chapter 4 looks at misconduct with data sets, in particular people making up data or altering it in unethical ways. Chapter 5 covers appropriate and inappropriate methods of data analysis.

Part III of the book deals with the preparation of a research report. Chapter 6 describes what details of the research need to be in a report so that your study can be properly evaluated and replicated by other scientists. Chapter 7 looks at plagiarism, using the words of others without attribution, how plagiarism can be avoided, and how it is uncovered.

Part IV of the book takes up ethical and etiquette issues in publication. Chapter 8 discusses what you need to do before you submit your manuscript to a scientific journal. It examines how to properly share your report before it has undergone scientific review, why you cannot submit a manuscript to more than one journal at a time, and why you need to avoid publishing the same results more than once (duplicate or redundant publication) or in multiple but small chunks based on the same subjects (piecemeal publication). Chapter 8 also provides guidance on choosing an appropriate journal and preparing submission materials in a professional manner. Chapter 9 describes the publication process, including its actors (editors and reviewers) and what their obligations are to you, as an author of a report under review. Chapter 10 tells you what to expect after your manuscript has been accepted, including how to share it properly and ethically handle errors that might be found after publication. In Chapter 10, I examine ethical considerations you may encounter once you are a published author of a scientific paper. These include how to appropriately interact with media interested in communicating your findings to a broad audience of nonscientists. Chapter 10 returns to when and how to share data with others who request it after publication of your study. It also looks at your ethical considerations and professional behavior if your contributions to science lead to an invitation that you serve as a peer reviewer for research papers prepared by others.

In the Epilogue, I offer a broad but brief recap of the ethical obligations of a scientist. Finally, I describe some additional resources related to ethical issues in research.

All scientific research starts with an idea and someone asserting, "That's an empirical question."