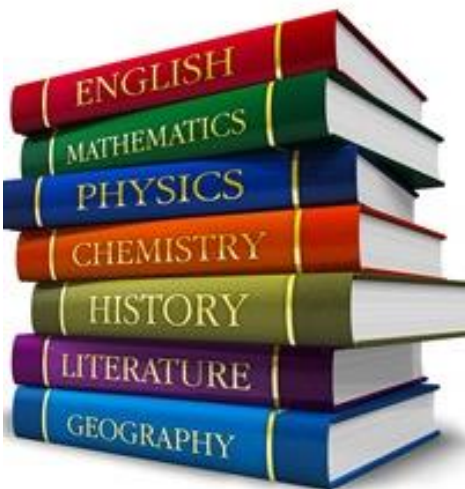Shape your world

APU
Ritsumeikan
Asia Pacific University

Graduate Writing Workshop

Graduate Writing Workshop
Ritsumeikan Asia Pacific University

Session 1: What is a research thesis?
Session 2: What makes a good research
            question?
Session 3: What is an argument?
Session 4: Research ethics and plagiarism

<div align="center">

Graduate Academic Writing Workshop

Ritsumeikan Asia Pacific University

Steven B. Rothman, Ph.D.

Associate Dean, Graduate School of Asia Pacific Studies

</div>

1. Objective

This is an introductory workshop on academic writing for graduate students that improves students' basic knowledge and academic writing skills necessary for completing a final written thesis or report. The course will be held four (4) times and is designed to the final objective of writing a strong argumentative essay.

2. Background

Our students come from a wide variety of backgrounds and their knowledge of academic writing also greatly varies. Graduate students' academic writing skills are usually cultivated through the curricular course "Research Methods and Academic Writing" (mandatory for GSA students and strongly recommended to GSM students planning to write a thesis) and guidance by the supervisors during the seminars. However, this course alone may not be enough writing practice to establish strong writing skills among students with such a variety of backgrounds.

3. Overview of Schedule

Session 1	Lecture What is a research thesis? Group work Discuss the common normal thesis and try to determine what a typical thesis looks like.
Session 2	Lecture What makes a good research question? Where do good research questions come from? Group Work Discuss how to improve the research question and work on the research question.
Session 3	Lecture What is an argument? How do you write a good argument? Group Work Peer review of the essay.
Session 4	Lecture Research ethics and plagiarism Activity Discuss about the training sessions and feedback from students.

4. Student Requirements:

Students must complete all the assigned readings BEFORE the class lecture. In addition, students must complete an assignment before each session and submit an argumentative essay at the end of the sessions. Feedback/comments will be returned to students at a later date. Planned assignments are as below. Each assignment must be completed before the lecture day.

If you do not complete the assignment, you will not be able to participate in the workshop section of the class.

Assignment 1 Due by Session 1:

Analyze a research thesis (a variety of model theses are provided), by answering questions on a worksheet provided. It is not necessary to read the entire thesis or even a majority of the thesis to finish the worksheet. The goal is to get a general idea of the structure of a thesis, not to understand the content of the thesis. Bring the completed worksheet to class, it will be discussed in lecture and used in the workshop class.

Assignment 2 Due by Session 2:

Choose a research question based on your interests for your thesis. This is an exercise and the question does not need to be your final research question for your project. Type a half page explanation of your research question and bring it to class for discussion. It will be used in the workshop session.

Assignment 3 Due by Session 3:

Prepare 1000 word argumentative essay on a topic of your choice related to your thesis. The essay should make a single argument, and it should use evidence and sources to support your argument. Please type the essay, using 12 point font, double-spaced lines and print it for class. Bring two copies of the essay to class so that you can receive peer-review feedback from at least two other students in the class. You will use this essay during the workshop section.

Assignment 4 Due by Session 4:

Find at least 20 academic sources using the library resources (digital catalog and journal article databases) that might be useful in your essay. Create a bibliography properly formatted with the 20 sources using APA style formatting and bring it to class. The workshop class will review the sources and also evaluate the course overall. Please bring any comments you have about the workshop overall to provide the staff and faculty.

5.   Reading Assignments

<u>Reading Due by Session 1:</u>

Choose a thesis from the list of theses we provided. Please only read what is necessary to answer the questions on the worksheet. You do not need to read the entire document.

Roselle, Laura, and Sharon Spray. *Research and Writing in International Relations*. Book. Pearson Education, 2008, 46-64.

<u>Reading Due by Session 2:</u>

Rothman, Steven B. "Comparatively Evaluating Potential Dissertation and Thesis Projects." Journal Article. *PS: Political Science & Politics* 41, no. 2 (2008): 367–69. doi:10.1017/S1049096508080566.

<u>Reading Due by Session 3:</u>

Cottrell, Stella. Critical Thinking Skills : Developing Effective Analysis and Argument. Book. Palgrave Study Guides. New York: Palgrave Macmillan, 2005, 1-16.

<u>Reading Due by Session 4:</u>

Japan Society for the Promotion of Science. "For the Sound Development of Science -The Attitude of a Conscientious Scientist-," n.d.

Rothman, Steven B. "Guide to Plagiarism," n.d.

List of Sample Theses for the Graduate Student Writing Workshop

Please select **ONE** of the sample theses below based on your field of interest. Try to use a thesis that is in your area and represents your desired degree. Answer the questions on the provided worksheet. It is not necessary to read the entire thesis or even a majority of the thesis to finish the worksheet. The goal is to get a general idea of the structure of a thesis, not to understand the content of the thesis.

How to Access the Files:
1, Access to Academic Writing for Graduate Students page on the APU Graduate website.
2, Download "Sample Theses (ZIP)".
3, Use passwords that sent by the email to open the zip and PDF files.

Make sure that you access it to complete your reading assignment!

Degree	BA
Year	2012
Title	Effects of Wages of Government Officials on Corruption in Developing Countries
Author	Vansh Muttreja

Degree	MA
Year	March 2016
Title	Regionalisation within the Context of the WTO A Case Study of the TTIP: Threat or Stepping Stone?
Author	KENNIS Anke

Degree	MA
Year	June 2010
Title	Asset Distribution and Productivity: Best Practices for Developing This Synergistic Relationship
Author	Wendy Willbanks Wiesner

Degree	MA
Year	January 2010
Title	Gender and Development Through Western Eyes: An Analysis of Microfinance as the West's Solution to Third World Women, Poverty, and Neoliberalism
Author	Catherine Loeffelman

Degree	MA
Year	May 2016
Title	Perceptions of Overhead in International Development
Author	Tara Dewan-Czarnecki

Degree	MA
Year	August 2015
Title	HEGEMONIC AMBITION Offensive Realist Prescriptions for Regional Hegemons in External Regions
Author	Robert G. Cantelmo

Degree	MBA
Year	December 2012
Title	Analyzing Revenue Sharing and Buyback Contracts: An Experimental Study
Author	CHINTHANA RAMASWAMY

Degree	MBA / MFA
Year	May 2013
Title	Best Practices in Enhancement Deals: Nonprofit and For Profit Theatrical Collaborations
Author	Mattew Graber

Degree	MBA
Year	March 2016
Title	A Comparative Study Regarding the Influences of Rational and Emotional Appeals in Private Hospital Marketing: A Case of Obstetric Clinics
Author	VUONG The Ton

Degree	MBA / MFA
Year	January 2009
Title	Efficacy of Corporate Planning Strategies on Not-for-profit Organizations
Author	Jeremy P. Ancalade

Degree	MBA / MFA
Year	May 2013
Title	Emotional Attachments to Nonprofit Theatre Organizations: Identifying Emotional Attachment Antecedents
Author	Shay Thornton

Degree	MPA
Year	March 2010
Title	Measuring the Policy Impact upon Carbon Dioxide Emissions of OECD Member States
Author	Yasushige Robert Wasem Yoshii, B.A., J.D.

Degree	MSW
Year	May 2015
Title	Analyzing the Effectiveness of the Trafficking Victims Protection Act of 2000
Author	Laura Admans

Degree	PhD
Year	August 2013
Title	Production Networks and Regionalism in East Asia: Firms and States in the Bilateral Free Trade Agreements of Thailand and Malaysia
Author	Antonio Postigo

Dissecting a Thesis

Please select one of the sample theses that we provided based on your field of interest. Try to use a thesis that is in your area. Using the sample theses we provided, please answer the following questions. It is not necessary to read the entire thesis to answer the questions. Please read only what is necessary.

1) What kind of thesis is it?

| Undergraduate | Masters | Doctoral | Other |

2) What is the major area of study for the thesis?

_____

Read the <u>TITLE ONLY</u> first.
Answer these questions (if you cannot, please state so)?

3) What is the primary question?

4) What is the conclusion/answer to the question?

5) What methods are being used in the thesis?

Next <u>READ THE ABSTRACT</u> (Do not change your answers to the above questions):

6) What is the primary question?

7) What is the conclusion/answer to the question?

8) What methods are being used in the thesis?

9) Describe the sections of the thesis

	Order	Page Count and % of Total Pages
Introduction Section		
Literature Review Section		
Methodology Section		
Analysis		
Conclusion		

10) What major sections are in the thesis, but not included above?

11) How many sources are listed in the works cited/bibliography?

Examine the Thesis for Answers to these Questions:

12) What is a primary argument of the thesis? What is one reason/premise for this argument? Do you believe the argument? What makes you skeptical of the argument?

13) What is the relationship between the topic and the field more broadly? Is it related by theory (what theory)? How else is it related to the audience?

14) How is the thesis organized? What kinds of transitions or connections are made between each of the sections in the thesis?

15) What methodology is used in the thesis? Is it quantitative or qualitative? Is it mixed? What problems and benefits are described about the methodology used?

16) How is the literature review organized? Describe the sections that are used in the literature review.

17) Do you have any comments/critiques of the thesis? What would you have done differently?

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Research and Writing in International Relations

Second Edition

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BRIEF CONTENTS

DETAILED CONTENTS

Analysis and Writing

Researchers generally do not begin the writing process for their research projects until they have gathered all of the information necessary to respond to their research questions. That means that their writing begins after about 80 percent of their research project is completed. Writing the final paper is just one step of a complex research process that first involves developing an original research question; conducting a thorough literature review; creating a research design that identifies independent variables, hypotheses, and cases; and gathering evidence in a systematic way. If you have taken good notes as you worked your way through the research process and carefully operationalized your variables for evidence collection, you will be prepared to write a paper that brings all of these different phases together.

After following the steps outlined earlier in this text, what is left to complete your project is to analyze the information you have gathered and write up your findings in a final paper. This sounds easy, but for most of us writing is difficult. Moving from thoughts to written words often requires several drafts before a paper is ready for review by others. This is true for students and professors alike. Writing clearly and concisely takes patience, and in most cases professional researchers are under the constraints of guidelines issued by publishers that require specific formats and page limitations for any paper submission. Students face similar constraints, including those related to page length, specific citation formats, and structure.[2] This chapter will help prepare you to write your research paper in a clear and organized way.

AN OVERVIEW OF THE WRITING PROCESS

It is best to obtain specific instructions from your professor before beginning to write because there are numerous approaches used to document research. In this book we describe how to document an international relations research project in a format typically found in IR journals. This format includes seven written sections of varying length that together form a paper approximately

twenty to twenty-five pages long. You will likely find this length necessary to fully describe your research project and its findings. Later in this chapter we provide more detail about what type of information should be included in each of the seven sections; for now, here is a brief description of the sections in the order that they will appear in your paper.

- **Abstract:** Begin your paper with a one-paragraph synopsis of your project that includes your research question, the importance of studying this question, the variables you addressed in the study, and the conclusions reached from the evidence you collected. (Approximate length: one-quarter page.)
- **Introduction:** The introduction provides general information about the topic, including a brief history. Your introduction may also include an overview of how your paper structurally unfolds. (Approximate length: two to three pages.)
- **Literature review:** This section describes the scholarly literature and should explain (at the end) how your research question fits within this literature. We suggest clearly stating your research question at the end of this section and introducing it again in the next. (Approximate length: three to five pages.)
- **Research design (methodology):** This section describes the project format, including your choice of cases, the description and operationalization of the dependent and independent variables, and your choice of sources and analytical methods. (Approximate length: three to six pages.)
- **Case presentation, analysis, and discussion of findings:** This section is the heart of the paper. A presentation of the case(s) sets out the variables and the context. This is followed by a discussion of the evidence, the strength of relationships, and a response to the research question. (Approximate length: ten to twelve pages.)
- **Conclusion:** Regardless of whether your hypotheses were supported by your research, the conclusion section is an opportunity to discuss the importance of your findings. One suggestion for writing your conclusion is to link your findings back to what other similar studies have found. You might also discuss problems you encountered finding information and other factors that may account for your findings. This section should also contain a brief discussion of the project's limitations and what type of studies would further enhance our understanding of the topic. (Approximate length: one page.)
- **Bibliography or reference list:** This section contains the sources you used, set out in alphabetical order by author's last name and in an acceptable style or format. The bibliography or reference list is important because it shows your readers where you got your information. (Approximate length: varies, depending on the number of sources you used, which may be based on what your professor requires.)

Perhaps the most important point to remember as you begin the writing and analysis phase of your project is that no matter how hard you have worked or how extensively you have researched your project, if you fail to communicate your findings clearly or present your project professionally, all of your hard work will go unrewarded. Students disappointed with grades lower than

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[2]This text does not extensively cover style issues such as word usage, sentence structure, or punctuation.

they expected sometimes comment that they believe substance should count far more than form. Although we agree that this is a valid argument, the reader of your paper must believe that you have seriously approached your research. Important research sloppily presented—full of typographical errors, spelling problems, imperfect citations, and careless sentence structure—undermines the credibility of the research. *Style* is important.[3] Because it is often difficult to identify one's own writing mistakes, we suggest that you have someone else proofread your manuscript for errors before submission.

A second important point is that the project paper seldom represents all of the research the author completed during the course of the project. When writing a question-based research paper, you will inevitably make choices about what to include and what not to include. Data gathered early in the project's research phases may have no utility at the completion of the project. Before you finalized your project's research question, you may have read some scholarly literature that no longer applies at all. Include in your paper only the information that directly relates to your research question.

Another challenge associated with writing research papers is that you must describe complex political phenomena as succinctly as possible. The difficulty emerges not from a lack of knowledge of a topic but from overfamiliarity. You may find that several of your descriptions sound perfectly clear to you, but to someone else the manuscript may lack the level of description necessary to follow your thoughts. The only way to know if you have clearly articulated your thoughts is to have an outside reader provide feedback on the clarity of your paper.

One of the biggest mistakes you can make is to overstate your findings. You must learn to be humble about your project findings. Political scientists never "prove" anything. We may find "support" for our conclusions or "evidence to suggest," but no matter how many times we observe the same phenomena, politics takes place in a world of countless variables. No two situations are ever exactly alike. We may observe enough similarities among related events to form theories and reliable assumptions about different situations, but we also know that there will almost always be exceptions to general trends, practices, and activities.

When writing your paper, remember that you are exploring a research question using a single case or a very limited number of cases. You cannot be sure that your findings will hold in other similar circumstances. The key is to link your findings back to the scholarly literature. You should note that your findings either support or do not support what other scholars have found, but do not overstate your findings by indicating that your research proves something or that all other research conclusions are wrong because you found a case that does not fit with what scholars understand about other similar cases. We actually expect that there will be situations that do not fit with what generally occurs. Finding an exception is interesting and important to our understanding of political

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[3]Although this text focuses on the research process and not on style, you'll find some helpful style tips and resources in Part III.

phenomena. For example, if a researcher finds that one treaty failed when all similar other treaties did not, this does not mean that the factors that scholars have identified as generally leading to treaty compliance are incorrect. The writing of scholars often reflects this type of exception through the use of language such as "in most cases," "in general," "with limited exceptions," and so on.

Another form of overstatement comes from the use of language that suggests more than can reasonably be claimed. You should avoid using words such as "extremely," "extraordinarily," "highly," "never," and "always" when describing your findings. After all, you can only reliably draw conclusions about the cases used in your study, not about the entire universe of possible cases. It is also unlikely, given your time and resource constraints, that you explored all possible variables for your cases.

When writing up research, it is better to understate your findings than overstate them. In the end, your research project is not designed to function as a persuasive tool. You entered the project as an open-minded researcher, and you should continue that perspective until the project is completed. With these points in mind, we now turn to more detailed descriptions and instructions for how to transform your project into a high-quality research paper.

WRITING EACH SECTION OF YOUR RESEARCH PAPER

Anyone who has ever written a paper has struggled at one time or another with getting the first sentence on paper. This agonizing step is often easier with a research paper than with a persuasive paper or critique because the research paper does not have to be written in a specific order. You are not building an argument; you are documenting a research project and its findings. In fact, it is often easier and more logical to write the middle of your paper first.

If you are writing your paper in a journal article format, as we mentioned earlier, your paper should have seven sections:

- abstract
- introduction
- literature review
- research design (methodology)
- case presentation, analysis, and discussion of findings
- conclusion
- bibliography or reference list

We suggest that you write the abstract and the conclusion last, but you may choose to write any of the other sections first. However, you should construct a good outline for each section before you begin writing so that you have a roadmap that will keep you on the right path if you are writing in a different order. In the following subsections, we provide general tips for each section to help you pull together the appropriate information for your paper. Just remember that even though we describe the sections in the order they will appear in your paper, you do not need to write your paper in this order.

THE ABSTRACT

The abstract is a short but very important part of your paper. The abstract should be no longer than a paragraph, succinctly stating what the project was about, the political context of the study, and the most significant findings or conclusion of the study. The order in which you introduce each of these components, however, is within your discretion. Here is a suggested outline for an abstract.

A. Basis and structure of the study: Transform your research question into a project statement.
B. "So what" response: Briefly describe the relationship of this study to other IR literature.
C. Methodology: Tell the reader what case(s) you used for your study and your method of analysis. If you are using the methodology described in this text, you would indicate in your abstract that you used a single-case analysis or a comparative-case approach for your method of study. Be sure to tell the reader which case(s) you explored in your study, but leave the details for later in your paper.
D. Most significant finding(s): Summarize the most important finding(s) from your study in no more than one or two sentences.

In figure 4.1, we have placed letters that correspond to this outline so you can see how the authors built each component into their paper's abstract.

Abstract

[A]This study examines the relationship between national corporate tax policies and globalization. [A]Specifically, we empirically focus on whether the internationalization of markets has led to lower corporate taxes across OECD countries. [B]In contrast to other studies, we consider whether government education and research programs provide policy makers additional capacity to deal with the pressures of globalization. [B]Such government programs may enhance tax policy independence in an era of globalization. [B]Additionally, we consider whether the interaction of government education and research programs with global capital flows permits governments to modify the demand to lower corporate taxes. [C]Using Ordinary Least Square analysis on a cross-sectional time series data set comprised of 17 OECD countries for the years 1982–1991, [D]we find evidence of an association between government education and higher corporate taxes. [D]Moreover, we demonstrate that the interaction between education policies and capital flow dampens the need for national governments to lower corporate taxes.

FIGURE 4.1

Example of an abstract. Superscript letters indicate elements from the outline described in this chapter. (Source of abstract: Gelleny and McCoy 2001, 509.)

THE INTRODUCTION

The introduction presents the topic of your paper. In this section you should include enough *general* information to draw readers into the project and provide a context sufficient for them to understand your research goal. Think of your introduction as the setup for your paper. An effective way to organize an introduction is to first discuss the dependent variable associated with your research project (as stated without the case details), then briefly discuss your case(s), and finally end your introduction by clearly stating your specific research question.

For example, suppose your research question is "What domestic factors best explain the United States' decisions to use military intervention in Somalia's internal conflict in 1992 but not in Rwanda's in 1994?" The dependent variable is U.S. military interventions, and your case selections are Somalia and Rwanda. If you intend to have a brief introduction, you obviously cannot discuss every U.S. military intervention that has ever taken place. You will need to choose a time frame that provides a reasonable context for your specific study. You might limit the discussion to a brief rundown of military interventions during the last twenty-five years or those that occurred in the post–Cold War era. Or you might choose to discuss only U.S. interventions related to ethnic conflicts. Just remember that the general discussion of your dependent variable should establish the context for why the exploration of your research question is both interesting and valuable.

Follow your discussion of the dependent variable with a brief discussion of your case selection. Entice the reader into reading your paper by stating what is interesting about the case or cases you chose to explore, as opposed to other cases you could have selected. Limit your discussion, however, to brief comments, and expand on them in your paper's methodology section. If you were using our example research question, you would likely provide a brief summary of what is *obviously* similar and different about Rwanda and Somalia. You would want to make sure the reader knows that the United States intervened in one case but not the other. The following information would be appropriate in your introduction:

- the location of each country
- the beginning of each conflict
- the duration of each conflict
- the timing of U.S. interventions
- references to other countries that intervened
- the human toll related to the conflicts (deaths, refugees, migration)

After you have introduced both the dependent variable and your case selection, you should then conclude your introduction by clearly stating your research question in the form of a statement rather than a question. In our example, you could end your introduction by stating, "This study explores which domestic factors best explain the United States' decisions to use military intervention in Somalia's internal conflict in 1992 but not in Rwanda's in 1994."

THE LITERATURE REVIEW

As we discussed earlier in this text, a defining feature of IR research is a study's connection to other research in the field. The literature review section provides this link. The literature review describes the findings of other researchers who have written on subjects related to your project. Included are studies broadly associated with your dependent variable and highly similar to your study. You should not write the literature review section as if you were writing a story because developing a chronology is not the purpose of including a discussion of the scholarly literature. The literature review should describe the research of others and highlight the important independent variables, theories, and conclusions of scholars in the field.

Not all of the literature you reviewed earlier in the research process may be appropriate for inclusion in your literature review. You will need to sort through your notes and decide what to discuss. Scholars tend to vary in how much literature they choose to discuss in their research papers. Some research journals encourage significant discussion of the scholarly literature; others strictly constrain literature discussions by establishing very tight page constraints. We mention this because one professor may give you considerable flexibility in how many pages you may use to write your literature review, while another may ask you to be fairly concise in your literature discussion. Whichever is the case, keep in mind that the easiest way to organize a literature review is to start with a discussion of the research that is broadly or generally related to your project and then gradually work your way toward discussing research that is most closely and specifically related. If you are under tight page constraints, include only the literature most closely related to your project. If you have plenty of latitude, you may broaden your literature review to include articles that are generally but not closely related to your specific study.

Organization of the Literature Review

In Chapter 2 we suggested that you collect the information from each scholarly resource on a single piece of paper or a note card. Begin organizing your scholarly literature research by grouping similar works. We suggest that you resist trying to organize these studies in your head and instead place your note sheets or note cards with the individual study information into physical groupings of similar studies. Try to categorize the studies as best you can in terms of how they relate in similarity to the dependent variable of your study. For instance, if you were using our example research question, "What domestic factors best explain the United States' decisions to use military intervention in Somalia's internal conflict in 1992 but not in Rwanda's in 1994?" you may have found research studies that discuss factors that precipitate external intervention in internal conflicts by bordering states. You may have found studies that explore factors that precipitate intervention by hegemonic states. You may have also found studies specifically about outside interventions into the internal affairs of African states. All of these are related to the same dependent variable of international intervention but they represent sub-topics of this

dependent variable. Before you begin writing, systematically group the articles you have read according to these sub-topics. Then, rather than discuss each article individually, discuss the articles by grouping.

Studies most closely related to your dependent variable are generally discussed last with those more generally associated discussed first. Therefore, with our example, the group of studies on border state interventions would be discussed first because this group of studies would be only generally related to our dependent variable. The group of studies associated with U.S. interventions in Africa would be discussed last because these studies are closely related to the dependent variable of U.S. intervention into Somalia. Figure 4.2 is an illustration of what we mean to physically group your articles and then order the groups for discussion in your literature review.

Content of the Lierature Review

If you have unlimited pages available for writing your literature review, include a summary of all of the article groupings. If your professor limits the number of pages you may use for your literature review and it is necessary to condense your research, drop the most broadly related articles from your discussion and discuss only those that are closely related to your dependent variable.

The most important thing for you to remember is that *you should not individually summarize every article that you include in your literature review.* Rather, you should synthesize the findings of the research. *Write summaries of each group* of studies. Note that it is highly likely that some articles will be discussed more than once in your literature review because they will contain information related to different categories(this means that you may develop
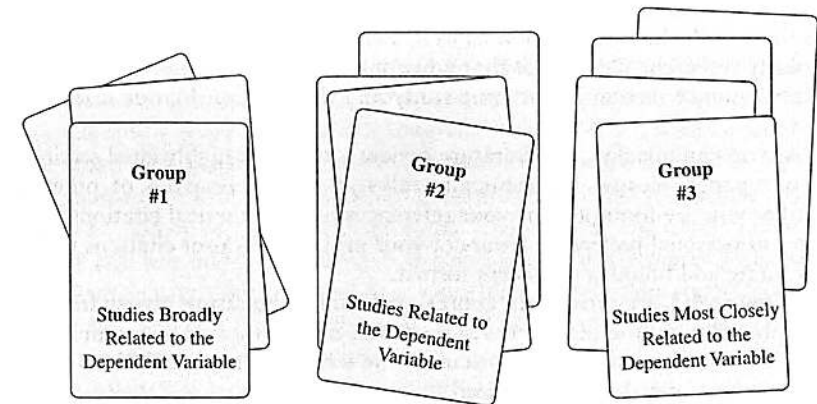

FIGURE 4.2

Organizing the Literature Review.

Group your summaries, then discuss summaries by grouping. Note, you may use more than three groups.

groupings more than once with articles falling into more than one grouping). For instance, large-scale research projects sometimes provide broad findings in addition to specific findings. In such a case, you might reference the study twice: once when talking about broad results and once when addressing more specifically related research findings.

When you begin writing your literature review there is no need for a long introduction to this section of your paper. Your paper's introduction will serve as the lead in to the literature review. You should simply jump into this section of your paper by stating how the scholarly research on your dependent variable is organized. This would roughly be a summary of your initial study groupings. Then start discussing your first group of articles. Discussion points could include:

- Which articles reach the same conclusion but use a slightly different case or methodology to arrive at that conclusion?
- Which articles were about long-term studies?
- Which are studies of isolated events?
- Which studies had similar results?
- Which studies had contradictory findings?

Important for this type of introductory paper, after completing your discussion of the major scholarly literature groupings, you should devote a section of your literature review to discussing the independent variables you used incorporated into your specific project. Because your study uses a limited number of independent variables and cases, it is extremely important that your literature review contain a clear discussion of each of these chosen variables. In fact, if you must limit your literature review to only a short section in your paper, focus on the discussion of your independent variables. If you have chosen to test the hypotheses of other scholars, make sure you discuss these in the literature review as well. This will link your findings to other scholarly research. We suggest that you conclude this section of your paper with a sentence or two about your study and then end with your research question.

As you can imagine, the literature review is the most highly cited section of your paper because it specifically talks about the research of others. Whether you use footnotes for your references or parenthetical citations is a matter of personal preference (yours or your professor's). Your citations must be accurate and follow a consistent format.

In figure 4.3, we provide an abbreviated student literature review from a research paper on the factors that affect U.S. intervention in humanitarian crises. Look at how the author discusses the scholarly literature. Note how studies were grouped and synthesized.

Writing a literature review is often a new skill for students, and as with any skill, you need to practice it. Since you have read a number of scholarly journal articles, you have read a number of literature reviews. Almost all journal articles contain them. As you read more journal articles and write more literature reviews, your skills will improve.

Literature Review
Erin McFee
What factors affect U.S. intervention in humanitarian crises?
Cases: Democratic Republic of Congo and Sudan

Gross violations of human rights, mass displacements of populations, genocide, and state failure are common occurrences in today's world. Many of these humanitarian crises are the result of intrastate conflicts in third-world countries and are particularly prevalent on the African continent. This has resulted not only in literature seeking to explain this phenomenon (Henderson and Singer 2000) but also in a wide range of literature on interventions by outside forces in these conflicts. The response to the development of increasing occurrences of intrastate conflict resulting in humanitarian crises has been calls for increased international intervention. This has led to a reevaluation of international norms such as sovereignty and security (Dowty and Loescher 1996) and a plethora of literature on international law concerning intervention and justification of interventions (Dowty and Loescher 1996; Fixal and Smith 1998; Weil 2001). This literature suggests an increase in the acceptance and legitimacy of humanitarian armed interventions despite the contradictions that often arise in regard to principles such as sovereignty. Some scholars have addressed the conditions that most often lead to successful interventions (Carment and Rowlands 1998; Krain 2005; Regan 2002). Other scholars have studied the effect of intervention on the duration of conflict (Regan 2002, 1996; Blach-Lindsay and Enterline 2000; Krain 2005).

In comparison to literature on legality and justification, relatively few scholars have looked at why nations or institutions choose to intervene (Jakobsen 1996; Werner 2000; Lowenheim 2003; Regan 1998). Factors noted here include the saliency of a country defined by location, resources, and former political relationships. Other factors include the likelihood of success (Jakobsen 1996; Regan 1998), the ramifications of civil war and the movement of refugees for international stability (Forman 1972; Dowty and Loescher 1996; Werner 2000; Yoon 1997; Regan 1998), and public opinion (Klarevas 2000; Burk 1999; Boettcher 2004; Yoon 1997; Regan 1998; Nincic 1997).

Very few scholars have taken into account moral accountability and prestige as a factor that affects a country's decision to intervene in an intrastate conflict. Lowenheim (2003), however, finds evidence that it could be a substantial contributing factor in some cases. Regan (1998)

claims humanitarian issues do matter in decisions to respond to conflicts; however, it is not clear if action is based on a genuine feeling of responsibility or a calculated decision to bolster image. This paper will examine this factor, along with saliency, the likelihood of success, degree of instability, and public opinion in the cases of the Democratic Republic of Congo and Sudan.

[The following reference list would appear at the end of the paper in the references section.]

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Henderson, Errol, and David Singer. 2000. Civil war in the post-colonial world, 1946–92. *Journal of Peace Research* 37, no. 3:275–99.

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Krain, Matthew. 2005. International intervention and the severity of genocides and politicides. *International Studies Quarterly* 49, no. 3:363–87.

Lowenheim, Oded. 2003. Do ourselves credit and render a lasting service to mankind: British oral prestige, humanitarian intervention, and the Barbary pirates. *International Studies Quarterly* 47:23–48.

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Werner, Suzanne. 2000. Deterring intervention: The stakes of war and third-party involvement. *American Journal of Political Science* 44, no. 4:720–32.

Yoon, Mi Yung. 1997. Explaining U.S. intervention in third-world internal wars, 1945–1989. *Journal of Conflict Resolution* 41, no. 4:580–602.

FIGURE 4.3

Example of a student literature review and the related reference list entries. (Source of excerpts: McFee 2007.)

COMMON ERRORS IN WRITING A LITERATURE REVIEW

Students may make a number of common mistakes when first learning how to write a literature review:

- introducing studies but not discussing their findings
- using information from scholarly resources to write a narrative about the topic rather than describing the studies themselves
- discussing one study after another without discussing how they are linked to one another
- failing to state common findings among a group of studies
- not carefully identifying independent variables explored in each study, which then makes comparison and generalization about how articles are related very difficult
- including articles that have only slight or no connection to the research study

If you take care to avoid these errors, you will make your research paper much stronger.

THE RESEARCH DESIGN (METHODOLOGY)

The methodology section of a research paper is written differently than any other section. It is meant to be a technical discussion developed for the purpose of peer review and replication. Your methodology section should include (1) choice of cases, (2) your hypotheses along with justification for them, and (3) detailed discussion of how variables were measured and compared (including definitions and scales used in your analysis and the sources of your data or information). If you are an advanced student using more sophisticated data analysis techniques than simple frequency comparisons, you should also discuss the methodological tool(s) used in your analysis.

Discussion of Cases

We suggest that your methodology section begin with a restatement of your research question in the first paragraph. While this may be redundant if you also included your research question at the end of your literature review, after reintroducing your research question, inform the reader what case or cases you chose for your study. You should write up this section describing the method you used for case selection (as described in Chapter 3). For example, if you chose particular cases of conflict to explore because they had the most battle deaths on the African continent since WWII, then you should say this is why you chose these cases rather than those with lower battle deaths. If you chose to look at two particular treaties because they had high rates of signatures parties but low rates of ratification, you should explain this and why this makes these cases important for exploration. Make it clear to the reader that while your choice of cases was to some degree subjective, selection was not arbitrary.

Discussing Hypotheses

Another reason for reintroducing your research question at the beginning of your Analysis section of your paper is that your question provides a quick setup for discussion of your hypotheses. As we also indicated in Chapter 3, the difference between simply guessing and formulating a hypothesis is that when forming a hypothesis, the researcher uses established knowledge to speculate on the relationship between variables. When discussing the development of hypotheses for your study, we suggested that you formulate hypotheses using variables discussed by other researchers rather than trying to divine them autonomously. If you used this method, you will need to clearly state not only your hypotheses but also the basis you used to formulate them, taking care to cite the authors you looked to in order to formulate these hypotheses.

Note: Even though you will likely formulate your hypotheses based on your specific case project, you should state your hypotheses in a general form so that they could be tested in other cases as well. Hence, you should not refer to your specific case(s) when stating your hypotheses.

For example, let's take this research question: "What factors explain the United States' support of the Montreal Protocol for the elimination of chlorofluorocarbons but not the Kyoto Protocol to limit greenhouse gas emissions?" The study's hypotheses may include the following:

H1   United States ratification of international environmental agreements will not occur if domestic interest group opposition is strong and public opinion is unfavorable.

H2   Partisan control of Congress is not a deciding factor in the ratification of international environmental agreements if there is strong public support and international cooperation on the issue.

As you discuss the first hypothesis, be sure to mention which scholars (from your literature review) suggest that domestic interest group opposition may affect whether or not international agreements are ratified. Do the same for public opinion. Then give a brief explanation of why it would make sense to you (and the readers) that if domestic interest group opposition is strong and public opinion is unfavorable, the United States would not ratify an international environmental agreement. This may be as simple as stating that in the American political system, interest groups and public opinion have a significant effect on the behavior of the Senate, which ratifies agreements.

When discussing the second hypothesis, set out which scholars suggest that a particular party's control of Congress (partisan control) will or won't be important for an explanation of why an international agreement is ratified. Do the same for the presence of international cooperation. You have already mentioned those who have studied public opinion when discussing the first hypothesis, so you do not necessarily have to repeat that information. Then explain why it would be plausible that partisan control will not significantly affect whether or not an agreement is ratified if there is public and international support. The idea in this section is to explain how your hypotheses were developed and why they make sense or are plausible.

Discussing Measurement and Sources of Data or Information

Once you have introduced your hypotheses, you need to explain the method of comparison or measurement you used to test each hypothesis—but you should leave the discussion of findings for the analysis section of your paper. This includes measurements for each variable. Again, there is no set style for doing this, but the goal must be to describe the methodology clearly enough that the study can be replicated. Some researchers write out their methodology in paragraph form, while others use bullets, tables, and charts to explain their methods. You should consult your course professor for her or his preference on style. We generally suggest using a paragraph format if your variables are fairly simple and easy to describe. If your variables require several measurements or the use of scales in order to compare the variables over time, we suggest that you use other organizational formats. In addition, you must include the sources for your data or information. If you are measuring public opinion, for example, where did

you get the numbers you use in your research? Remember that in this section you do not tell us what the numbers are; you tell us what you have measured (e.g., public opinion) and where you got the numbers that you present in the case study and analysis section that follows your discussion of the research design. Figures 4.4 and 4.5 provide simple examples for how to approach writing a methodology. Note that in these examples, one can see where the author provides definitions for terms, descriptions for how variables are measured, and the rationale for methodological choices.

This study's dependent variable is the United States' support of the Montreal Protocol and the Kyoto Protocol. For purposes of this study, we define support as formal Senate ratification of the protocol by the United States Congress. We chose to measure support in this manner, as opposed to considering the United States' initial agreement to the protocol, because such protocols are not binding for the United States unless ratified by the United States Congress. Therefore, . . .

FIGURE 4.4
Example of a methodology section: operationalizing the dependent variable.

This study explores four independent variables: (1) public support for ratification of each protocol, (2) domestic interest group opposition, (3) partisan control of the executive and legislative branches of government following negotiations, and (4) level of international cooperation for each protocol.

Public support was measured by using public opinion polls published by The Gallup Poll during the year following when the United States became a signature party to each protocol. We categorized public opinion in three categories: low, moderate, and strong support. Public support of 30 percent or less was categorized as low public support. Public support of 31–60 percent was considered moderate. Public support of 61–100 percent was considered to be strong.

Domestic interest group opposition was defined as those groups that contributed oral testimony before the congressional committees that conducted hearings on the protocols and those interest groups that submitted written statements to Congress regarding the protocols. Sources for this information included the Congressional Record and transcripts of congressional committee hearing records obtained through http://thomas.loc.gov. . . .

FIGURE 4.5
Example of a methodology section: operationalizing the independent variables.

THE CASE PRESENTATION, ANALYSIS, AND DISCUSSION OF FINDINGS

Before beginning any analysis, there are a few things to remember as you move forward with your analysis.

First, using a narrow range of variables and only a few cases makes it difficult to confidently generalize about your findings. A case study methodology allows you to observe which variables are *likely* to have had an effect on the dependent variable, but you will not be able to discern which variable *may have* been more important than another. However, uncertainty is acceptable if the researcher uses analytical skills to make reasonable assessments of which variables may have been important.

Second is to note that we keep using phrasing such as "likely" and "may have." That is because when analyzing data and evidence, a researcher has no way to know with certainty which variables may have been most important in explaining a dependent variable unless the researcher is absolutely sure that he or she looked at all possible independent variables. (In your research project, you will address only a limited number.) In most cases, political scientists look at a range of variables but seldom all possible variables. Political scientists must therefore recognize that their analysis is merely the best assessment among the variables they chose. That means being humble in both one's assessments and one's presentation of results. If you have been careful in how you have gathered information and systematic in how you analyze this information, you can draw interesting and valid conclusions. To some degree, however, the strength of your arguments will hinge on how well you lay out your study's findings. In this sense, you must translate the evidence into a format that is understandable and if you are using more than one case, evidence that can be compared across cases.

While there is no set order formula for how best to write up your analysis, one approach is to use the following sequence in your paper.

If using only one case:

1. Provide a general description of the case
2. Layout the evidence for the first variable
3. Analyze the evidence for the first variable
4. Layout the evidence for the second variable
5. Analyze the evidence for the second variable
6. Continue this sequence until you have covered all of your variables
7. Discuss the variables in the context of the hypotheses
8. Develop conclusions

If using more than one case:

9. Provide a general description of the cases
10. Layout the evidence for the first variable for case one and then for case two
11. Analyze the evidence for the first variable as it applies to case one and then as it applies to case two
12. Layout the evidence for the second variable for case one and then for case two

13. Analyze the evidence for the second variable as it applies to case one and then as it applies to case two
14. Continue this sequence until you have covered all of your variables
15. Discuss the variables within the context of the hypotheses

Analyzing Data

In Chapter 3 we suggested that you create a folder for each variable in your study and then use that folder for the collection of information and evidence associated with that variable. We suggested this because your task in the analysis section of your paper is to distill down all of the information and evidence you have collected on each of the variables in your study, into summary form that can be used to respond to your hypotheses and ultimately to answer your research question. Your first task then, is to figure out how best to present the data or evidence. Your second task is to interpret the data or evidence.

Keep in mind, you may have a folder that is overflowing with information. Your task as a researcher and scholar is to process this information for the reader. Often a graph, chart, figure or table may explain a variable better than written description. Table 4.1 shows a hypothetical comparison of unemployment data from two countries. You can see how this table conveys a lot of information about this variable (unemployment) over a long period of time for two countries in a very succinct manner. (Note: If this table was included in a research paper, the table would need to include a source for where the data were obtained). If you use a graphic of this sort, you should also resist giving a detailed description. When using graphs, charts, figures, and other illustrations to convey information about variables, keep your discussion of the variables to issues that need additional clarification or highlighting.

TABLE 4.1

Analyzing the Strength of Independent Variables

Research question: What factors contributed to the onset of ethnic conflict in countries A and B in 1994?

Dependent variable: Onset of ethnic conflict in country A and country B in 1994

Independent variable 1 (IV1): Unemployment

IV1, Case 1 (Country A)	IV1, Case 2 (Country B)
1984: 20% unemployment	1984: 6% unemployment
1986: 21% unemployment	1986: 4% unemployment
1988: 19% unemployment	1988: 8% unemployment
1990: 20% unemployment	1990: 6% unemployment
1992: 22% unemployment	1992: 14% unemployment
1994: 20% unemployment	1994: 20% unemployment

Analysis of variables should entail looking at how the data have changed over time and patterns of activity. If you are using more than one case, analyze the data from a single variable for each individual case before comparing the data across cases. Finally, we suggest that you reflect on your hypotheses after you have analyzed the independent variable data. In table 4.1 we illustrate two different scenarios one might find when collecting data on unemployment levels.

In both cases unemployment was at 20 percent at the onset of ethnic conflict in 1994. What assumptions can be made about the data? By U.S. standards, both countries had high unemployment rates. So can we assume that unemployment may have been a factor in both cases? To make any assumptions about whether or not the high rates of unemployment contributed to the onset of ethnic conflict, we need to establish a context for understanding the data. Certainly, a 20 percent unemployment rate in the United States would be both rare and economically destabilizing since unemployment rates in this country have seldom exceeded double digits since the Great Depression. But unemployment in many countries around the world has exceeded this level for decades. In some cases this has been highly destabilizing, and in other cases countries have adapted to such levels. Therefore, we need to rely on comparison data so that we have some sense of whether the unemployment rates of either country were atypical for those cases. This shows how important context is to your analysis.

In the first case, unemployment remained relatively stable at the high rate of approximately 20 percent for a decade. Continued high unemployment may have contributed to destabilization in country A, but one cannot assume with any certainty that this level alone was responsible for the onset of conflict; otherwise, why did it not occur the previous year or even three years earlier? In country A, it would be safer to assume that unemployment coupled with other variables may better explain the onset of the conflict. In the second example in table 4.1, you can see that unemployment levels more than doubled in the four years prior to the onset of the conflict after being relatively stable for more than half a decade. It would be reasonable to assume that the rapid increase in unemployment levels in country B contributed to destabilization and conflict more so than the high steady rate of unemployment noted in country A.

If you developed a single-case–based project, each variable should be explained in your final paper in much the same way as the thought process you used when analyzing and drawing conclusions about individual variables. If you developed a comparative-case–based project, you should discuss in your paper each variable as it applies to each country first, then compare the variables to one another. It is likely that by the time you have looked at each individual variable, you may have reached some conclusion about what factors may best explain your dependent variable, or you may have reached the conclusion that none of the variables explain it. You should resist discussing these conclusions, however, until you have discussed your hypotheses. Only after you have discussed each individual variable should you discuss your hypotheses.

Discussing Hypotheses

When a researcher develops hypotheses, he or she is making educated guesses. But until data are gathered and careful observation is made, they remain guesses. Therefore, even though hypotheses were based on the best available information (such as the results from other studies), political phenomena are not static. No two cases are exactly alike, and even the most carefully considered hypotheses can be wrong. Reaching the conclusion that your hypotheses were not correct is fine as long as you were careful and systematic in gathering your data or evidence to explore them. If after looking at your data you find that your hypotheses were incorrect, you should not go back and change them so that they reflect your conclusions. It is okay to refute a hypothesis in your case. In fact, sometimes, finding the unexpected is far more interesting than finding the expected.

Because we encouraged you to combine more than one variable in your initial hypotheses, it may not be easy in all cases to deduce whether or not your hypotheses are supported by the data. Without multiple cases for comparison, your analysis will be preliminary. You can discuss only what you see, and you should not try to extrapolate beyond what you found. Therefore, you need to carefully explain the reasoning you used to draw your conclusions about your initial hypotheses, noting which evidence was weak and which appeared strong.

When discussing your hypotheses, do not assume that the data tell you more than they do. For instance, if we go back to the example in table 4.1 and look at country B, we may assume that unemployment could have contributed to civil unrest, but unless we gathered data on public opinion, media coverage of unemployment levels, and other related issues, we would only be guessing if we were to conclude that citizens were knowledgeable or highly concerned about this condition. Our point is that you should stick to analyzing the data that you have and be careful not to make assumptions you cannot support.

Once you have discussed individual variables and each of your hypotheses, you have finished the analysis section of your paper. Be sure to sum up your findings in a single sentence or two that can be used in your abstract. If you can do this, all that is left to complete your project is a relatively short conclusion section followed by the bibliography or reference list.

Note: You should always keep in mind that political scientists may disprove something in a case or cases, but we never prove anything. There are simply so many variables at work that we cannot explore all of them. We cannot know with absolute certainty that what we believe is correct is not influenced by other factors as well. Therefore, when writing up your analysis, it is acceptable to state, "The data disprove the hypotheses in this case," but it is not acceptable to write, "The data prove the hypotheses." In the latter case, you may say only that the data "support" the hypotheses.

THE CONCLUSION

The conclusion section of a research project is short, but students often find it difficult to write a conclusion if the analysis section contained a thorough discussion of the data and hypotheses. It is acceptable to use the conclusion

section of your paper to discuss what you were unable to study or were unsure of at the completion of your project. For instance, you could discuss any reservations you may have concerning the strength of the relationships among your variables. You might also discuss alternative hypotheses that could be tested later. You might introduce additional questions that researchers could explore further or suggest how your study could be expanded to include other variables or other cases.

THE BIBLIOGRAPHY OR REFERENCE LIST

Your research paper should include a reference list or bibliography. Bibliographies and reference lists serve the same purpose but use different formats. In general, the reference list format is used if the author used parenthetical citations (as shown earlier in figure 4.2), and a bibliography is used if the author used footnotes. We provide some examples for citing some of the more complicated references in Part III of this text, but you should consult a style guide to develop this aspect of your paper.

FREQUENTLY ASKED QUESTIONS

"I have not had a methodology course, so how can I analyze my data?"

- Even if you cannot apply a sophisticated data analysis approach, you can still analyze the information you collect. If you have no formal methodological background, we suggest that you focus more on describing the data you collected than on making a hunch sound like a fact.
- The less methodological background you have, the more humble you should be in describing connections between variables. Use statements such as, "There appears to be . . ." or "The data indicate there may be. . . ."
- Never use the word "prove" or "proof" when describing findings, regardless of your method of analysis. Remember, you looked at only one or a few cases and only a limited number of variables. Again, humility is best.

"My hypothesis was wrong. Is that okay?"

- It's okay to be wrong as long as your hypothesis was based on variables selected with sound reasoning. In fact, showing that a well-developed hypothesis was not supported is often an interesting finding because it is surprising. Remember, we learn both from discovering that our hypotheses are correct and from finding them unsupported.

EXERCISES FOR CHAPTER 4

1. Choose a journal article abstract. As shown in figure 4.1, identify the following parts:
   a. the basis and structure of the study
   b. the "so what" response
   c. the methodology
   d. the most significant finding(s)

Comparatively Evaluating Potential Dissertation and Thesis Projects

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Graduate students suffer from many pressures when writing a dissertation. Deadlines loom, jobs are highly competitive, publishing is always a bonus, and these are often combined with outside research, teaching fellowships, or other occupations. In order to finish a quality dissertation without too much wasted time or effort it is useful for students to begin early and to think hard about their projects in a variety of ways. Students may have a broad conceptual interest or field interest without a focused and tractable project. In addition to the normal practice of discussing potential projects with advisors and mentors, there are several ways to evaluate potential projects that may be overlooked. This essay helps bring a good dissertation project to the front of several potential ideas a student might have by describing several characteristics for comparison across topics. In addition, this essay provides a rubric by which students can develop and discuss a project with faculty and colleagues. Without a doubt, one of the most important aspects of preparing a dissertation project is to discuss that project with faculty mentors and potential committee members (Banesh 2001). Between these discussions, or before the first discussion of potential projects, students can spend considerable time thinking about various ideas for their thesis or dissertation. Students approaching their project systematically may have many projects they are considering and wish to narrow down those projects to a manageable few before discussing them with advisors. As a first time dissertation writer, however, most graduate students are unaware of criteria that can be used to

evaluate and compare their ideas objectively so they can compare several project ideas and narrow down the field. The criteria described here combine and extend other criteria previously developed, such as developing questions that are important in the real world and those that contribute to scholarly literature (King, Keohane, and Verba 1994). The criteria described below were developed specifically for dissertation projects, but are also very useful for students writing theses for other purposes such as undergraduate senior projects. The guide provided here should enable students to compare several potential ideas objectively to begin to find a viable project. Although the initial development of a thesis project based on a student's theoretical or empirical interests is mostly idiosyncratic and personal (See King, Keohane, and Verba 1994; Van Evera 1997), once a student's interests emerge there are some common ways to objectively evaluate several dissertation projects. This essay helps students develop several ways to think about their dissertation projects and create a rubric so that several projects can be evaluated on comparable terms.

The essay does not discuss writing techniques or the stages necessary to completing a dissertation project. There is extensive literature on writing dissertations and getting through the writing stages (e.g., Rudestam and Newton 2001). This essay discusses the often unattended to area of project development through an explanation of several criteria that can aid students in the development of their projects. By no means is this essay intended to replace student interaction with faculty regarding their dissertation project. Instead, the essay complements these discussions by preparing graduate students with ways to begin to evaluate several projects in a systematic way. The essay provides guidelines to help focus a project and should be taken as a whole, not as steps in the research process. After describing all the elements within this essay, the

project itself and the demands required of the researcher to complete the project will become clearer. The criteria described below can be followed in conjunction with the guide-sheet in Figure 1.[1]

Before several projects can be evaluated, students must have a reasonable command of the literature and theoretical and empirical questions that are not answered adequately in their field. Students who have such extensive knowledge most likely have several ideas that are viable thesis projects, but they may also vary according to the criteria examined below. One way to begin to solidify the project is to generate a *project title* and a short *summary* (Brown 2005). By doing this, the student will formulate some idea of what the dissertation will look like, a good place to start when developing and evaluating the dissertation idea. Often it is necessary to quickly describe the project to colleagues at conferences or in hallways, and the title serves as a small, pithy description. Of course, the title can and probably will change throughout the project's research and writing.

Writing a short, one-paragraph *summary* of the project provides a slightly longer project description. Adding a little more information than the title helps students remember the project's emphasis and a few ideas regarding its direction or focus. Having a short statement about the dissertation is useful because many people the student talks to will not have a deep interest in the project. The summary serves to engage those that do show interest in the one-sentence title description. This summary does not need to resemble an abstract because not all of the details of the project may be worked out. In addition to this summary, it is a good idea for the student to describe their *personal interest* in the project. The project will consume half or more of the time the student spends in graduate school and it is necessary to have a strong interest in the project. The more interesting the project is to the researcher,

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Figure 1
Guide for Evaluating Dissertation Topics

Dissertation Title		What's the first title for your project that will give it initial direction?
Summary		How would you describe the project to a colleague during a two-minute elevator ride or other chance encounter?
Variables	IV	What is the primary cause of the behavior or event you would like to explain?
	Other IV's	What are other plausible causes of the behavior?
	DV	What is it that the project will try to explain?
Your Interest		Why do you want to do this project?
Tractability	Reach	How big or how small is the project?
	Data Availability	Do you have to generate new data?
	Problem Clarity	Is the problem you are addressing clear?
Methods		What methods do you need to learn?
So What?		Why is this project important for the field?
Problems		What problems might you face?
Future Projects?		What future projects could come from working on this one?
Job Prospects		How will this project prepare you for the job market?
Resonance with Organ. Culture		How well does this project sit within the organization of your current university?
Committee Member Support?		How do your potential committee members feel about the project?

the more likely that interest can be communicated to audiences at job talks and other presentations. Later on in the research process, during an especially difficult or frustrating period, it may be useful to return to this description of interest and the basic summaries to focus attention on why the project is important.

It is also worth considering the likely *variables* in the dissertation, if any. There are three important sets of variables that should concern students at the early stage: the independent variable of interest, the dependent variable of interest, and other independent variables (controls). By beginning to specify each set in a simple, conceptual way, the project begins to take shape around what will be explained and what will explain it. Concept building need not be complex at this stage, and these basics can be further developed later. The basic conceptualization of variables is also important for knowing whether data are available for the dissertation.

The *tractability* of the research, consisting of reach, data availability, and problem clarity (Useem 1997), will greatly affect the ability of the student to finish the project in a reasonable time. Reach concerns the degree to which the paper seeks new ground. Is it a big idea that no one has worked on yet? Is the argument going against all mainstream ideas in a field? Does the project reach closely by evaluating a simple causal

claim or case study? A project that has relatively short reach may be more tractable than research that attempts to open up a completely new area of study that has received little if any attention in the past; however, the former may have less of an impact than longer reaching projects. Data availability is very important for the tractability of a project. Extensive archival or field research will add considerable time to the project. Problem clarity refers to how well the problem has been defined and explored already. If the dissertation is breaking new ground into an area not researched, the problems and questions encountered may be quite complex. On the other hand, projects with a larger literature may be easier to handle because others have already defined terms and created a standard ground from which new projects emerge.

The *methods* description is also important for tractability. Although only one or a few sentences is necessary, it is important to know whether the student will need to learn new research methods and what those methods might entail. Training on methods may be costly or time consuming, especially if it requires a trip to a special institute. Although much of the methodological training students receive occurs earlier in graduate programs, some more specialized training may be required during the early part of working on the project. Learning OLS regression techniques in a methods

course early in graduate school may not be sufficient if the type of data and questions require the use of logit or probit techniques.

So What? This section is of vital importance to any project idea. The student should reflect on what this dissertation project will mean to a larger audience. Is it a single case study that will be of interest to a smaller group of scholars? Is it a theoretical piece that might have widespread application across subdivisions in a particular field? Some reflection on how the project will fit within the larger context of the graduate student's discipline is vital for evaluative purposes and for job prospects in the future. A project that can speak to a large audience is much more likely to attract attention from scholars in other fields and across disciplines, which can increase one's job prospects. This section assists students in understanding how a particular project might be marketed to the larger audience outside their own particular sub-discipline.

The last few sections should be written regarding *problems* and possible *future projects* from the dissertation. It is a good idea to start thinking about some problems the graduate student might encounter when writing and researching the project as well as some side projects that might emerge. It is very likely that problems will arise that were not considered before beginning, but considering some possible problems may help to minimize them. A good dissertation project will spawn various other side projects that may be of interest after completing the dissertation research itself. During the later stages of research as well, some conference papers or publishable articles may emerge from the dissertation work. Employers will usually look positively on publishing from chapters reformatted for journals while writing a dissertation (Wuffle 1989). Any publication is better than none, and thinking about possible extensions and publications that may emerge from the dissertation can be done early on while developing and comparing potential projects.

The two final sections involve *resonance* within the student's university and among faculty advisors or committee members (Useem 1997). Since the graduate student has spent considerable time working with faculty in a department, none of the topics should fall completely outside the academic culture and

preferences of faculty. However, it is possible that some topics have greater resonance with faculty because they relate more closely with some of their personal expertise than other projects. These projects may get more attention from faculty who have a greater interest in the work. The same holds true for the thesis committee. Approaching each of the potential committee members with the above criteria laid out may be a helpful starting point for discussions on whether the project falls within their interest and expertise. In some cases, students must find committee members outside their department or field due to their department or university's requirements. These criteria may be especially helpful for the prospective committee member to get a sense of the project before committing as a committee member.

After writing down all this information for all the graduate student's ideas, the student will be in a good place to begin evaluating dissertation options. After examining all of the criteria described above for several potential project ideas, the student can examine the different characteristics of each project to determine which ones will present well, are interesting to the student, will be tractable, and have good job prospects relative to the others. Of course there will always be trade-offs. Some more tractable projects, which could be completed more quickly, may have less impact and fewer future projects or job prospects. Other projects with a higher payoff may never get finished if they are too complex and far-reaching. Once the student has a clearer idea of what each project demands and

how each project may contribute to their discipline and the wider academic community, the student will be in a better position to discuss the project with advisors and colleagues. These criteria are only starting points for a discussion with others, and will not decisively help a student decide which project will be most suitable. Discussing the projects with others is always a great way to discover new issues and benefits from any project. Graduate students should talk with as many people as possible and use these criteria as a guide when discussing the project and writing the prospectus. The end result will likely be a much better dissertation completed within a reasonable amount of time.

Notes

1. An electronic version of the guide-sheet that can be filled in as the student progresses with their idea is available from www. uoregon.edu/~srothma1/images/Dissertation EvalWorksheet.xls or by contacting the author.

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Contents

Chapter 1

What is critical thinking?

Learning outcomes

This chapter gives you opportunities to:

- understand what critical thinking is
- recognise some of the benefits associated with critical thinking skills
- recognise the personal qualities associated with critical thinking
- recognise barriers to the development of good critical thinking skills
- assess your current understanding of critical thinking and identify your priorities for improvement

Introduction

This chapter provides a general orientation to critical thinking. It examines what is meant by 'critical thinking', the skills associated with it, and the barriers that can hinder effective development of critical approaches. Many people can find it difficult to order their thoughts in a logical, consistent, and reasoned way. This book starts from the premise that skills in reasoning can be developed through a better understanding of what critical thinking entails, and by practice.

Critical thinking is a cognitive activity, associated with using the mind. Learning to think in critically analytical and evaluative ways means using mental processes such as attention, categorisation, selection, and judgement. However, many people who have the potential to develop more effective critical thinking can be prevented from doing so for a variety of reasons apart from a lack of ability. In particular, personal and emotional, or 'affective', reasons can create barriers. You are invited to consider, in this chapter, how far such barriers could be affecting your own thinking abilities and how you will manage these.

What is critical thinking?

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Critical thinking as a process

Critical thinking is a complex process of deliberation which involves a wide range of skills and attitudes. It includes:

● *identifying other people's positions*, arguments and conclusions;
● *evaluating the evidence* for alternative points of view;
● *weighing up opposing arguments* and evidence fairly;
● *being able to read between the lines*, seeing behind surfaces, and identifying false or unfair assumptions;
● *recognising techniques* used to make certain positions more appealing than others, such as false logic and persuasive devices;
● *reflecting on issues* in a structured way, bringing logic and insight to bear;
● *drawing conclusions* about whether arguments are valid and justifiable, based on good evidence and sensible assumptions;
● *presenting a point of view* in a structured, clear, well-reasoned way that convinces others.

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Scepticism and trust

Ennis (1987) identified a range of dispositions and abilities associated with critical thinking. These focused on:

● the ability to reflect sceptically;
● the ability to think in a reasoned way.

Scepticism in critical thinking means bringing an element of polite doubt. In this context, scepticism doesn't mean you must go through life never believing anything you hear and see. That would not be helpful. It does mean holding open the possibility that what you know at a given time may be only part of the picture.

Critical thinking gives you the tools to use scepticism and doubt constructively so that you can analyse what is before you. It helps you to make better and more informed decisions about whether something is likely to be true, effective or productive. Ultimately, in order to function in the world, we have to accept the probability that at least some things are as they seem. This requires trust. If we can analyse clearly the basis of what we take as true, we are more able to discern when it is reasonable to be trusting and where it is useful to be sceptical.

Method rather than personality trait

Some people seem to be more naturally sceptical whilst others find it easier to be trusting. These differences may be because of past experiences or personality traits. However, critical thinking is not about natural traits or personality; it is about a certain set of methods aimed at exploring evidence in a particular way. Sceptical people can require structured approaches that help them to trust in the probability of an outcome, just as those who are more trusting require methods to help them use doubt constructively.

Critical thinking and argument

The focus of critical thinking is often referred to as the 'argument'. Chapter 3 identifies the features of an argument in critical thinking. The argument can be thought of as the message that is being conveyed, whether through speech, writing, performance, or other media. Critical thinking helps you to identify the obvious and the hidden messages more accurately, and to understand the process by which an argument is constructed.

Reasoning

Knowing our own reasons

Critical thinking is associated with *reasoning* or with our capacity for *rational* thought. The word 'rational' means 'using reasons' to solve problems. Reasoning starts with ourselves. It includes:

● having reasons for what we believe and do, and being aware of what these are;
● critically evaluating our own beliefs and actions;
● being able to present to others the reasons for our beliefs and actions.

This may sound easy, as we all assume we know what we believe and why. However, sometimes, when we are challenged on why we believe that something is true, it becomes obvious to us that we haven't really thought through whether what we have seen or heard is the whole story or is just one point of view. There are also likely to be occasions when we find we are not sure what we consider to be the right course of action or a correct interpretation. It is important to examine the basis of our own beliefs and reasoning, as these will be the main vantage points from which we begin any critical analysis.

Critical analysis of other people's reasoning

Critical reasoning usually involves considering other people's reasoning. This requires the skill of grasping an overall argument, but also skills in analysing and evaluating it in detail.

> **Critical analysis of other people's reasons can involve:**
>
> ● identifying their reasons and conclusions;
> ● analysing how they select, combine and order reasons to construct a line of reasoning;
> ● evaluating whether their reasons support the conclusions they draw;
> ● evaluating whether their reasons are well-founded, based on good evidence;
> ● identifying flaws in their reasoning.

Constructing and presenting reasons

Reasoning involves analysing evidence and drawing conclusions from it. The evidence may then be presented to support the conclusion. For example, we may consider that it is a cold day. Someone who disagrees may ask why we believe this. We may use evidence such as a thermometer reading and observation of weather conditions. Our reasons may be that the temperature is low and there is ice on the ground. We use basic examples of reasoning such as this every day. For professional and academic work, we are usually required to present such reasoning using formal structures such as essays, or reports with recommendations. This requires additional skills such as knowing how to:

● select and structure reasons to support a conclusion;
● present an argument in a consistent way;
● use logical order;
● use language effectively to present the line of reasoning.

Why develop critical thinking skills?

Benefits of critical thinking skills

Good critical thinking skills bring numerous benefits such as:

- improved attention and observation
- more focused reading
- improved ability to identify the key points in a text or other message rather than becoming distracted by less important material
- improved ability to respond to the appropriate points in a message
- knowledge of how to get your own point across more easily
- skills of analysis that you can choose to apply in a variety of situations.

Benefits in professional and everyday life

Skills in critical thinking bring precision to the way you think and work. You will find that practice in critical thinking helps you to be more accurate and specific in noting what is relevant and what is not. The skills listed above are useful to problem-solving and to project management, bringing greater precision and accuracy to different parts of a task.

Although critical thinking can seem like a slow process because it is precise, once you have acquired good skills, they save you time because you learn to identify the most relevant information more quickly and accurately.

Ancillary skills

Critical thinking involves the development of a range of ancillary skills such as:

- observation
- reasoning
- decision-making
- analysis
- judgement
- persuasion

Realistic self-appraisal

It is likely that you already possess some or all of these skills in order to cope with everyday life, work or previous study. However, the more advanced the level of study or the professional area, the more refined these skills need to be. The better these skills are, the more able you are to take on complex problems and projects with confidence of a successful outcome.

It is likely that many people over-estimate the quality of the critical thinking they bring to activities such as reading, watching television, using the internet, or to work and study. It is not unusual to assume our point of view is well-founded, that we know best, and that we are logical and reasonable. Other people observing us may not share this view. A lack of self-awareness and weak reasoning skills can result in unsatisfactory appraisals at work or poor marks for academic work. Certainly, comments from lecturers indicate that many students are prevented from gaining better marks because their work lacks evidence of rigorous critical thinking.
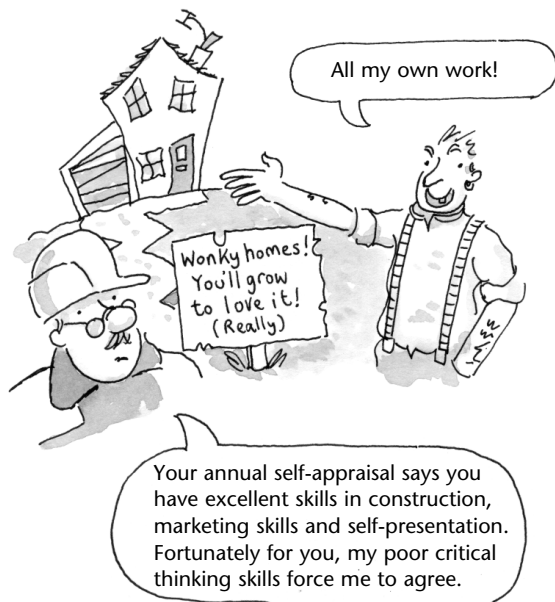
Underlying skills and attitudes

Critical thinking rarely takes place in a vacuum. Higher-level critical thinking skills usually require some or all of the skills and attitudes listed below.

Underlying thinking skills

Critical thinking assumes abilities in a range of skills such as categorising, selection and differentiation, comparing and contrasting. These skills are examined in Chapter 2.

Knowledge and research

Good critical thinkers can often detect a poor argument without a good knowledge of the subject. However, critical thinking usually benefits from background research. Finding out more about a subject helps you to make a more informed judgement about whether relevant facts, alternative explanations and options have been covered sufficiently.

Emotional self-management

Critical thinking sounds like a dispassionate process but it can engage emotions and even passionate responses. This should not surprise us when we consider that reasoning requires us to decide between opposing points of view. In particular, we may not like evidence that contradicts our own opinions or beliefs. If the evidence points in a direction that is unexpected and challenging, that can rouse unexpected feelings of anger, frustration or anxiety.

The academic world traditionally likes to consider itself as logical and immune to emotions, so if feelings do emerge, this can be especially difficult. Being able to manage your emotions under such circumstances is a useful skill. If you can remain calm, and present your reasons logically, you will be better able to argue your point of view in a convincing way.

Perseverance, accuracy and precision

Critical thinking involves accuracy and precision and this can require dedication to finding the right answer. It includes:

- *Attention to detail*: taking the time to note small clues that throw greater light on the overall issue.
- *Identifying trends and patterns*: this may be through careful mapping of information, analysis of data, or identifying repetition and similarity.
- *Repetition*: going back over the same ground several times to check that nothing has been missed.
- *Taking different perspectives*: looking at the same information from several points of view.
- *Objectivity*: putting your own likes, beliefs and interests to one side with the aim of gaining the most accurate outcome or a deeper understanding.
- *Considering implications and distant consequences.* What appears to be a good idea in the short term, for example, might have long-term effects that are less desirable.

📖 *Reflection:* emotional self-management

For me, the emotions that are most difficult to manage when others disagree with me are:

I deal with these by:

Self-awareness for accurate judgement

Good critical thinking involves making accurate judgements. We noted above that our thinking might not be accurate if we are not fully aware of the influences that affect it. These can include such things as our own assumptions, preconceptions, bias, dislikes, beliefs, things we take for granted as normal and acceptable, and all those things about our selves and our world that we have never questioned.

People who are outstanding at critical thinking tend to be particularly self-aware. They reflect upon and evaluate their personal motivations, interests, prejudices, expertise and gaps in their knowledge. They question their own point of view and check the evidence used to support it.

Becoming more self-aware takes courage. It can be unsettling to find out things about ourselves we didn't know, as most of us like to think we know ourselves very well. It is also challenging to question our belief systems. We think of these as part of our identity and it can be unsettling if we feel our identity is called into question.

Furthermore, the result of your critical thinking might place you in a minority amongst your friends, family or colleagues. Nobody else might interpret the evidence in the same way as you. It takes courage to argue an alternative point of view, especially when it is possible that you might be wrong.

📖 *Reflection:* influences on my thinking

For me, the influences on my own thinking that I need to be most aware of so they don't prejudice my thinking are:

I will deal with this by:

📖 *Reflection:* challenging opinions

For me, the things I find most difficult about challenging the opinions of other people are:

I deal with these by:

Personal strategies for critical thinking

Below, three lecturers describe how they view critical thinking.

Example 1

- I may make a quick first reading to get the overall picture and check my initial response. I see whether it rings true or contradicts what I believe to be true.
- I compare what I read with what I already know about the topic and with my experience.
- I summarise as I go along, and hold the overall argument in my head to make sense of what comes next.
- I look for the author's position or point of view, asking 'What are they trying to "sell me"?'
- As I read, I check each section and ask myself if I know what it means. If not, I check again – sometimes it is clearer when I read the second time. If it is still unclear, I remind myself to come back to it later as the rest of the passage may make it clearer.
- I then read more carefully, seeing what reasons the writers present and checking whether I am persuaded by these.
- If I am persuaded, I consider why. Is it because they make use of experts in the field? Is there research evidence that looks thorough and convincing?
- If I am not persuaded, then why not? I check if this is a 'gut level' thing or whether I have good reasons for not being convinced. If I have relied on a gut response, I check for hard evidence such as whether I have read other material that contradicts it.
- I then create my own position, and check that my own point of view is convincing. Could I support it if I was challenged?

Here the lecturer is describing an overall critical thinking strategy for reading and analysing the text. The example below indicates that, as well as the words on the page or other material being critiqued, there are wider considerations to be taken into account.

Example 2

I put my energy into looking for the heart of the issue: what is really being said, and why? The answers may not be on the page; they may be in the wider history of a debate, a cultural clash, or conflicting bids for project money. It is surprising how often the wider context, popular debates, even a desire to be seen to be saying what is currently in fashion, have a bearing on what a given passage is really saying.

The third lecturer wouldn't disagree with what has gone before, but adds another dimension.

Example 3

The trick is being able to see the wood for the trees; identifying what is relevant amongst a mass of less relevant information. It isn't enough just to understand; you have to be constantly evaluating whether something is accurate, whether it gets to the heart of the issue, whether it is the most important aspect on which to focus, whether it is the best example to use – and whether what you are saying about it is a fair representation of it.

All three examples illustrate different aspects of the critical thinking process:

- an analytical strategy for the material;
- understanding of the wider context;
- an evaluative and selective approach;
- being self-critical about your own understanding, interpretation and evaluation.

Critical thinking in academic contexts

Development of understanding

Students are expected to develop critical thinking skills so that they can dig deeper below the surface of the subjects they are studying and engage in critical dialogue with its main theories and arguments. This is usually through engaging in critical debate in seminars, presentations or writing produced for assessment or publication.

One of the best ways of arriving at a point where we really understand something is by doing, or replicating, the underlying research for ourselves. However, as undergraduates, and indeed in everyday life, there simply isn't the time to research everything we encounter. The depth of understanding that comes through direct experience, practice and experimentation has to be replaced, at times, by critical analysis of the work of other people.

Students need to develop the ability to critically evaluate the work of others. Whilst some find this easy, others tend to accept or apply the results of other people's research too readily, without analysing it sufficiently to check that the evidence and the reasoning really support the main points being made. Bodner (1988), for example, describes chemistry students as being unable to 'apply their knowledge outside the narrow domain in which it was learnt. They "know" without understanding.' Bodner suggests that, instead of focusing primarily on standard chemical calculations in books, students should be looking for answers to questions such as 'How do we know . . . ?' and 'Why do we believe . . . ?'

Bodner's description is likely to be just as true of students in other subjects. It is not unusual for students, and for people generally, to rely unquestioningly on research that is based on a small sample of the population, or that is based on faulty reasoning, or that is now out of date. Evidence from small or isolated projects is often treated as if it were irrefutable proof of a general principle, and is sometimes quoted year after year as if it were an absolute truth. Chapter 8 looks further at critically examining and evaluating evidence.

> 📖 *Reflection*
>
> Do you recognise anything of yourself in Bodner's description of students? What effect would the approach he suggests have on your learning and understanding?

Both positives and negatives

In academic contexts, 'criticism' refers to an analysis of positive features as well as negative ones. It is important to identify strengths and satisfactory aspects rather than just weaknesses, to evaluate what works as well as what does not. Good critical analysis accounts for *why* something is good or poor, why it works or fails. It is not enough merely to list good and bad points.

Comprehensive: nothing is excluded

At most English-speaking universities, students are expected to take a critical approach to what they hear, see and read, even when considering the theories of respected academics. Normally, any theory, perspective, data, area of research or approach to a discipline could be subjected to critical analysis. Some colleges, such as religious foundations, may consider certain subjects to be out of bounds, but this is not typical.

The idea or the action, not the person

A distinction is usually drawn between the idea, work, text, theory or behaviour, on the one hand and, on the other, the person associated with these. This is also true when making critical analyses of other students' work, if this is a requirement of your course. Even so, it is worth remembering that people identify closely with their work and may take criticism of it personally. Tact and a constructive approach are needed. Giving difficult messages in a way other people can accept is an important aspect of critical evaluation.

Your work's rubbish, of course but as a human being, you'll do, I suppose!

Non-dualistic

In our day-to-day lives, we can slip into thinking everything is right or wrong, black or white. In the academic world, answers may occur at a point on a continuum of possibilities. One of the purposes of higher-level thinking is to address questions which are more complicated and sophisticated, and which do not lend themselves to straightforward responses. You may have noticed yourself that the more you know about a subject, the more difficult it becomes to give simple answers.

Dealing with ambiguity and doubt

With the internet at our fingertips, we are more used to obtaining answers within minutes of formulating a question. However, in the academic world, questions are raised in new areas and answers may not be found for years, or even lifetimes. This can feel uncomfortable if you are used to ready answers.

This does not mean, though, that vague answers are acceptable. If you look at articles in academic journals, you will see that they are very closely argued, often focusing on a minute aspect of the subject in great detail and with precision. Students, too, are expected to develop skills in using evidence, even if drawn from other people's research, to support a detailed line of reasoning.

It is worth remembering that in academic work, including professional research for business and industry, researchers often need to pursue lines of enquiry knowing that:

● no clear answers may emerge;
● it may take decades to gain an answer;
● they may contribute only a very small part to a much larger picture.

Critical thinking as a student means:

● finding out where the best evidence lies for the subject you are discussing;
● evaluating the strength of the evidence to support different arguments;
● coming to an interim conclusion about where the available evidence appears to lead;
● constructing a line of reasoning to guide your audience through the evidence and lead them towards your conclusion;
● selecting the best examples;
● and providing evidence to illustrate your argument.

Barriers to critical thinking (1)

Critical thinking does not come easily to everyone. Barriers vary from person to person, but can usually be overcome. This section looks at some key barriers to critical thinking and encourages you to consider whether these might be having an impact on you.

Misunderstanding of what is meant by criticism

Some people assume that 'criticism' means making negative comments. As a result, they refer only to negative aspects when making an analysis. This is a misunderstanding of the term. As we saw above, critical evaluation means identifying positive as well as negative aspects, what works as well as what does not.

> Your art lacks any real sense of line, tone, colour, emotion, conceptual development, originality – it's lop-sided and hasn't got a frame.
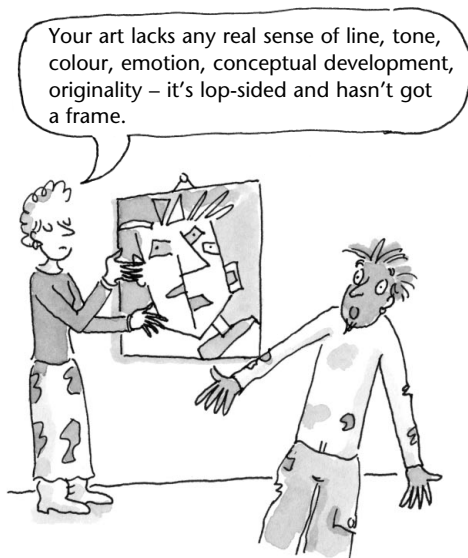
Others feel that it is not good to engage in criticism because it is an intrinsically negative activity. Some worry that they will be regarded as an unpleasant sort of person if they are good at criticism. As a result, they avoid making any comments they feel are negative and make only positive comments. They may not provide feedback on what can be improved. This is often an unhelpful approach, as constructive criticism can clarify a situation and help people to excel.

> And in your essay, Angela, you refer to Napoleon as 'she' throughout. What a marvellously unique and creative approach!

Over-estimating our own reasoning abilities

Most of us like to think of ourselves as rational beings. We tend to believe our own belief systems are the best (otherwise we wouldn't hold those beliefs) and that we have good reasons for what we do and think.

Although this is true of most of us for some of the time, it isn't an accurate picture of how humans behave. Most of the time our thinking runs on automatic. This makes us more efficient in our everyday lives: we don't have to doubt the safety of a tooth-brush every time we brush our teeth.

However, it is easy to fall into poor thinking habits. People who get their own way, or simply get by, with poor reasoning, may believe their reasoning must be good as nobody has said it isn't. Those who are good at winning arguments can mistake this for good reasoning ability. Winning an argument does not necessarily mean that you have the best case. It may simply mean that your opponents didn't recognise a poor argument, or chose to yield the point for their own reasons, such as to avoid conflict. Imprecise, inaccurate and illogical thinking does not help to develop the mental abilities required for higher-level academic and professional work.

Barriers to critical thinking (2)

Lack of methods, strategies or practice

Although willing to be more critical, some people don't know which steps to take next in order to improve their critical thinking skills. Others are unaware that strategies used for study at school and in everyday situations are not sufficiently rigorous for higher-level academic thinking and professional work. With practice, most people can develop their skills in critical thinking.

Reluctance to critique experts

There can be a natural anxiety about critically analysing texts or other works by people that you respect. It can seem strange for students who know little about their subject, to be asked to critique works by those who are clearly more experienced. Some students can find it alien, rude or nonsensical to offer criticism of practitioners they know to be more expert than themselves.

If this is true of you, it may help to bear in mind that this is part of the way teaching works in most English-speaking universities. Critical analysis is a typical and expected activity. Researchers and lecturers expect students to question and challenge even published material. It can take time to adapt to this way of thinking.

If you are confident about critical thinking, bear in mind that there are others who find this difficult. In many parts of the world, students are expected to demonstrate respect for known experts by behaviours such as learning text off by heart, repeating the exact words used by an expert, copying images precisely, or imitating movements as closely as possible. Students of martial arts such as tai chi or karate may be familiar with this approach to teaching and learning.

Affective reasons

We saw above that emotional self-management can play an important part in critical thinking. To be able to critique means being able to acknowledge that there is more than one way of looking at an issue. In academic contexts, the implications of a theory can challenge deeply held beliefs and long-held assumptions. This can be difficult to accept, irrespective of how intelligent a student might be.

This is especially so if 'common-sense' or 'normality' appears to be challenged by other intelligent people or by academic research. It can be hard to hear deeply held religious, political and ideological beliefs challenged in any way at all. Other sensitive issues include views on bringing up children, criminal justice, genetic modification, and sexuality.

When we are distressed by what we are learning, the emotional response may help to focus our thinking but very often it can inhibit our capacity to think clearly. Emotional content can add power to an argument, but it can also undermine an argument, especially if emotions seem to take the place of the reasoning and evidence that could convince others. Critical thinking does not mean that you must abandon beliefs that are important to you. It may mean giving more consideration to the evidence that supports the arguments based on those beliefs, so that you do justice to your point of view.

Barriers to critical thinking (3)

Mistaking information for understanding

Learning is a process that develops understanding and insight. Many lecturers set activities to develop expertise in methods used within the discipline. However, students can misunderstand the purpose of such teaching methods, preferring facts and answers rather than learning the skills that help them to make well-founded judgements for themselves.

Cowell, Keeley, Shemberg and Zinnbauer (1995) write about 'students' natural resistance to learning to think critically', which can mean acquiring new learning behaviours. Cowell et al. outline the problem through the following dialogue:

> Student: *'I want you (the expert) to give me answers to the questions; I want to know the right answer.'*
>
> Teachers: *'I want you to become critical thinkers, which means I want you to challenge experts' answers and pursue your own answers through active questioning. This means lots of hard work.'*

If you feel that critical thinking is hard work at times, then you are right. There are lecturers who would agree with you. However, if it wasn't difficult, you would not be developing your thinking skills into new areas. In effect, you are developing your 'mental muscle' when you improve your critical thinking skills.

Insufficient focus and attention to detail

Critical thinking involves precision and accuracy and this, in turn, requires good attention to detail. Poor criticism can result from making judgements based on too general an overview of the subject matter. Critical thinking activities require focus on the exact task in hand, rather than becoming distracted by other interesting tangents.

When critically evaluating arguments, it is important to remember that you can find an argument to be good or effective even if you don't agree with it.

Which barriers have an effect upon you?

On the table below, tick all those barriers that you consider might be affecting your critical thinking abilities.

Barrier	Has an effect?
Misunderstanding what is meant by criticism	
Lack of methods and strategies	
Lack of practice	
Reluctance to criticise those with more expertise	
Affective reasons	
Mistaking information for understanding	
Insufficient focus and attention to detail	

📖 Reflection

Consider what you could do to manage these barriers in the next few months.

Critical thinking: Knowledge, skills and attitudes

Interpreting your score

Going through the questionnaire may have raised some questions about what you know or don't know about critical thinking. The lower the score, the more likely you are to need to develop your critical thinking skills. A score over 75 suggests you are very confident about your critical thinking ability. It is worth checking this against objective feedback such as from your tutors or colleagues. If your score is less than 100, there is still room for improvement! If your score is under 45 and remains so after completing the book, you may find it helpful to speak to an academic counsellor, your tutor or a supervisor to root out the difficulty.

Priorities: Developing critical thinking abilities

- In column A, identify which aspects of critical thinking you want to know more about. Give a rating between 5 and 0, giving 5 for 'very important' and 0 for 'not important at all'.
- In column B, consider how essential it is that you develop this aspect soon. Give a rating between 5 and 0, where 5 is 'very essential' and 0 is 'not essential at all'.
- Add scores in columns A and B to gain an idea of where your priorities are likely to lie.
- Column D directs you where to look for more information on that point.

	Aspects I want to develop further I want to:	A Want to know more? Rate from 0 to 5 5 = 'very important'	B How essential to develop it now? Rate from 0 to 5 5 = 'very essential'	C Priority score Add scores for columns A and B.	D See Chapter
1.	understand the benefits of critical thinking				1
2.	remain focused on the exact requirements of an activity				2
3.	develop underlying thinking skills				2
4.	pay better attention to small details				2
5.	know what is meant by a line of reasoning				3
6.	identify the component parts of an argument for critical thinking				3
7.	recognise the words used to signal stages in an argument				3 and 10
8.	distinguish argument from disagreement				4
9.	distinguish argument from summaries, descriptions and explanations				4
10.	pick out the key points from background information				4
11.	be able to analyse the structure of an argument				5
12.	evaluate whether arguments are internally consistent				5
13.	understand what is meant by an intermediate conclusion				5
14.	know how to structure an argument				5, 10 and 11
15.	be better at reading between the lines				6
16.	recognise underlying assumptions				6

	Aspects I want to develop further I want to:	A Want to know more? Rate from 0 to 5 5 = 'very important'	B How essential to develop it now? Rate from 0 to 5 5 = 'very essential'	C Priority score Add scores for columns A and B.	D See Chapter
17.	recognise when an argument is based on false premises				6
18.	recognise implicit arguments				6
19.	understand what is meant by denoted and connoted meanings				6
20.	be aware of how cause, effect, correlation and coincidence can be confused				7
21.	be able to check for 'necessary and sufficient conditions'				7
22.	identify unfair techniques used to persuade readers				6, 7
23.	recognise tautology				7
24.	recognise flawed reasoning				6 and 7
25.	be able to evaluate source materials				1 and 8
26.	understand what is meant by authenticity, validity, and reliability				8
27.	evaluate when samples are representative				8
28.	understand what is meant by 'triangulation'				8
29.	check for levels of probability				8
30.	apply critical thinking when making notes				9
31.	use language more effectively to structure argument				3, 10 and 11
32.	present my own arguments clearly in writing				10, 11

Priorities for action
- Look back over the priorities table above. Identify the three aspects to which you gave the highest scores. If more than three have the highest score, select 3 to start with.
- Write the three priorities here as actions starting with 'I will . . .', using words that are meaningful to you – e.g. 'I will find out what tautology means.'

1	I will	
2	I will	
3	I will	

What is critical thinking?

Summary

Critical thinking is a process that relies upon, and develops, a wide range of skills and personal qualities. Like other forms of activity, it improves with practice and with a proper sense of what is required. For some people, this may mean changing behaviours such as paying attention to detail or taking a more sceptical approach to what they see, hear and read. Some need to focus on developing critical thinking techniques, and this is the main purpose of the book.

For others, weaknesses in critical thinking abilities may stem from attitudes to criticism, and anxiety about potential consequences. Barriers associated with attitudinal and affective responses to critical approaches were considered in this chapter. Sometimes, it is sufficient to become more aware of these barriers, and to recognise the blocks to effective thinking, for the anxiety to subside. If you find that these difficulties persist, it is worth speaking to a student counsellor about your concerns. They will be familiar with such responses and may be able to help you to find a solution that fits your personal circumstances.

Developing good critical thinking skills can take patience and application. On the other hand, the rewards lie in improved abilities in making judgements, seeing more easily through flawed reasoning, making choices from a more informed position and improving your ability to influence others.

Having undertaken an initial personal evaluation of your critical thinking skills, you may now wish to follow up the priorities you identified. This is a particularly useful approach if you have already worked on your critical thinking skills. If you are new to critical thinking, you may find it useful to progress directly to Chapter 2 in order to test, and practise, your underlying thinking skills. Alternatively, proceed now to Chapter 3 and work through the chapters in turn.

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Ethics in Human Science: An Overview of Basic Ethical Issues with Focus on Psychology

4

人間科学における研究倫理について ——特に心理学を中心に

ヒックス・ジョーゼフ

4.1. What Do Human/Behavioral Scientists Do and Why Should They Be Concerned with Ethics? 研究倫理について考えることはなぜ必要か

研究者は倫理に無関心か？

All scientists, including human and behavioral scientists normally concern themselves with the objective, the concrete and the measurable. Because their primary goals are advancing knowledge and science, they are usually more interested in questions such as, what is related to what?, what causes what?, what method gets the best results? and what is the correct solution to a problem? On the surface, researchers in the human sciences appear to be less concerned with good/bad, right/wrong types of ethical problems, and indeed, these questions have long been the domain of philosophers, priests and theologians. But is this really so?, are we really unconcerned with such fundamentally important issues?

We can only hope that medical doctors are deeply concerned with ethical issues, especially when medical research can be a matter of life and death. A new drug or surgical technique is discovered that will save a life but it has to be tested. Who gets to be first? Is it safe? Who gets denied the chance to try it? These are sensational and dramatic problems. Compared to our cousins in the medical field, the ethical problems faced by human/behavioral scientists are seldom life and death issues, but they are certainly not trivial.

If we look more carefully at what human/behavioral scientists, do then it should be clear why an understanding of ethical issues is important to this profession as well. Let's look at an example. Psychologists, sociologists and anthropologists all observe human behavior. Psychologists observe both human and animal behavior. Researchers in these fields are curious, persistent and nosy folks and their work often involves observing groups of people or individuals. Some of them stay up late at night thinking of clever ways to secretly observe people in their natural settings.

見るだけならかまわない？ 観察のもつ倫理的問題

So, merely observing should present no ethical problems right? Wrong! Observations can be considered invasions of privacy, some individuals and groups do not wish to be observed and here we have a conflict of interest and one example of the many ethical dilemmas faced by people in this field. The dilemma is: we need to observe people in order to do research on certain topics, but in some cases we are invading the privacy of these people.

研究協力者の立場に立って

Researchers who deal directly with individual human beings and animals in their work, need to be particularly aware of ethical issues. In some areas of psychology, for example, researchers go beyond observation and surveys in their work, they often plan and carry out experiments on adults, children and animals. Some provide therapy to persons with psychological problems including children and thus have to deal with special populations, that is, people who are in a weakened state or who are helpless in varying degrees. During the course of these experiments and therapy, human and animal behavior is often manipulated or they are subjected to uncomfortable or even at times painful conditions. There are of course differing levels of discomfort. For example, participants may be requested to give up 2 or 3 hours during a very busy time in their school day or asked embarrassing personal questions, pushed to face up to their personal problems, paid to go without food for a period of time, given large doses of caffeine, (or if they are lucky, alcohol), threatened with or actually given electric shock. It should now be clear that the human sciences are loaded with ethical issues. Anytime you ask people to do something for you, whether to fill out a questionnaire or to take 30 volts, you have some responsibility for their well-being and thus you have to be concerned with right and wrong.

練習問題

Take a few minutes and put yourself in the position of a researcher. Try to imagine some of the ethical issues which could arise. Now look at Box 1.

Box 1

10 Questionable Practices Involving Research Participants (研究協力者に対する10の問題行為)
1.　Involving people in research without their knowledge or consent
2.　Coercing people to participate
3.　Withholding from the participant the true nature of the research
4.　Deceiving the research participant
5.　Leading the research participants to commit acts that diminish their self-respect
6.　Violating the right to self-determination: research on behavior control and character change
7.　Exposing the research participant to physical or mental stress
8.　Invading the privacy of the research participant
9.　Withholding benefits from participants in control groups
10.　Failing to treat research participants fairly and to show them consideration and respect

Box 1 is from Kidder, Selltiz, Wrightsman and Cook : *Research Methods in Social Relations.*

米国における倫理意識の高まり

As just mentioned, ethics used to be something for philosophers and preachers to worry about, but nowadays society expects scientists to take more responsibility for "subjects" both human and animal. Researchers and this includes student researchers too, face an age of "correctness" political and otherwise whether we like it or not. Researchers are now expected to be "kinder and gentler" in their treatment of living organisms. Both human and animal subjects must be treated with much more caution than in the past. At stake here are not only the moral issues but the more practical issue of acquiring grant money. At the risk of being cynical I would guess that much of the recent concerns about ethical issues in the US today are very closely related with the policy of US Dept. of Health, Education

and Welfare, the White House and some private funding organizations to deny funds to researchers who do not comply with "regulations on the protection of human subjects". Is money the root of all human science ethics? Whatever the reasons for this heightened emphasis on ethics we must nowadays stay wide awake and aware of the ethical issues of our professions.

As you begin to do more actual research you will find out more and more about ethical issues. Beginning researchers should consider the sources of ethical problems while designing research. Below we can see where ethical issues arise in a research design.

何が倫理的問題を発生させるか

Ethical issues appear in many facets of the research process. Cook, in Kidder *et al.* (1981) categorizes ethical issues in social research as being evoked by:

1. the research topic itself
2. the nature of the setting in which the research is conducted
3. the kinds of persons serving as research participants
4. the procedures required by the research design
5. the method of collecting data
6. the type of data collected
7. the nature of the research report

In the remainder of this chapter we will discuss some ethical issues and questions from this framework. First however we should discuss who behavioral scientists work with.

4.2. The Research Participants : Attitudes towards " Subjects " （研究協力者：「被験者」に対する態度）

Researchers should be aware of how they think about their "subjects". In the English language the word "subject" nowadays has more negative connotations than the word hikenja does in Japanese. In English the word "subject" is sometimes associated with objectification of the human being, thus reducing the status of the research participant to a "thing" for studying. There is also a negative connotation for the anthropological term of "informant". (Researchers who write their reports in English should keep abreast of changes in language use).

人間を物と同様にみなしてはいけない

The traditional expression "subjects" reflects an attitude that the researcher is in an exalted position dealing with "things". This attitude was criticized as early as the 1950's by George Kelly but is still common today among researchers. Recently, however some changes are occurring and researchers are becoming more aware of the need to treat research participants with respect. In fact, the word "participant" rather than "subject" is now the preferred term for use in US. journals. There is also the lofty "scientific" language of journals that further exacerbates the distance between researchers and "subjects". Typical language would be as follows ; "subjects employed were 33 college freshman" or "subjects were given 50 volt shocks". This is all described in an objective, passive tense, matter of fact way. Here no one writes, " the unfortunate and foolish students were

coerced into joining an unpleasant, time consuming experiment and get shocked to boot or else risk worrying about how their professors would grade an " uncooperative student ".

権力の問題と研究における権力

It is also very important to remember that research is usually done by those having more power over those having less power. Researchers must check their attitudes towards research participants. Are researchers taking on the attitude of " my work is more important than these people". Are researchers hypocritically assuming that the people who they are working with are truly free to refuse to participate ? Professors must ask themselves if they really think they are doing students a favor by subjecting them to certain kinds of experiments. These are only a few of the important questions of the use of power that all researchers must confront.

さまざまな研究協力者

So who are these research participants ?

For the anthropologist they could be junior high students in Shibuya, housewives shopping for fruit in Italy, whale fishermen, farmers in New Guinea. For the academic psychologist they are usually college students. College students are very convenient as subjects in a research project. They are right on campus, they are cooperative if bribed by a better grade in their psychology class and there are usually plenty of them. Some researchers are very concerned that the majority of our modern theories of psychology are based largely on US. middle class white college students. In Japan too behavioral researchers depend almost totally on college students for samples. But psychologists also examine people who have special abilities or handicaps, children, the elderly, the mentally ill, prisoners and animals from goldfish to chimpanzees.

特殊な人々を対象とした研究には注意が必要

It should go without saying that all research participants deserve respect and concern for their welfare, but this is especially important when we work with special research populations. Putting a child or a prisoner in a stressful situation requires the utmost caution and responsibility. It is important to remember that both children and prisoners feel they must cooperate when someone in authority tells them to do something. If the task is stressful or frightening there is often no way out for these types of participants. As you begin to consider the issue of " who

練習問題

can do what to whom " please refer to Box 2.

Not an easy " fill in the blanks test " at all, is it ? As you perform these " virtual ethical exercises " try to imagine the social repercussions.

Also, don't be surprised to discover that all scientists have a great deal of trouble reaching a consensus on these issues ; a therapist trained in behavior modification might say it is appropriate in some cases to administer mild electric shock to a mentally handicapped child with self-destructive behavior (see Malott *et al.* for a thorough discussion of these and related matters) , but this opinion might not be held by a person from a different theoretical background. Nevertheless it is essential that beginning researchers consider such issues and get a wide range of opinions before carrying out sensitive research or attacking a fellow researcher for " unethical research ".

Box 2

Who can do what to whom?（研究でしてもよいこと，いけないこと）
What do you think? Which of the research populations could you fill in the blank with? College students, salarymen, homeless people, housewives, high school students, tribal people, elementary school children, 2 year olds, mentally handicapped children, college professors, prisoners, chimpanzees, dogs or rats. (Of course some of the populations would not fit in the blanks-for example due to their respective natures, rats and college professors are fairly easy to deceive but very difficult to embarrass)

Is it OK to deceive ——————in a research project or therapy?

Is it OK to embarrass —————— in a research project or therapy?

Is it OK to scare ——————in a research project or therapy?

Is it OK to persuade —————— to do something they normally would not do in a research project or therapy?

Is it OK to give an electric shock to ——————in a research project or therapy?

Is it OK to show obscene pictures to —————— in a research project or in therapy?

Is it OK to persuade —————— that they have AIDS to see how they react?

Is it OK to give presents to —————— to encourage them to cooperate with your observational study?

Is it OK to pay —————— to participate in your research project?

Is it OK to perform a brain operation on —————— in a research project or for therapeutic purposes?

4.3. Questionnaire Research and Field Studies （質問紙調査とフィールド調査）

To paraphrase an old maxim, the road to ethical catastrophes in research is paved with good intentions.

On first thought, most people would never imagine ethical problems arising from something like a paper and pencil test or a questionnaire. Researchers using questionnaires should obviously have fewer ethical problems in the areas of research procedures and collecting data. Nevertheless, in questionnaire research, the topic itself can pose various problems.

質問紙調査にも倫理的問題はある

For example, try to think of a topic you would feel uncomfortable discussing with someone and then imagine that you had to answer a 100 item questionnaire on it. You must admit, this is not a very pleasant way to spend a half hour of your day. For some participants it is much more than simply unpleasant, it is downright painful. Consider the sensitivities of participants in the following cases:

質問紙調査で生じる倫理的問題の例

If you are Jewish and your parents or grandparents were in a concentration camp, having to deal with survey questions related to the holocaust might be very painful even traumatic.

If you were having sexual problems such as temporary impotence, you might become very upset at having to answer 100 questions on your sex life.

If you or your parents or grandparents had been victims of discrimination, for example African Americans, Korean residents, Burakusabetsu victims, you might feel uncomfortable about having to reply to a survey about your " problems ". You might also be wondering, " how is this data going to be used ? " " Is some researcher trying to use this data for political or other ends that I am opposed to ? "

Pursuing sensitive topics can cause problems not only for the participants in questionnaire research but also to the researcher, particularly the inexperienced student researcher. What is the downside to pursuing sensitive topics ?

Put yourself in the position of employment director of an established and conservative company. A student comes for a job interview and you discover that her graduation thesis was on sexual harassment in Japanese companies. How would this affect your evaluation of her ? Be honest! I remember a student who came to me to discuss the possibility of doing a graduation thesis on this topic. All I had to do was to ask one question, " What do you plan to do after graduation ? " and she said " Ahh, of course " then she started to laugh and replied, " Oh...that's not a safe topic is it ". There was no need for me to warn her that job prospects for female graduates were not exactly excellent and that her graduation thesis topic might not sound too good to a conservative Japanese company's job interview committee. She figured this out all by herself and very quickly changed her research topic. In retrospect I might have encouraged a student who was planning to make research a career and who was determined to pursue this important topic and face the risks involved. Of course, I would ask such a student to do some reality testing and ask them just how they planned to collect this sort of data. In the real world, just how many companies would allow a college undergraduate to circulate a questionnaire about such a topic among their employees ? Sensitive and risky topics must be faced and researched but when a young researcher goes off haphazardly to " do research for social justice " with no experience, skills or support then they are likely to be sorely disappointed and cause a great many problems as well.

微妙な研究トピックを
扱う場合には専門家の
指導が必要

As a rule, only experienced professionals should undertake research on highly sensitive topics. Less experienced researchers should be under the careful supervision of experienced professionals when pursuing such topics.

文化的ギャップから生
じる倫理的問題

Ethical considerations for questionnaires can also stem from cross-cultural gaps. Take for example the well-meaning but culturally ignorant (naive ?) western sociologist visiting Japan who insisted on adding an item to his questionnaire regarding the father and mother's exact occupation, the grandparents' occupations and the income of the family. These are questions which are generally avoided by Japanese researchers due to traditional and still lingering prejudice in Japanese society towards certain occupations associated with the burakumin community.

Consider also the victims of careless cross-cultural researchers working in politically repressive areas. Naive collaborators who aid these researchers could face unemployment or even jail terms for such " crimes " as divulging politically sensitive information to foreigners or even treason. In countries which restrict intellectual freedom and flow of information such a scenario is all too possible.

Writing up the research results can also pose ethical problems. We must be careful when our own values creep into a study. In spite of what many social scientists say about the importance of scientific objectivity, many studies will to some extent reflect the values of the researcher. This is natural and unavoidable, but problems arise when our socially good intentions overshadow our commitment to fair and unbiased research and the results of our bias show up in the research report. The Hite study (*Women and Love : A Cultural Revolution in Progress*) is a case in point. This study has become quite famous for the new light it has shed on the sexual frustrations of women but at the same time it has also become a textbook example of poor sampling and biased reporting. Several researchers have questioned whether Hite's "ends justified her means." Kimmel (1996) reviewed criticisms of the Hite study and came to the conclusion that although her topic and motivations were good and important, her sample was biased and non-representative. Although she had an impressive 4,500 replies this was out of 100,000 questionnaires sent out. One indication of bias was the unbelievably high (70%) figure for percent of women married for 5 years or more who reported having extramarital affairs. Compare this figure to other studies showing a rate of around 30%. Kimmel points out that the main problem with the survey is that Hite claims that her results are "typical" of American women.

In addition some researchers will formulate a large multi-itemed questionnaire and in their report, only disclose data which is convenient to their hypothesis or supports their personal views. This is "telling only half the story" and is dishonest reporting of research. Magazine and newspaper stories which are written to "prove a point" are sometimes based on this kind of biased reporting. There is no place for this kind of reporting in academics but it certainly exists.

The issues of privacy and confidentiality or anonymity are also very important. According to Leong and Austin, "Privacy has to do with one's control over the extent, timing or circumstances of sharing physical, behavioral, or intellectual aspects of oneself with others. Confidentiality relates to what is done with information a person has disclosed in the expectation that it will not be revealed to others in a manner inconsistent with the original understanding about disclosure, without permission." Anyone carrying out questionnaire research on a sensitive topic with participants should be aware that the people cooperating in the study could be inconvenienced or in the worst case, seriously damaged by privacy leaks. The researcher has an ethical obligation not to disclose any names or information about individual participants and to carefully guard data which would reveal names and private information about participants. Imagine the repercussions if the data coding sheets for a confidential study on sexual fantasies or a study comparing heterosexual and homosexual students' attitudes became lost or fell into the wrong hands.

Across the behavioral sciences the issue of confidentiality or anonymity is very important. If anthropologists or sociologists are investigating certain kinds of behavior in a town which would cause embarrassment or scandal for the townspeople, it is usually an ethical obligation not to disclose the name of the town and

研究結果の報告における倫理的問題

プライバシーと匿名性の問題

use caution in reporting to keep persons from figuring out its location. An example of problems stemming from a lack of vigilance in protecting the identities of informants is the study on the Suwemura women in rural Japan. The study itself was excellent and well carried out but the names of informants were published. The author probably felt this would pose no problem since the study was published in the US. The difficulties arose when it became available in Japanese some years later and the names of the informants were retained as in the original.

Here we must take note of the importance of keeping names confidential when their publication would cause inconvenience or problems for the individuals involved. One way of alleviating this problem would be to simply change the names to fictitious ones. This could also be done for towns and companies. The authors of research must not go overboard in protecting sources to the detriment of the final research product, behavioral scientists should be able to strike a balance of protecting their sources of information but at the same time giving the reader enough information to make the study worthwhile. It would be very difficult for us to read or appreciate a study on "Mr. X working at B company in Z city", without some details of the people or environments involved.

Problematic ethical considerations in questionnaire research involve :
1. Negative results to participants, researchers and innocent collaborators from researching overly sensitive topics
2. Hidden political and other motivations
3. Biased or selective reporting of research (telling only half the story)
4. Privacy and anonymity leaks
5. Social and political repercussion from research results

フィールド研究の参与観察における倫理的問題　Field studies are used in the behavioral sciences including psychology, anthropology and sociology. One way of carrying out such a study is participant observation where the researcher attempts to join in the activities of the population he or she is studying as a member of the group. A study by Festinger, Riecken and Schachter in an article on the Rationalizing Animal by Aronson (1973) describes behavior among members of a cult which Festinger and his associates actually joined. Not only are such research practices potentially very dangerous to the researchers but they pose ethical dilemmas.

4.4.　Deception （ディセプションをともなう研究）

Clearly, deception in research is an ethical issue of concern but whether we approve of it or not, deception is the bread and butter of many social scientists.

It is clear that deception is an important part of research procedures in many fields of psychology. Often using deception is the only way to get a true to life response from participants. In the field of psychology many of the truly great studies of the past used deceptions. In the book, Forty Studies that Changed

Psychology, Hock, 1992 selected 40 pioneering studies from the vast field of psychological literature. In the section on social psychology, all of the studies chosen employed some level of deception. Three of the four have been criticized by many as having employed unreasonable levels of deception. Had overzealous ethics committees been in effect during the times of these studies and blocked them, the field of social psychology would have suffered irreparable loss.

ディセプション（だまし）は重要な研究手段

How widespread is deception in psychological research ? Kimmel (1996) states that deception is widespread and has been regularly used in psychological research although more common in fields such as social and personality psychology. Furthermore deception continues to be commonly used. Kimmel cites Menges' (1973) review of almost 1000 studies in social as well as in other fields of psychology. This review shows that in 80% of the studies surveyed in 1971 that subjects were given incomplete information, in 17% inaccurate or false information and complete information in only 3% of the studies. Deception like other " touchy " issues should be approached carefully with respect for the participants and with a concern for the importance of research.

ディセプションの功罪

Costs to the participant incurred by the research in terms of embarrassment, suffering etc. need to be carefully considered *before the research begins*.

According to the APA's Ethical Principles in the Conduct of Research with Human Participants (1982), the costs of deception include offending participants, lowering their self esteem, impairing their relationships with other people, increasing the deceptive behaviors of the participants through modeling the researcher and giving a bad name to psychologists and other researchers. The benefits of deceptive research included, theoretical or social advances gained from the research findings, avoidance of misleading finding which could have occurred if subjects had not been deceived, and the possibility that participants might gain useful insight about themselves and learn something about psychology through participating.

ディセプションの悪影響を軽減する手段としてのディブリーフィング

If a reasonable cost-benefit balance can be attained, research should be allowed to proceed without lengthy ethical reviews. If costs seem unusually high for the participant but the benefits are seen are great, then a careful debriefing can help to ease some of the negative effects of the research. Debriefing procedures can range from the simple to complex. A sample debriefing procedure can be seen in Box 3.

The development of effective debriefing procedures and an increase on studies related to debriefing can help to improve the field of psychology. Especially useful to psychologists is Aronson *et al*. (1990) which offers an entire chapter to the post-experimental interview. This useful book is strongly recommended for any student who plans to carry out risky social experimentation.

Box 3

Sample Debriefing Procedure（ディブリーフィングの例）

　Although the debriefing procedure typically involves an oral discussion with one's research participants, it is a good idea for the researcher to plan what will be said to them and what areas will be covered.　At the least, a thorough debriefing should present, in non-technical language, the purpose of the experiment, various aspects of the procedure that would be helpful to the participants in understanding their role in the experiment (such as the nature of the treatment conditions and the reasons for any deceptions that were included), and the expected results of the investigation.　Subjects also should be informed about how they can contact the investigator if they have any questions or concerns about their participation after leaving the laboratory.

　A useful exercise for providing a starting point in developing a more complete debriefing protocol is to finish the following paragraph lead ins.

"The purpose of my experiment is to..."

"The reasons why I misled you or withheld certain information about my study prior to your participation are..."

"The treatment conditions are...."

"I expect to find..."

"Do you have any questions about the experiment... ?"

"For future contacts, I can be reached by..."

"Thank you for participating."

From Kimmel, A.J.

Original Source from Kiess, H.O. (undated) Experimental psychology learning guide, unpublished manuscript, Framingham State College, Framingham, MA.

4.5　Deception and Risky Studies : The Risk/Benefit Ratio
（危険な研究：リスクと利益のかねあい）

　All students in the behavioral sciences should be familiar with Stanley Milgram's classic study on obedience. It is one of the most famous psychology experiments (if not the most famous) ever done.　Any textbook dealing with ethical issues in research uses this example and it is an excellent one for illustrating a key measurement in ethical judgments, the risk/benefit ratio. According to Shaughnessy and Zechmeister, " In its simplest form, the risk/benefit ratio asks the question, Is it worth it ? "

ディセプションをともなう危険な研究の三つの例

　Three classical studies employing procedures which were very frightening or put subjects at some risk of psychological damage were (1) the Milgram study on obedience, (2) the Stanford Prison Experiment and (3) the Latané and Darley studies.

　In the Milgram experiment, naive participants were led to believe they were giving electric shock (ranging from mild to dangerous) to a person taking a word-association test. The participants were effectively coerced by an authoritarian "experimenter" to keep increasing the amount of shock. Upon completion of the experiment many of the subjects were shaken and showed signs of considerable stress.

　In the Stanford Prison study paid volunteers from US and Canadian colleges

were recruited to play the role of prisoner or jailer in a very realistic mock jail created by Zimbardo and his associates. They were even picked up by police cars at their homes. The setting was so realistic, and the jailers became so enthusiastic about applying punishments and repressing their prisoners that 4 of the prisoners had to be freed after only four days. This was after they showed symptoms including rage, uncontrolled crying, and serious depression. The most interesting aspect of this study was that neither subjects nor researchers had a clear idea of just how stressful and painful a mock prison could be. Barnes (1979) observed, " The Stanford prison experiment has been linked in controversy with Milgram's experiments on obedience but the objections to the role-playing at Stanford have been focused on the physical pain, psychological humiliation and anxiety experienced by the participants, features which were lacking in Milgrams' work, as much as on the anguish and loss of self-esteem."

The purpose of the Latané and Darley (1970) studies, was to compare the reactions of one person or a group of three persons to a potential emergency situation. It was predicted that in groups of three that people would be less likely to attempt to cope with an emergency of this nature. In this study, researchers constructed a seemingly safe and harmless environment which became the setting of an emergency. Students were asked to come to an interview to discuss "some of the problems involved in life at an urban university". As they waited in a small room for the interview, they were given questionnaires to fill out. A short time after they became settled and started to work on the questionnaires, white smoke began to come into the room through a vent. The smoke was timed to increase gradually until the participants could not see well. Subjects were justifiably alarmed when white smoke came pouring into their rooms and true to prediction, the three person groups reacted much slower to report the smoke and very few of the participants in the groups of three even reported the smoke at all. Note, Japanese students should try to imagine the difficulties which would occur if this study were replicated just after the AUM Shinrikyo sarin gas incident in Japan.

The key factor when we judge the above studies or any study which puts research participants in danger of severe stress, anxiety or fear is the risk/benefit ratio. These classic studies have passed the test of time and are considered as having made significant contributions to our knowledge of human behavior. It is up to the next generation of scholars to decide the risk/benefit ratios for new research. Will we make choices that allow pioneering research or will we stifle research under the wave of political correctness? Will we allow dangerous and foolish studies to proliferate? Should we safeguard research participants with careful debriefing procedures? These are all important questions for young researchers to consider.

Hock (1992) concludes that " the Milgram studies ...have been a focal point in the ongoing debate over experimental ethics involving human subjects. It is, in fact arguable whether this research has been more influential in the area of social psychology and obedience or in policy formation on the ethical treatment of human subjects in psychological research. "

4.6.　Informed Consent-A Life and Death Example
（インフォームド・コンセント：生死に関わる例）

インフォームド・コン
セントの定義

Informed consent is a term which is perhaps more famous in the medical field than in the behavioral sciences especially due to recent disclosures of medical experiments on unknowing subjects up until the 1970s, these included injecting radioactive chemicals into subjects without their knowledge and withholding medicine from syphilitic patients to observe the course of the disease.

An article by Horowitz (1994) illustrates the problem of informed consent. The suicide of Tony Lamadrid, a former UCLA student who suffered from depression and schizophrenia triggered new debate on the issue of informed consent. In this case the victim was a participant in a study to observe what happens to schizophrenics when taken off medication. The issue of informed consent came to the forefront when it was discovered that some of the participants and their families complained that even though verbal explanations were given to them, they were not given enough information about the severe risks of relapses after being taken off medication. The fact that Mr. Lamadrid committed suicide 2 years after the study was finished made it difficult to place the blame for the suicide directly on the researchers of the study, nevertheless investigations were carried out at several levels and the experimenters faced a wide range of criticisms even though their research was approved by UCLA ethics committees, which are among the most careful and severe of any in the US.

The APA defines informed consent as follows :

6.11 Informed Consent to Research

(a) Psychologists use language that is reasonably understandable to research participants in obtaining their appropriate informed consent (except as provided in Standard 6.12, Dispensing With Informed Consent). Such informed consent is appropriately documented.

(b) Psychologists inform participants of the nature of the research ; they inform participants that they are free to participate or to decline to participate or to withdraw from the research ; they explain the foreseeable consequences of declining or withdrawing ; they inform participants of significant factors that may be expected to influence their willingness to participate (such as risk, discomfort, adverse effects, or limitation on confidentiality, except as provided in Standard 6. 15, Deception in Research) ; and they explain other aspects about which the prospective participants inquire.

(c) When psychologists conduct research with individuals such as students or subordinates, psychologists take special care to protect the prospective participants from adverse consequences of declining or withdrawing from participation.

(d) When research participation is a course requirement or opportunity for extra credit, the prospective participant is given the choice of equitable alternative activities.

(e) For persons who are legally incapable of giving informed consent, psychologists nevertheless (1) provide an appropriate explanation, (2) obtain the participant's assent, and (3) obtain appropriate permission from a legally authorized person, if such substitute consent is permitted by law.

6.12 Dispensing With Informed Consent

Before determining that planned research (such as research involving only anonymous questionnaires, naturalistic observations, or certain kinds of archival research) does not require the informed consent of research participants, psychologists consider applicable regulations and institutional review board requirements, and they consult with colleagues as appropriate.

6.13 Informed Consent in Research Filming or Recording

Psychologists obtain informed consent from research participants prior to filming or recording them in any form, unless the research involves simply naturalistic observations in public places and it is not anticipated that the recording will be used in a manner that could cause personal identification or harm.

6.14 Offering Inducements for Research Participants

Box 4

Informed Consent Form （インフォームド・コンセントの書式例）

SAMPLE INFORMED-CONSENT FORM
[DATE]
I, [NAME OF PARTICIPANT], state that I am over 18 years of age and that voluntarily agree to participate in a research project conducted by [NAME OF PRINCIPAL INVESTIGATOR, TITLE, INSTITUTIONAL AFFILIATION].
The research is being conducted in order to [BRIEF DESCRIPTION OF THE GOALS OF THE RESEARCH]. the specific task I will perform requires [DETAILS OF THE RESEARCH TASK, INCLUDING INFORMATION ABOUT THE DURATION OF PARTICIPANT'S INVOLVEMENT. ANT POSSIBLE DISCOMFORT TO PARTICIPANTS ALSO MUST BE DESCRIBED].
I acknowledge that [NAME OF PRINCIPAL INVESTIGATOR OR RESEARCH ASSISTANT] has explained the task to me fully ; has informed me that I may withdraw from participation at any time without prejudice or penalty ; has offered to answer any questions that I might have concerning the research procedure ; has assured me that any information that I give will be used for research purposes only and will be kept confidential. [PROCEDURES FOR PROTECTING CONFIDENTIALITY OF RESPONSES SHOULD BE EXPLAINED]
I also acknowledge that the benefits derived from, or rewards given for, my participation have been fully explained to me——as well as alternative methods, if available for earning these rewards——and that I have been promised, upon completion of the research task, a brief description of the role my specific performance plays in this project.
[THE EXACT NATURE OF ANY COMMITMENTS MADE BY THE RESEARCHER, SUCH AS THE AMOUNT OF MONEY TO BE PAID TO INDIVIDUALS FOR PARTICIPATION, SHOULD BE SPECIFIED HERE.]

SIGNATURE OF RESEARCHER　　　　　　　　　　SIGNATURE OF PARTICIPANT

from Shaughnessy and Zechmeister 1994

(a) In offering professional service as an inducement to obtain research participants, psychologists make clear the nature of the services, as well as risk, obligations, and limitations.(See also Standard 1.18, Barter, ［With Patients or Clients］)

(b) Psychologists do not offer excessive or inappropriate financial or other inducements to obtain research participants, particularly when it might tend to coerce participation.

A Japanese translation of the APA guidelines is available from the Japan Psychological Association.

In non medical cases the urgency of informed consent declines. In social psychological research it is sometimes necessary to withhold informed consent in order to protect the real life setting of the research. If undue harm is not done to participants and debriefing is carefully carried out exceptions to the 100% informed consent rule should be considered.

4.7.　The " Duty to Warn and Protect "–A Special Example of Privacy and Disclosure Ethics （警告と保護の義務）

Article 5.05 from the APA's 1995 Ethical Principles of Psychologists and Code of Conduct states that " Psychologists disclose confidential information without the consent of the individual only as mandated by law, or where permitted by law, or where permitted by law for a valid purpose such as... (3) to protect the patient or client or others from harm."

警告と保護の義務は心
理療法家のジレンマ

Clinical psychologists face an ethical dilemma when their clients tell them things like, " I'm going to kill the president " or " I'm going to put a knife in my wife one night while she is asleep ". On the one hand psychologists must maintain the confidentiality of their clients, on the other hand they have a moral responsibility to protect innocent people. A case study well known to ethics researchers is the Tarasoff case which occurred in the 1970's. A student at UC Berkeley told his therapist that he was angry and that he planned to kill his girlfriend (Ms. Tarasoff). The therapist sensed the possibility of a real danger and notified his director and the campus police but did not warn the client's girlfriend. Ms. Tarasoff was murdered and the therapist was charged with neglect. This case brought about considerable discussion and set a legal precedent for psychotherapists and counselors all over the US. regarding the " duty to warn " and " duty to protect " potential victims of violent crime. This issue remains a great dilemma to therapists. It is very difficult to judge whether a client will really become violent or whether the client is merely letting off steam by making violent threats. Moreover legally speaking, most psychotherapists are bound by APA rules and by state laws to protect a client's privacy. But due to incidents such as the Tarasoff case this traditional adherence to privacy has become less of an absolute. Costa and Altekruse (1994) summarize this issue as follows : " The duty to warn and protect in cases of potential dangerousness or violence presents a serious challenge to mental health counselors. The ethical codes of various mental health professions

provide general, but not specific guidelines. In general, the duty to warn and protect is indicated when three conditions are present : (a) a special relationship such as a client-therapist relationship, (b) a reasonable prediction of harmful conduct (based on a detailed history of violence), and (c) a foreseeable victim (even though not specifically named.) " Finally, duty to warn and protect could also apply to persons who talk about wanting to rape someone, parents who admit sexually abusing their children, or situations which are not violent but certainly dangerous. Among such situations would be counseling persons who admit they have tested positive for the HIV virus and they are still sexually active and practicing unsafe sex.

Clinical psychology in Japan is not regulated by law in the same way as in the U.S. and the " duty to warn and protect " has not come to the attention of the media or the courts in Japan to the extent as it has in the US. Japanese clinical psychologists can protect themselves and others from dangerous clients and still protect clients' privacy through contractual arrangements between client and psychotherapist. If clients break certain rules of the contract such as making violent threats then the psychotherapist can end the relationship and are thus free to warn potential victims of a dangerous client. Whether warnings are actually given is another matter and this depends on the individual therapist. The above arrangement of course differs according to the terms of client-therapist contracts. Some contracts may not cover these types of behavior putting the Japanese therapist in a moral dilemma as to whether to break confidentiality or protect innocent people.

日本における警告と保護の義務——ガイドラインは必要か

Box 5

Duty to Warn and Protect-What Do You Think ? (警告と保護の義務—君はどう考えるか)

You are a psychotherapist your client confides to you that :
-he once raped a classmate and plants to do it again
-she wants to get her friends to help her lynch a girl who seduced her boyfriend
-he seduces junior high school boys to engage in sexual acts with him and he cannot stop this behavior no matter how much he tries
-she beats her children to the point of giving them serious injury
-he tested positive for the HIV virus and is practicing unsafe sex with several partners
-he (a 13 year old boy) is having sexual relations with a younger girl in the neighborhood
In which cases would you feel that you should break confidentiality and tell potential victims, welfare services, parents or the police ?
Do you think psychotherapists in Japan have a legal duty to warn and protect and that there should be legislation to require them to do so ? Why or why not ?
Are psychiatrists (medical doctors) required to report such cases under the Medical Law " Ishiho "?

4.8. Animal Rights (動物の権利)

In order to get to the heart of the issue of animal rights I would like to offer a personal example. In 1976 I was allowed into Yerkes Primate Lab in Atlanta,

「知的な」動物を苦痛をともなう研究にさらすこと

Georgia and met one of the most famous of all research chimpanzees. When I met her she was busily involved in constructing sentences using a computer with various symbols. I remember two things about my visit with this fine lady, one that her keeper said that she didn't like me one bit and was very pleased when I left. The other thing was an idea that came to me as I was leaving the facilities, and that was, "if this chimp can make original sentences and communicate her feelings quite well, how can we in good conscience subject her to painful operations or experiments?" She could easily push a few buttons on her computer which represent " don't hurt me ". From this time on whenever I start to rationalize that animal rights are not really important I draw on this special memory. I must admit though that I have very little problem with most studies done on mice, rats, pigeons and food animals including dogs and cats as long as no unusual cruelty is involved, but I wince when I think of chimpanzees used as subjects.

Unusually cruel treatment of laboratory animals, no matter what their position on the phylogenetic scale, is certainly not setting a good example for university students. Although it is difficult to prove that exposure to such treatment will make people more callous in their treatment of their fellow humans, it is a possibility.

The US. and Britain are becoming more and more serious about protecting research animals from extreme or cruel conditions. In one research intensive area, Boston, Massachusetts there is a full time city job for research commissioner for animal protection.

Animal rights and anti-cruelty to animal groups with famous spokespersons such as Bridgett Bardot have become serious lobbying groups with political clout. One positive effect of such groups has been pressure on universities and professional associations to monitor the treatment of laboratory animals at companies and universities. On the downside however, some of the more extreme groups break into university or corporate labs and free the animals to emphasize their crusade often disrupting useful research in the process. Anyone watching a recent US. film which features animals will note a disclaimer at the end attesting to the fact that " absolutely no animals were harmed in the making of this film ". It is amusing to note that no such disclaimer is offered for the children or other human animals in these films.

Though animal rights is only given a very cursory discussion in this chapter, this does not mean that it is a trivial one. Students interested in this issue should refer to the APA code (6.20) Care and Use of Animals in Research and also Chapter 8, Ethical Issues in Research with Animals, Kimmel (1996). A provocative and very readable book on the subject of pain in animals is *When Elephants Weep* by Jeffrey Masson.

4.9.　Who is Judging our Research ? Ethics Review Boards and Governmental Regulation of Research （誰が判断を下すのか：倫理審査委員会と政府による研究の規制）

IRB とは何か

There are now ethics review boards and committees at various levels. Such

committees have largely been brought about by governmental regulations that require ethics review committees at all universities which receive federal research funds. A typical such committee called an IRB or institutional review board, is now standardized to follow governmental regulations. According to Shaughnessy and Zechmeister(1994) "an IRB must be composed of at least five members with varying backgrounds and fields of expertise. Both scientists and nonscientists must be represented and there must be at least one IRB member who is not affiliated with the institution. Responsible members of the community, such as members of the clergy, lawyers and nurses are asked to serve on these committees."

An example of how such committees operate comes from Prof. Anne Peplau of UCLA's psychology department (personal correspondence) "All of our research, including questionnaires given to college students, has to be approved in advance by a university human subject protection committee...this committee is made up of faculty members from departments that conduct research on human subjects (so there are faculty from psychology but not from English Literature)...the members of the Human Subject Protection Committee are typically senior faculty who have extensive research experience, including the management of federally funded grants. They are charged with making sure the research will not harm participants. If participants have complaints about research, these are directed to the human subject protection committee or, if not resolved satisfactorily, to the vice-chancellor for research..." What would the process of an ethics review at a university look like ?

UCLA の倫理委員会

1. Studies with human subjects are reviewed by an ethics review committee. This could be at the departmental level or an interdisciplinary committee such as at UCLA.

倫理委員会の手続きの例

2. The committee can approve research proposals or suggest changes or reject the proposal.

3. If the professor or student thinks that their study has been unfairly rejected there may be a way to appeal the decision by taking it to another committee or to a university president or vice president for discussion and review.

4. Faculty or students who try to get private or government grants may have to submit their research proposals to more than one ethics committee before getting approval.

5. Some researchers may go outside of the university and ask for an APA ethical review committee decision. The APA has its own ethical review committee for judging difficult or controversial studies.

Note : For an in depth look at Regulations for Behavioral Research see Kimmel, (1996) Chap 2.

Note : For clearly documented examples an IRB review process and IRB activity see University of Michgan's internet information. http ://www.med.umich.edu/ irbmed/behavioral/handout.html Peterson 1997.

Several related documents are available for downloading in MAC and IBM format including a consent form.

At present behavioral research in Japan is not regulated by agencies outside of the university. It might be quite a good thing that the departments or individual professors/researchers are capable of controlling ethical problems without outside control. This is providing of course that they are careful enough about what goes on in their own departments and labs. If too many complaints arise from unreasonable or unethical studies, then outside control may be in Japan's future. This would be a very unfortunate situation and all the more reason for individual Japanese researchers to be aware of ethical issues and make sure violations are kept to a minimum in their own departments. We face a delicate balance, more pioneering research must be done in Japan but it must be done in a way that does not compromise research ethics.

4.10.　Tips for the Student Researcher　（学生研究者への助言）

In this rough overview of ethical issues I have tried to summarize some issues relevant to people who study and practice behavioral research. Many of the issues discussed are merely " common sense " but we need to be carefully reminded that a major responsibility of the human, social and behavioral sciences is to keep checks and balances on so called " common sense ". I urge you to carefully examine ethical issues not only using your own " common sense " but by carefully studying the errors and wisdom of both older scholars and your contemporary colleagues in anthropology, sociology and psychology. Below are some bits of advice for those of you who are beginning in the field. I hope this will supplement your own common sense and stimulate you to explore this important area in more depth.

1.　Before doing a study which entails considerable risks to participants, search the literature carefully to make sure it has not been done before. " Reinventing the wheel " in the case of high risk research shows poor judgment and can negatively affect your career as a researcher.

2.　If there are no ethics committees at your university ask experienced students and professors about possible ethical problems which might arise from your study.

3.　Look over the APA ethical code. Interestingly, the JPA code as of Fall 1996 is still " under discussion " and not available to the public. Translations of the APA code are available from the JPA main office for a small fee. An older (1981 revised edition) translation can be found on pgs. 308-317 in the *Shakaishinrigaku Yougojiten*, Ogawa Kazuo ed. (Kitaoojishobo) 1987.

4.　Most Japanese universities do not have ethics panels to judge high risk research. If your university does not have such a panel carefully discuss the ethical problems with your supervising professor or contact professors doing similar research at other universities for advice.

5.　Take care to give appropriate respect to people you work with in your research. People in positions of power(authority) have the responsibility to respect those who cooperate with them.

6.　Understand the concept of informed consent ; provide it if at all possible. If

100% informed consent is not given to your participants, debrief your participants after the study and carefully explain why informed consent was not given.

7. Word your questionnaires carefully to avoid research bias.

8. Reporting data honestly without trick graphs and biased figures is a must for the ethical behavioral scientist. Do not be tempted to jiggle your figures to support a " good cause ".

9. Never spread rumors or falsely accuse classmates or colleagues of breaching ethics unless you have a clear understanding of the field of research and the special situation of the researcher.

10. Use a clear and concrete consent form.

11. Use caution and give consideration to all people related to your research project but do not give up on exploring risky areas, there have been few if any Stanley Milgrams in Japan probably because young Japanese researchers are too hesitant or are not allowed to take the risks necessary for pioneering research. Look at any standard dictionary or encyclopedia of psychology/social science ; now count up the number of Japanese social/psychological researchers who have carried out " breakthrough " experiments in psychology.

12. See if you can get a discussion group or class formed at your university to discuss and study the ethical problems of research in an objective and non-threatening way. Keep a balance between the rights of the participant and the needs and mission of the researcher.

13. Develop your own internal guidelines about research ethics through study and experience so you can help guide the next generation of researchers.

4.11.　APA（米国心理学会）倫理綱領（抜粋）

6.10.　リサーチにおける責任

　リサーチを実施する以前に（匿名の調査，自然観察，またはこれに類似したリサーチを除く）サイコロジストは被験者との間で合意を交すが，これはリサーチの種類，性格を明確にし，それぞれの責任をはっきりさせるためである。

6.11.　リサーチに対するインフォームド・コンセント

(a)サイコロジストは，適切な合意を得るにあたって，被験者（参加者）に対して平易な言葉を使う。（基準6.12. インフォームド・コンセントの必要の有無の項に示されたものを除く）こうしたインフォームド・コンセントは，適切な形で文書化する。

(b)参加者にわかりやすい平易な言葉を用い，サイコロジストは参加者にリサーチの種類，性格について説明する。参加者にリサーチに参加する，またはしない，またそれから身を引くのも自由であると伝える。参加しない，または身を引いた結果どのようになる可能性があるかについても説明する。彼等が自発的に参加すること

対し影響を与える可能性がある重要な要因（6.15.　リサーチにおける欺瞞の項に該当する以外の，リスク，不快感，悪影響，秘密の保持原則の制約など）についても説明する。

(c)学生や部下などを被験者にしてリサーチを行う場合，彼らが参加しなかったり中途で身を引いたりした結果の悪影響に関して，サイコロジストは彼らを保護するために特別のケアをする必要がある。

(d)リサーチに参加することが授業のコースで要求されていたり，余分の単位取得の機会だったりする場合，リサーチに参加しなかった人の場合にもそれと代価のものを選ぶ機会を与える。

(e)インフォームド・コンセントを与えることが法的に不可能な人の場合でも，サイコロジストは，(1)適切な説明をする，(2)同席者の同意を得る，(3)もし代理の同意書が法律で許されている場合には，法的に資格を有している人の同意書を得る。

6.12.　インフォームド・コンセントの必要の有無

計画したリサーチ（匿名の質問表のみを用いるもの，自然観察，ある種の文献研究など）がリサーチに参加する人達の同意を必要とするか否かを決断する以前に，サイコロジストは適応可能な規則と機関の審議委員会が求めているものを考慮し，適切な同僚にコンサルトする。

6.13.　リサーチの記録（録画，録音など）におけるインフォームド・コンセント

どのような形態にせよリサーチの参加者の記録をとるときには，撮影の前に同意を得る。ただし，リサーチが公の場所の単純な自然観察で，写された人の個人的アイデンティティが判明したり，害が及んだりするためにこの記録が使用されることが予想されない場合は別である。

6.14.　リサーチ参加者へ見返りとしてのサービスの提供

(a)リサーチへの参加を求める見返りとして専門的なサービスを提供するにあたって，サイコロジストはそのサービスの種類，性格，リスク，義務及び制約に関して明確にする。（基準1.18.　取り引き（患者またはクライエントとの間での）の項参照）。

(b)サイコロジストは，リサーチに参加を得るにあたって，特にそれが参加を強制しやすい傾向がある場合には，過剰または不適切な経済的その他の報酬を提供してはならない。

<div align="right">（富田正利・深澤道子訳　1996　日本心理学会　より抜粋）</div>

Suggested Readings List（参考図書ガイド）

American Psychological Association　1995　*Ethical Principles of Psychologists and Code of Conduct.*
*Japanese translation of the 1992 edition available from the Japan Psychological Association.　東京都文京区本郷2-40-14-902　学部および院生向き

Aronson, E., Ellsworth, P.,Carlsmith, J., & Gonzales, M.　1990　*Methods of Research in Social Psychology.* McGraw Hill, International Edition. 院生向き

Kimmel, A.J.　1996　*Ethical Issues in Behavioral Research.* Blackwell Publishers.　学部上級及び院生向き

Shaughnessy, J.J., & Zechmeister, E.B.　1994　*Research Methods in Psychology.* 3rd ed. McGraw-Hill International, Singapore. 学部生向き

Guide to Plagiarism
Steven B. Rothman, Ph.D.

At university, students hear a lot about plagiarism, but most are not sure exactly what it means, why it is important, or how to avoid it.

What is plagiarism?

Basically, plagiarism is the theft of someone's intellectual property and using it as your own without acknowledging where it came from.

In all cases of essay writing, you, as a responsible student, must tell the reader where your information comes from. If you get information from the Internet, from an encyclopedia, from a book, or from an article, you must tell your reader where this information comes from.

Why is it important?

First, it is important because <u>copying someone else's idea or words and using them as your own is cheating</u>. It makes professors think you are smarter (or not) than other students because of your actions. This is immoral behavior, and it affects the grades and evaluations of other students in the class.

Second, <u>telling the reader where information comes from provides strength to your ideas</u>, not weakness. When you tell us that a particular idea comes from an expert or a book, it helps your essay get stronger. If I say, "global warming is dangerous," for example, why would you believe me? If I say, "Al Gore says global warming is dangerous" it helps make my statement stronger.

Third, <u>if you simply copy someone else's words or ideas, you are not thinking or learning</u>. If you go online and copy a Wikipedia article for your class essay, you have not done any learning. This means you are paying for an education and receiving nothing in return because you have decided to cheat and take a lazy means to finishing.

The fourth reason to avoid plagiarism concerns <u>the very strict penalties at APU</u>. The penalties for committing plagiarism range from receiving an "F" on the assignment to receiving an "F" for all your classes and a retraction of any scholarships. Some cases even cause students to be removed or expelled from school. The school and faculty have a wide-variety of techniques to find plagiarism. The penalties and the problems caused by plagiarism are not worth the high chances of getting caught.

How do you avoid it?

The simple answer is to tell the reader every time you take an idea, a word, a set of words, or data from some other source. The technical parts of this are explained in class and various places on the Internet, for which you should ask professors.

[Text version]

For the Sound Development of Science

-The Attitude of a Conscientious Scientist-

Japan Society for the Promotion of Science

Editing Committee "For the Sound Development of Science"

Section III: Conducting Research

1. Introduction

The following April, Taro received a notice of informal decision that his *kakenhi* proposal had been accepted. The research would start soon. He had already obtained the approval of the campus ethics review committee, but its report pointed out that a review and approval would still be required at the other universities and institutions taking part in the joint research and that the group must obtain informed consent from each of the participants (subjects). Even with this BMI research that uses only non-intrusive interface devices, this request of the ethics review committee was appropriate as the research embarks upon new territory.

Then, a professor at another university taking part in the joint research sent a comment saying, "The ethics review committee at my university told us that the methods for obtaining informed consent from the subjects and for protecting personal information need to be more clearly defined. Our research has thus far involved only artificial objects, so I am not that familiar with such concepts as informed consent and personal information. Why do we need to get informed consent in the first place?" How should Taro respond to this question?

In carrying out responsible research activities, the principal investigator and other participating researchers are expected to conduct research with integrity; this is a scientist's responsibility. By fulfilling this responsibility, scientists can help maintain the relation of trust between the scientific community and society, which provides opportunities and funding for research, guaranteeing research freedom.

When a research project requires human subjects, scientists must possess a full understanding of their "responsibilities" as scientists. Research that involves human subjects spans a large spectrum of fields, including the humanities and social sciences, such as history and sociology, and engineering, such as information engineering and automotive technology. For example, the Society of Automotive Engineers of Japan, a public-interest incorporated association, issued "Ethical Guidelines for Research Involving Human Subjects" in 2012.[1]

Clinical research in medicine is the field having the most rigorous standards. It is helpful for scientists in other fields to consider these standards, instead of just saying, "Medicine and clinical research are not relevant to my research." Historically, medicine was the first profession (group of intellectuals) to be created; doctors and other groups of specialists in medicine-related fields established a research code of conduct, which can be applied to research in other fields. In particular, standards related to research involving human subjects can be used as reference in other fields, including the humanities and social sciences.

2. Informed Consent

2.1. Concept and Necessity of Informed Consent

The "Ethical Guidelines for Clinical Studies" established by the Ministry of Health, Labour and Welfare states that informed consent "means the consent that a person who is a candidate for inclusion as a subject of a clinical study, after having been fully informed of the design of the

study by researchers or equivalent persons and having fully understood the significance, objective(s), method(s), etc. of the study, gives at his/her own discretion consent to participate in the study and approval of the procedures for handling the human specimens and equivalent materials."

The concept of informed consent and the process of establishing it were born out of deep regret and reflection over past experiments that ignored human dignity and human rights. In clinical sites, informed consent is also rooted in legal definition of patient rights in the United States and Germany. Instead of a one-way relationship from doctor to patient, which had been common, this is a relatively new, two-way concept and process through which the doctor, out of respect for the patient's dignity and autonomy, gives him/her the right to make choices. Today, this concept is widely accepted and practiced.

In the context of research ethics, informed consent applies three ethical principles (respect for persons, beneficence, and justice) in the Belmont Report[2] to research conduct. This is a concept and procedure to guarantee the dignity and rights of human subjects; it is not intended to give legal protection to the subjects.

The cornerstone of the discussion on life ethics leading up to the Belmont Report was the "Ethical Principles for Medical Research Involving Human Subjects" (1964, most recently revised in 2013) issued by the World Medical Association (WMA), the so-called "Declaration of Helsinki." It has undergone several revisions, but Article 1 of the most recent (2013) edition states that "The World Medical Association (WMA) has developed the Declaration of Helsinki as a statement of ethical principles for medical research involving human subjects, including research on identifiable, human material and data." What is crucial here is that "identifiable, human subject and data" are all included as being subject to these principles and that they include data obtained by interviews and surveys without directly contacting a real person physically.[3]

The Declaration of Helsinki makes the point that "No matter how important the objectives of research may be to society, the research shall never violate the dignity and human rights of individual research subjects," and this is a fundamental principle shared with research in other fields. Informed consent is one of the specific processes necessary to protect this most important concept of "respect for persons." Based on various ethical principles included in the Declaration of Helsinki, international organizations and the governments of many nations have established legal restrictions, ethical policies, and guidelines. In Japan, the following are among the major documents in their respective fields.[4]

- *Ethical Guidelines for Clinical Studies* (entirely revised on July 31, 2008)

- *Ethical Guidelines for Epidemiological Research* (partially revised on December 1, 2008)

- *Guidelines on Genetic Tests and Diagnoses in Medical Practice* (February 2010)

- *Guidelines for the Use of Human Embryonic Stem Cells* (revised on May 20, 2010)

- *Ethical Guidelines for Human Genome/Gene Analysis Research* (entirely revised on February 8, 2013)

- *Guidelines on Research for Creating Reproductive Cells from Human iPS Cells or Human Tissue Stem Cells* (partially revised on April 1, 2013)

The importance of informed consent is clearly spelled out in all of these documents. For this discussion, we primarily look at the most comprehensive set of guidelines, *Ethical Guidelines for Clinical Studies,* issued by the Ministry of Health, Labour and Welfare.[5]

First, the objective of the Ethical Guidelines is to "set forth principles to be followed by all individuals involved in clinical studies from the standpoint of the dignity of the individual, human rights, and other ethical and scientific aspects, with an ultimate goal of promoting appropriate clinical research having the understanding and cooperation of the public."[5] Obtaining the "understanding and cooperation of the public" is equally necessary in other research fields.

2.2. Components and Procedures of Informed Consent

> When Taro explained the necessity of informed consent to the inquiring professor, he replied, "Oh, I see. You are saying that informed consent is necessary in order to exercise respect for the dignity of human subjects; in other words, the concept of 'respect for persons' stated in the Belmont Report, and in order to maintain and strengthen good relations with the public, right? Indeed, if I or my dear family members ever become human subjects, we wouldn't want to participate in the research unless our dignity was carefully considered. So I understand that it its necessity. But specifically what is required of us? For instance, if I recruit students at my university to be human subjects, what should I be careful to do?"

As clearly stated in the "Ethical Guidelines for Clinical Studies," informed consent has three essential components: being "fully informed," participation at one's "own discretion," and giving "consent." These correspond with the three components of informed consent described in the Belmont Report[2]: information, comprehension, and voluntariness.

2.2.1. Information

Information necessary to being fully informed must be disclosed to the participant so that s/he can make an informed decision. Such information includes but is not only a "paragraph containing the order and methods used in the research, its objectives, expected risks and benefits, possibilities for other methods (if treatment accompanies the research), and the fact that the subject may, at any time, ask questions or terminate his/her participation." It also is to include information on the method used in selecting the subjects and information on the principal investigator of the research project.

The "Ethical Guidelines for Clinical Studies" state that the following information must be disclosed as well.[5]

(1) Participation in the study is optional.

(2) Declining consent to participate in the study will not cause any disadvantage to the candidate.

(3) A subject or his/her proxy consenter or equivalent person may rescind informed consent at any time after giving it without sustaining any disadvantage.

(4) The reason why the individual was selected as subject candidate for the study

(5) The significance, objective(s), method(s), and duration of the study

(6) Name(s) and position(s) of researcher(s) and equivalent person(s)

(7) Outcome of the study, possible benefits and risks arising from participation in the study, unavoidable discomfort associated with participation in the study, and measures taken after completion of the study

(8) The possibility that the results of the study will be published after making the subjects unidentifiable

(9) Financial resources related to the study, possible conflicts of interest, and the relationship between the researchers or equivalent persons and the organizations related to the study

(10) Whether compensation will be provided for participation in the study (and details of the compensation, if any)

(11) Information on whom to contact if the subject has complaints, incurred inquiries, etc.

As the information that must be disclosed to obtain informed consent cannot have omissions, various organizations have prepared checklists. Nevertheless, it is important not to think of the items listed in the Ethical Guidelines as merely points to be "checked off." Scientists must themselves consider what information should be disclosed in order to guarantee the subjects' dignity and welfare in the best way possible.

2.2.2. Comprehension

Even if sufficient information is given, a subject candidate would not be able to comprehend the information or rationally exercise his/her free will if the way in which it is presented is complicated or confusing or if the items are listed in rapid succession. One should think of a way to explain the information in an easy-to-understand manner, considering the candidate's knowledge level and age. If the candidate is a foreign national, his/her cultural background and language should be taken into account. It is also important to be aware that the language scientists' use in their daily research is often very specialized and therefore difficult for the average person to understand. Even when these considerations are taken, quite often the candidate may not fully comprehend the explanation. Thus, one must pay close attention to verifying whether the candidate has understood all of the explanation: Testing his/her comprehension may be appropriate.

In situations where the candidate is a minor or cannot make a decision based on his/her free will, it is necessary to obtain the understanding of a "proxy consenter" such as a parent or guardian or another family member.

2.2.3. Voluntariness

Informed consent is established only when the subject voluntarily agrees to participate in research. Traditionally, Japan has had a cultural and social environment in which subjects are easily influenced by the status or authority of doctors and scientists; therefore, special care must be exercised in the case of Japanese subjects. In particular, scientists affiliated with a university or other educational institution should avoid using their own students, on whom they have strong

influence, but rather try to find subjects who are other than their students. Should this not be possible, the scientist may approach his/her own students but only after a reliable method is used to confirm that they would participate at their own free will. Offering a big honorarium or presenting other benefits as compensation for the subject's participation would undermine the principle of "voluntariness." Obviously, hinting at giving a higher grade or promotion would clearly be an unethical practice.

2.2.4. Items to be considered in obtaining informed consent

As already mentioned, the necessity of obtaining informed consent is not limited to clinical research. One must be aware that this requirement applies to all research involving human subjects. So, scientists should consider anew whether it is necessary to obtain informed consent in their own research.

> The professor working with Taro as a researcher heard Taro's explanations and replied, "OK, I understand. It appears to be a process that takes time and effort, but is essential if we want our research to have any value. I was not familiar with this concept in my engineering department. I wonder if it is better understood in other fields." So, Taro decided to contact professors in the humanities and social sciences at his university to find out what type of procedures in their departments are carried out to obtain informed consent in areas of research involving human subjects such as in psychology.

In the field of psychology, the following points are germane to informed consent.[6]

In research involving human subjects, it is necessary to ask for the cooperation of those who will serve as human subjects. Regardless of the way that they are recruited, it is necessary to first clarify the type of research they are being asked to participate in and then recruit them. In the case of psychology research, disclosing certain information in advance to the participants may bias the research. In some cases, therefore, careful and detailed discussion of ethics is required, particularly when asking for participant's cooperation in research that necessitates not giving the subject certain information or even practicing deception (giving him/her false information).

Becoming a research participant and voluntarily participating in research may mean giving up one's private time. In some studies, the subjects volunteer without any compensation; in others, an honorarium or something else is given as a token of appreciation. This varies largely depending on the risk and duration involved.

Furthermore, in conducting research, it is necessary to carefully prepare safety measures, often including accident insurance in case some sort of health-related damage should occur.

Honoraria and accident insurance may also be necessary in fields other than psychology. Additional considerations and appropriate procedures may be required in certain cases, such as when the research participant's comprehension and decision-making ability is not sufficient to give voluntary consent (informed consent from a "proxy consenter") or when informed consent is not required, e.g. in observational studies. Even after informed consent is obtained once, the process of obtaining it may have to be repeated with detailed and proper explanations each time the situation changes; for instance, when the research participant's health changes or the research objectives change.

3. Protecting Personal Information

One of the points that should be explained when obtaining informed consent is how the subject's personal information is to be protected. Not only must this be considered sufficiently out of respect for the subject's dignity, in modern society leakage of personal information and privacy infringement can lead to dire consequences. Once information is leaked, it is impossible to contain it or to undo the leak. In some cases, the subject's character could be slandered or the subject could lose social credibility. Disadvantages could come in many forms. Genetic data obtained by research, such as in human genome projects, contains not only information related to the health and welfare of the subject, but as it is related to his/her family, leakage of such information could have enormous consequences far beyond anyone's imagination. Disclosure of personal information related to epidemiological studies can inflict harm on a large group of people.

Privacy and personal information protection have been actively discussed all over the world since the late 20th century (e.g. OECD's Eight Principles). In Japan, the Act on the Protection of Personal Information went into full effect in 2005. In clinically-relevant fields, the Ministry of Health, Labour and Welfare established the "Guidelines for Appropriate Handling of Personal Information by Medical, Nursing, and Related Businesses" (issued in December 2004, revised in 2010). This document urges that these guidelines be adopted by universities and other educational and research institutions that are exempt from the "Act on the Protection of Personal Information" so as to preserve their "academic freedom."

The guidelines contain the following ten points regarding personal information, related to provisions in the "Act on the Protection of Personal Information."[7]

(1) Identifying the purpose of its use

(2) Notification of the purpose of its use

(3) Obtaining personal information appropriately, ensuring its accuracy

(4) Measures for safety management: supervising employees, monitoring contractors

(5) Restrictions on providing personal data to a third party

(6) Public disclosure of items related to retained personal data

(7) Disclosure of retained personal data requested by the subject

(8) Amending information and suspending its use

(9) Procedures and fees for disclosure requests

(10) Explanation of reasons; responding to complaints

These laws and guidelines constitute fundamental rules to be understood by scientists. In particular, principal investigators must not only know these rules and guidelines themselves but must also ensure that every member (including students) participating in the research understands them, while promoting strict compliance.

3.1. Definition of "Personal Information"

In the "Act on the Protection of Personal Information," the term "personal information" is defined as "information on a living individual, which can identify the specific individual by name, date of birth or other description contained in such information (including information that can be compared with other information and thereby identify the specific individual.)"[8] Specifically, this includes not just information such as name, gender, date of birth, and other descriptions that can identify the specific individual but also "any information expressing facts, judgment, or evaluation concerning the individual's physical body, assets, occupation, position, or other attributes." This includes information already made public in addition to information known to a limited group of people, including information contained in images and sound. Even if such information is encrypted, it is still considered personal information.[9]

3.2. Linkable Anonymizing and Non-Linkable Anonymizing

In general, research involving human subjects includes a process of "anonymizing," in which information that can identify individuals is partially or entirely removed from their personal information and replaced with numbers or codes. If identification is possible by referencing the information with some other information (e.g. directories), then the information necessary for such referencing is also replaced with numbers or codes. This anonymizing process has two major types: linkable anonymizing and non-linkable anonymizing. The former is an anonymizing method in which the correspondence chart for codifying by numbers or codes is stored but not managed by the researchers. Its merit is that the subjects can be identified if necessary. The latter is an anonymizing method in which the correspondence chart is not stored but discarded. Any information processed by non-linkable anonymizing is no longer considered personal information.

3.3. Scientists' Responsibility for Personal Information in Conducting Research

What responsibility, then, does a scientist have in handling personal information while conducting research? The "Ethical Guidelines for Clinical Studies" list the following responsibilities related to the protection of personal information.[10]

(1) When presenting research results, the subjects shall not be identifiable.

(2) Personal information shall not be used beyond the scope necessary to accomplish the purpose of its use specifically explained to the subject when obtaining informed consent.

(3) Personal information shall not be obtained using an improper method.

(4) Effort shall be made to maintain personal information accurately and current within the scope necessary to accomplish the purpose of its use.

(5) Safety management shall be implemented to ensure that personal information is not leaked, lost, or damaged.

3.4. Handling Personal Information in the Humanities and Social Sciences

This discussion has been focused on clinical research thus far; however, research involving human subjects goes beyond clinical research. Some fields of the humanities and social sciences, such as history and sociology, can also involve personal information.

For instance, when one presents results while quoting unpublished documents or interview records, the following points need to be considered:

- In the original interview, to obtain consent from the interviewee concerning the objectives of the research, scope and format of disclosure, and whether or not his/her approval will be obtained before presentation.

- When quoting an interview record, to mention the interviewee's name, position and occupation, date, time, and location of the interview within the scope agreed upon by the interviewee.

- When quoting a historical source or document publicly displayed in an archive or a historical library, to cite the name of the archive or library, title of the source/document, document number, and other details. When using a deposited document and the deposition agreement requires that the depositor be shown a rough draft of your presentation in advance, to be sure to comply with that requirement.

- If you have received special permission from an individual or a corporation to browse historical sources or documents, to obtain prior agreement and clarify the disclosure conditions, including to what extent you may disclose the actual resources/documents, their existence, and items containing personal information.

- When quoting historical resources or documents, to pay especially close attention to information such as an individual's birth, lineage, economic status, death (including history of illnesses), and criminal history, because, while the individual may have lived in the past, such information may violate the privacy of his/her heirs or successors.

4. Collecting, Managing, and Processing Data

Taro's research team has, with the cooperation of related offices of the university, completed the process of obtaining informed consent from all the human subjects, and is making preparations to begin their research. Just as they were about to begin their experiments, another professor said to him, "As we go about conducting our research, shouldn't we decide in advance how we will share the data obtained among the collaborating researchers? The research plan does stipulate that the data will be shared in an appropriate manner, but provides no specific indication on how that is to be done. Besides, differences exist between the humanities and science researchers in the way they keep their research notes." Taro decided to first discuss the experimental data and how they are recorded with the postdoctoral fellows and graduate students in his laboratory. He asked them, "As our group participates in this research, the way each of us keeps lab notes and maintains raw data may differ from one another. What rules has our laboratory followed thus far? When carrying out joint research with outside organizations, does anyone know how to handle lab notes and data?"

4.1. Data and Their Importance

Data comprise "all types of information based on facts, used for rational deduction."[11] The importance of data in research is obvious; without data, there could be no research. What constitutes data varies from field to field. In history, for example, data include not just printed materials and books but also hand-written letters, artifacts, and a wide variety of other things. In sociology and anthropology, survey results and interview records also make up crucial data. In the empirical world of science, data include measurement data and image data obtained via experiments.

To assure the reliability of data in scientific research, one must make sure

(1) that the data are obtained based on appropriate methods,

(2) that the data collection does not involve intentional wrong-doing or mistakes due to negligence, and

(3) that the data obtained are properly stored and their originality is maintained.

With the exception of few special circumstances, the quality of all scientific research is determined upon the assumption that the "data" were obtained using the utmost care and rigor available at the time. Accordingly, scientists must handle "data" with integrity in every phase of their research activities.

Collection of data differs depending on the research field, theme, objective, and other factors, so the procedures established for handling them in one's own field of specialization should be followed. However, at least in research involving experiments, there are some common factors on "record-keeping and the strict handling of research and investigation data." Let's take a look at them.

4.2. Purposes of Lab Notes

In experimental fields, data are generally recorded in the so-called "lab notes" (sometimes referred to as research notes or experiment notes). Well-maintained lab notes that contain data and ideas recorded in an appropriate manner serve at least three crucial roles. First, they prove that the research has been conducted fairly and properly. Second, when the research produces a result, the lab notes can prove its originality. Third, they make the data and ideas transparent in the laboratory and in the research group, serving as a tool for sharing and effectively applying the data, i.e., a tool for "knowledge management."[12]

The National Institutes of Health (NIH), a central agency for life-science research in the United States, states the following concerning the purposes of recording daily activities in lab notes:[13] First, if the experiment produces a result, information retained in lab notes can help a third party replicate the experiment. Further, in the context of research ethics, lab notes can validate the legitimacy of the research and prevent improper practices. There are situations where lab notes are legally required to fulfill contractual conditions, and for patents, lab notes can protect intellectual property rights. Furthermore, lab notes can establish effective research customs and practices within the research team, helpful in educating its members (including students). In addition, lab notes can provide evidence for recognizing accomplishments, i.e., how much each member has contributed to the research. With excellent lab notes, preparation for official reports, papers, and presentation can be made easy.

In private corporations, strict procedure may be applied to writing lab notes as they can be involved in intellectual property rights such as patents. Many firms have well-established lab notes management rules that stipulate their contents, recording methods, how to obtain witnesses' signatures to validate them as documents for evidence, and how to manage the notes. In the United States, where the industry-academic collaboration has been on the rise since the establishment of the Bayh-Dole Act of 1980, various issues associated with intellectual property have rapidly increased. Consequently, many universities have established and adopted policies on lab notes.[14]

In conducting responsible research activities, one needs to understand that lab notes are an indispensable tool and to establish and implement related rules after discussing them among the entire research group, including joint researchers (check the policies of affiliated institutions if they already have such policies).

4.3. What Makes the Best Lab Notes

So then, what do good and useful lab notes look like? According to F. L. Macrina, et. al., useful lab notes are those in which the scientist has clearly recorded

(1) what was done, why, how, and when it was done,

(2) where the experiment materials and samples are kept,

(3) what phenomena occurred (or did not occur),

(4) how the scientists interpreted the facts, and

(5) what the scientists will do next.

The best lab notes are stated to be

(1) easy to read,

(2) well organized,

(3) recorded accurately without omission,

(4) contain information sufficient for replication,

(5) satisfy the requirements set by funding agencies and affiliated institutions, and

(6) properly stored so that only authorized personnel can see them, and duplicates are made in case something should happen to the original notes.

Macrina et. al. conclude that lab notes are the "record that will ultimately validate the scientific contributions you have made."[15]

4.4. Lab Notes: Items to Record, Methods of Recording

Okazaki, et al. summarize important points for writing lab notes as follows: [16]

(1) Entries should be in chronological order.

(2) Notes should have no blanks. Cross out any blank spaces and completely avoid inserting sentences.

(3) Prior entries should never be corrected later. Any correction should be written on the page for the day when the correction is made.

(4) Entries should be managed according to "date" and "title" (convenient if they are linked to the table of contents).

(5) Abbreviations and special terms should be recorded with explanations for a third-party reader (good to add a "list of abbreviations" and "glossary" at the beginning).

(6) Objectives, logical reasons, and plans should be briefly stated for new plans and when the experiment is about to begin.

(7) Entries should be written in enough detail for a third party to replicate the experiment.

(8) Entries should be written so that (if they are separated) the reader can easily see the order in which the sections follow each other.

(9) Results and observation items should be recorded immediately.

(10) If a result (or something else) is attached, the person recording it, as well as the date and the signature of a witness, should be written on the attachment and the notebook page.

(11) If attaching a document is difficult, the location and the name of the attachment should be recorded in the notes and the attachment stored separately, with cross reference to each other.

(12) Facts such as data should be clearly distinguished in writing from ideas and conjectures such as observations.

(13) In joint research, entries should be written with an awareness of to whom ideas and proposals belong.

(14) Discussions in meetings should also be recorded.

(15) Each page should contain the name of the person writing the entry and a witness's signature and date.

These are just examples; however, the quality of research will improve when these points are thoroughly discussed among the research team and checked on a regular basis throughout the research.

There are notebooks sold for lab notes. One example is the "Research Lab Notebook" developed jointly by Prof. Yoichiro Sada of Yamaguchi University and Kokuyo S & T Co. Ltd., a Japanese stationery manufacturer. Here is an example of an entry in it.

[Entry Example]

Date, month, and year of the entry should be clearly recorded.

Only when the entry goes on for two or more pages.

Correction of an error (be sure the date is clear)

Page number, to be recorded when the page is used.

45

'10年2月7日　続き

ポリプロピレン　'10年2月7日　鈴木次郎
ポリエチレンを

佐藤太郎　'10年2月7日

Full name of the reviewer

Date of review

'10年2月8日　プロジェクト：△△△△△△

Main title: research project title

（データ引用文献名：□□□□、P12）

Reference work cited

'10年2月8日　以前に行った記載を下記の通り訂正する。
〔訂正個所〕　P40、'10年1月17日
〔訂正内容〕
〔訂正理由〕

Later revision

佐藤太郎　'10年2月8日

Tally impression

Transparent film tape

'10年2月9日　プロジェクト：○○○○○○

鈴木

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鈴木

Separate sheet attached

以下空白

Only if a blank space is left below before going on to the next page

記入者　鈴木次郎　　確認者　佐藤太郎　　日付　2010年　2　月　9　日

Signature of the person writing the entry (full name)

Signature of the reviewer (full name)

Date reviewed

33

4.5. Managing Lab Notes (Data)

Even when lab notes are taken appropriately, clearly recording data and ideas obtained in the research, the reliability of the lab notes and their value as evidence could be lost if the notebook is poorly managed. For instance, if the notes are kept in such a way that one lab notebook can be completely replaced by another, the laboratory would be in a disadvantageous position when competing for a patent.[17]

Fundamentally, lab notes do not belong to an individual; they are considered to belong to the institution (e.g. research institution) that provides the research environment and funding. Therefore, they should be managed appropriately in accordance with the rules of that institution. Where the institution does not have a dedicated department or office that stipulates management rules, it is necessary for the principal investigator to initiate an effort to create such an office and to establish management rules by discussing them with the members of the research group. In institutions where the research members come and go frequently, such as universities, it will be necessary to create a management system that also includes training of new members. Particularly close attention should be given if the research involves data containing personal information. Access to the lab notes should be limited, and the notebooks should be kept in a locked cabinet. On the other hand, if the research is done by a team, the progress of the research could be hindered if the members' access to the data is severely limited. Therefore, discussion with the team members is necessary to obtain an appropriate balance.

As discussed above, lab notes are extremely important to scientists as a record of the experiments and research they have conducted. These notes are more than just an intellectual compilation of their own research processes and ideas. As lab notes can provide validation and evidence after a paper is presented, each research institution must establish policies on the method and duration of their storage.

Organizations that fund research are requesting that data be kept for a certain period of time after the subject research is completed. For research data related to patents, an exceptionally long period of 30 to 50 years of storage is considered desirable.[18] For such a long period of storage, the responsibility should not fall on the individual scientists or laboratories, but rather on the larger institution.

In joint research in which multiple institutions conduct research together, the ownership of lab notes and distribution of credit should be thoroughly discussed in advance. Even while the research is being carried out, discussions should take place often to ensure agreement.

Recently, it has become possible to store lab notes and data on electronic media. However, even in this case, it is still necessary for documents and data to be kept properly in such a way that correction, addition, and revision cannot be done after the date that an experiment was originally recorded. Research institutions must issue a clear statement on such a method as well.

5. What Is Research Misconduct?

5.1. Definition of Research Misconduct

Three types of conduct are defined as research misconduct all over the world, not just in Japan: They are fabrication, falsification, and plagiarism, sometimes abbreviated "FFP." Federal law in the United States adopts these three as the definition of research misconduct.[19]