

# PROPOSALS THAT WORK

FOURTH EDITION

A Guide for Planning  
Dissertations and Grant Proposals

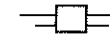
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## CHAPTER

# 1



## The Function of the Proposal

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A proposal sets forth both the exact nature of the matter to be investigated and a detailed account of the methods to be employed. In addition, the proposal usually contains material supporting the importance of the topic selected and the appropriateness of the research methods to be employed.

### FUNCTION

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A proposal may function in at least three ways: as a means of communication, as a plan, and as a contract.

#### *Communication*

The proposal serves to communicate the investigator's research plans to those who provide consultation, give consent, or disburse funds. The document is the primary resource on which the graduate student's thesis or dissertation committee must base the functions of review, consultation, and, more important, approval for implementation of the research project. It also serves a similar function for persons holding the purse strings of foundations or governmental

funding agencies. The quality of assistance, the economy of consultation, and the probability of financial support will all depend directly on the clarity and thoroughness of the proposal.

### *Plan*

The proposal serves as a plan for action. All empirical research consists of careful, systematic, and preplanned observations of some restricted set of phenomena. The acceptability of results is judged exclusively in terms of the adequacy of the methods employed in making, recording, and interpreting the planned observations. Accordingly, the plan for observation, with its supporting arguments and explications, is the basis on which the thesis, dissertation, or research report will be judged.

The research report can be no better than the plan of investigation. Hence, an adequate proposal sets forth the plan in step-by-step detail. The existence of a detailed plan that incorporates the most careful anticipation of problems to be confronted and contingent courses of action is the most powerful insurance against oversight or ill-considered choices during the execution phase of the investigation. With the exception of plans for qualitative research (see Chapter 5), the hallmark of a good proposal is a level of thoroughness and detail sufficient to permit another investigator to replicate the study, that is, to perform the same planned observations with results not substantially different from those the author might obtain.

### *Contract*

A completed proposal, approved for execution and signed by all members of the sponsoring committee, constitutes a bond of agreement between the student and the advisors. An approved grant proposal results in a contract between the investigator (and often the university) and a funding source. The approved proposal describes a study that, if conducted competently and completely, should provide the basis for a report that would meet all standards for acceptability. Accordingly, once the contract has been made, all but minor changes should occur only when arguments can be made for absolute necessity or compelling desirability.

Proposals for theses and dissertations should be in final form prior to the collection of data. Under most circumstances, substantial revisions should be made only with the explicit consent of the full committee. Once the document is approved in final form, neither the student nor the sponsoring faculty members

should be free to alter the fundamental terms of the contract by unilateral decision.

## REGULATIONS GOVERNING PROPOSALS

All funding agencies have their own guidelines for submissions, and these should be followed exactly. In the university, however, no set of universal rules or guidelines presently exists to govern the form or content of the research proposal. There may be, however, several sources of regulation governing the form and content of the final research report. The proposal sets forth a plan of action that must eventuate in a report conforming to these latter regulations; therefore, it is important to consider them in writing the proposal.

Although it is evident that particular traditions have evolved within individual university departments, any formal limitation on the selection of either topic or method of investigation is rarely imposed. Normally, the planning and execution of student research are circumscribed by existing departmental policy on format for the final report, university regulations concerning theses and dissertation reports, and informal standards exercised by individual advisors or study committees.

Usually, departmental and university regulations regarding graduate student proposals are either so explicit as to be perfectly clear (e.g., "The proposal may not exceed 25 typewritten pages" or "The proposal will conform to the style established in the *Publication Manual of the American Psychological Association*") or so general as to impose no specific or useful standard (e.g., "The research topic must be of suitable proportions" or "The proposal must reflect a thorough knowledge of the problem area"). The student, therefore, should find no serious difficulty in developing a proposal that conforms to departmental and university regulations.

Some universities now allow students to elect alternative dissertation or thesis formats, such as a research paper (or series of papers) with an expanded literature review and supporting materials in the appendix. You might consider such an option because the more compact research paper format can save considerable time in turning the completed dissertation into a publication. Alternative formats for the final report, however, do not alter the need for a complete proposal. A good study requires a sound plan, irrespective of the format used for reporting the results.

Another potential source of regulation, the individual thesis or dissertation committee, constitutes an important variable in the development of the thesis or dissertation proposal. Sponsoring committee members may have strong personal commitments concerning particular working procedures, writing styles, or proposal format. The student must confront these as a unique constellation of demands that will influence the form of the proposal. It always is wise to anticipate conflicting demands and to attempt their resolution before the collection of data and the preparation of a final report.

Committees are unlikely to make style and format demands that differ substantially from commonly accepted modes of research writing. As a general rule, most advisors subscribe to the broad guidelines outlined in this book. Where differences occur, they are likely to be matters of emphasis or largely mechanical items (e.g., inclusion of particular subheadings within the document).

### GENERAL CONSIDERATIONS

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Most problems in proposal preparation are straightforward and relatively obvious. The common difficulties do not involve the subtle and complex problems of design and data management. They arise instead from the most basic elements of the research process: What is the proper question to ask? Where is the best place to look for the answer? What is the best way to standardize, quantify, and record observations? Properly determining the answers to these questions remains the most common obstacle to the development of adequate proposals.

Simplicity, clarity, and parsimony are the standards of writing that reflect adequate thinking about the research problem. Complicated matters are best communicated when they are the objects of simple, well-edited prose. In the early stage of development, the only way to obtain prompt and helpful assistance is to provide advisors with a document that is easily and correctly understood. At the final stage, approval of the study will hinge not only on how carefully the plan has been designed but also on how well that design has been communicated. In the mass of detail that goes into the planning of a research study, the writer must not forget that the proposal's most immediate function is to inform readers quickly and accurately.

The problem in writing a proposal is essentially the same as in writing the final report. When the task of preparing a proposal is well executed, the task of preparing the final report is more than half done (an important consideration for

the graduate student with an eye on university deadlines). Under ideal conditions, such minor changes as altering the tense of verbs will convert the proposal into the opening chapters of the thesis or dissertation, or into initial sections of a research report.

Many proposals evolve through a series of steps. Preliminary discussion with colleagues and faculty members may lead to a series of drafts that evolve toward a final document presented at a formal meeting of the full dissertation or thesis committee, or to a proposal submitted through the university hierarchy to a funding source. This process of progressive revision can be accelerated and made more productive by following these simple rules:

1. Prepare clean, updated copies of the evolving proposal and submit them to advisors or colleagues in advance of scheduled consultations.
2. Prepare an agenda of questions and problems to be discussed and submit them in advance of scheduled consultations.
3. Keep a carefully written and dated record of all discussions and decisions that occur with regard to each item on the consultation agenda.

### GENERAL FORMAT

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Guidelines for the format of proposals, even when intended only as general suggestions, often have an unfortunate influence on the writing process. Once committed to paper, such guidelines quickly tend to acquire the status of mandatory prescription. In an attempt to conform to what they perceive as an invariant format, students produce proposal documents that are awkward and illogical as plans for action—as well as stilted and tasteless as prose.

Some universities and many funding agencies make very specific demands for the format of proposals. Others provide general guidelines for form and content. Whatever the particular situation confronting the writer, it is vital to remember that *no universally applicable and correct format exists for the research proposal*. Each research plan requires that certain communication tasks be accomplished, some that are common to all proposals and others that are unique to the specific form of inquiry. Taken together, however, the tasks encompassed by all proposals demand that what is written fits the real topic at hand, not some preconceived ideal. It is flexibility, not rigidity, that makes strong proposal documents.

### SPECIFIC TASKS

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The following paragraphs specify communication tasks that are present in nearly all proposals for empirical research. Each proposal, however, will demand its own unique arrangement of these functions. Within a given proposal, the tasks may or may not be identified by such traditional section designations as "Background," "Importance of the Study," "Review of Literature," "Methodology," "Definitions," or "Limitations." Individual proposals are sure to demand changes in the order of presentation, or attention to other tasks not specified below. This particularly will be the case with some of the tasks that are specific to grant proposals (see Part II). Finally, it is important to note that some of the adjacent tasks, shown as headings in the following paragraphs, often may be merged into single sections.

As you read each of the tasks below, an illustration can be found by turning to the first proposal in Part III of this guide. In that particular specimen, we have edited the proposal so the sections correspond to the discussion of each task. We have provided a critique preceding each section of the specimen proposal to summarize the suggestions presented in this chapter.

#### *Introducing the Study*

Proposals, like other forms of written communication, are best introduced by a short, meticulously devised statement that establishes the overall area of concern, arouses interest, and communicates information essential to the reader's comprehension of what follows. The standard here is a "gentle introduction" that avoids both tedious length and the shock of technical detail or abstruse argument. A careful introduction is the precursor of three other tasks (statement, rationale, and background). In many cases, it may be written simply as the first paragraph(s) of an opening proposal section that includes all three.

For most proposals, the easiest and most effective way to introduce the study is to identify and define the central construct(s) involved. In the sense that constructs are concepts that provide an abstract symbolization of some observable attribute or phenomenon, all studies employ constructs. Constructs such as "intelligence" or "teacher enthusiasm" are utilized in research by defining them in terms of some observable event, that is, "intelligence" as defined by a test score, or "teacher enthusiasm" as defined by a set of classroom behaviors. When the reader asks, "What is this study about?" the best answer is to present the key

constructs and explain how they will be represented in the investigation. The trick in these opening paragraphs of introduction is to sketch the study in the bold strokes of major constructs without usurping the function of more detailed sections that will follow.

Relationships among constructs that will be of particular interest or about which explicit hypotheses will be developed should be briefly noted. Constructs with which the reader probably is familiar may be ignored in the introduction, for they are of less interest than the relationships proposed by the author.

The most common error in introducing research is failure to get to the point—usually a consequence of engaging in grand generalizations. For instance, in a proposed study of attributes contributing to balance ability, the opening paragraph might contain a sentence such as "The child's capacity to maintain balance is a factor of fundamental importance in the design of elementary school curriculum." The significance of the construct "balance" in accomplishing motor tasks may make it an attribute of some importance in elementary education, but that point may be far from the heart of a study involving balance. If, for example, the proposed study deals with the relationship of muscle strength to balance, observations about balance as a factor in the design of school curriculum belong, if anywhere, in a later discussion. What belongs up front is a statement that gets to the point: "The task of maintaining static balance requires muscular action to hold the pelvis in a horizontal position. When muscle strength is inadequate to accomplish this, performance is impaired."

Some indication of the importance of the study to theory or practice may be used to help capture the reader's interest, but in the introduction it is not necessary to explain completely all the study's significance. Present the basic facts first and leave the detail of thorough discussion until a more appropriate point. Use of unnecessary technical language is another impediment to the reader's ability to grasp the main idea. Similarly, the use of quotations and extensive references are intrusions into what should be a clear, simple preliminary statement. As a general rule, the first paragraph of the introduction should be free of citations. Documentation of important points can wait until a full discussion of the problem is launched.

#### *Stating the Purpose*

Early in the proposal, often in the introductory paragraph(s), it is wise to set forth an explicit statement of your purpose in undertaking the study. We are using the word "purpose" in its general sense as a statement of why you want to do the study and what you intend to accomplish. Such statements can be divided

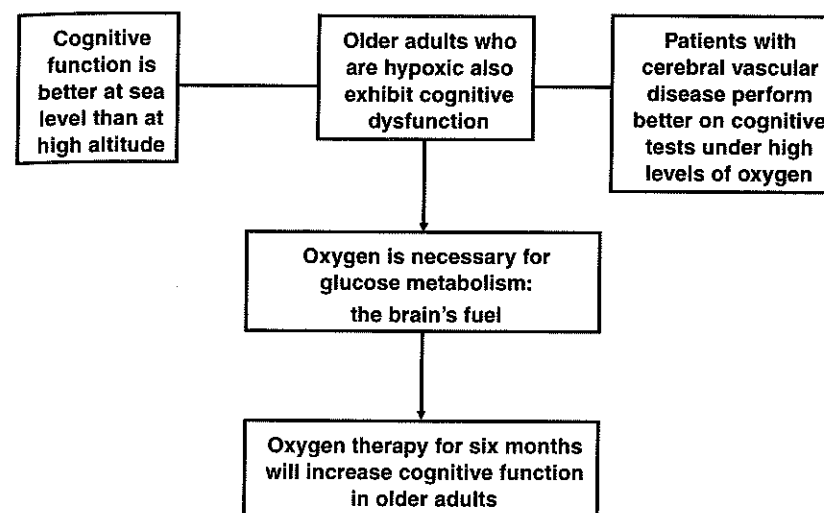
broadly into those related to the desire to *improve* something and those reflecting a desire to *understand* something. In addition to such practical and theoretical purposes, Maxwell (1996) has pointed out that, in some instances, it may be wise to be explicit about more personal purposes as well, including interests related to simple curiosity, a sense of social responsibility, or career demands.

A statement of purpose need not be an exhaustive survey of your intentions, nor need it be written in the formal language of research questions (which are much more specific expressions of what you want to learn). An early and specific announcement of the primary target for the study, and your purpose in aiming at it, will satisfy the reader's most pressing questions—what is this all about, and why is this study being proposed? Succinct answers allow the reader to attend to your subsequent exposition without the nagging sense that he or she still is waiting to discover the main objective. Make your statement of purpose early, be forthright, keep it simple, and be brief.

### ***Providing a Rationale***

Once the reader understands the topic of the investigation and has at least a general sense of your purpose, the next task is to address the question “Why bother with that?” in terms that are more detailed and explicit. The development of a rationale that justifies the proposed study usually involves both logical argument and documentation with factual evidence. The intention is to persuade the reader not only that the investigation (with its component questions or hypotheses) is worthy of attention, but also that the problem has been correctly defined.

To that end, it often is helpful to diagram factors and relationships that support your formulation of the problem. Suppose that an assertion proposed for experimental test is that older adults who had oxygen therapy for six months would show superior cognitive function when compared to subjects assigned to a control group. The implication of such an assertion is that there is a relationship between the level of oxygen provided to the brain and cognitive capacity in older adults. The reasons for such a complex supposition can be clarified by diagramming them in a simple form like the one shown in Figure 1.1. Assuming that the constructs have been defined, the rationale can be developed by documenting the information within each box, and then explaining the enormous practical consequences that would attend a positive finding. A sound rationale is one that convinces the reader that you are raising the right question—and that the answer is worth finding.



**Figure 1.1.** Example of Diagram of Logic for Rationale

In most cases, this early attention to justifying the proposed study should be limited to the basic matters of defining what is to be studied and why it is worth so doing. The detail of rationale for particular choices in methods of data collection and analysis can be deferred until such matters are discussed in subsequent parts of the proposal.

### ***Formulating Questions or Hypotheses***

All proposals must arrive at a formal statement of questions or hypotheses. These statements should be written in carefully constructed language that specifies each variable in explicit terms. A statement such as “Studying each day should result in improved learning” is better written as “Sixty minutes of studying each day will result in significantly increased scores on a standardized test of achievement.” These statements of questions or hypotheses may be set aside as a separate section or simply included in the course of other discussion. Such statements differ from what was contained in the statement of the purpose in that (a) they are normally stated in formal terms appropriate to the design and analysis of data to be employed, and (b) they display, in logical order, all subsections of the research topic.

The question form is most appropriate when the research is exploratory. The researcher should indicate by the specificity of questions, however, that the problem has been subject to thorough analysis. By careful formulation of questions, the proposed study should be directed toward outcomes that are foreshadowed by the literature or pilot work, rather than toward a scanning of potentially interesting findings.

The hypothesis form is employed when the state of existing knowledge and theory permits formulation of reasonable predictions about the relationship of variables. Hypotheses ordinarily have their origin in theoretical propositions already established in the review of literature. Because the proposal must ensure that the reader grasps how the relationships expressed in theory have been translated into the form of testable hypotheses, it often is useful to provide a succinct restatement of the theoretical framework at a point contiguous to the presentation of formal research hypotheses.

The most common difficulty in formulating a research question is the problem of clarity. Students who have read and studied in the area of their topic for weeks or months often are distressed to discover how difficult it is to reduce all they want to discover to a single, unambiguous question.

The clarity of a research question hinges on adequate specificity and the correct degree of inclusiveness. The major elements of the investigation must be identified in a way that permits no confusion with other elements. At the same time, the statement must maintain simplicity by including nothing beyond what is essential to identify the main variables and any relationships that may be proposed among them. Questions for quantitative studies, for example, must meet three tests of clarity and inclusiveness:

1. Is the question free of ambiguity?
2. Is a relationship among variables expressed?
3. Does the question imply an empirical test?

Applying these standards to the question "Does a relationship exist between self-esteem and reading achievement in children?" apparently identifies the study's main elements apparently in reasonably clear fashion. Self-esteem and reading achievement are variables, and children are the subject population. A relationship is suggested, and correlation of self-esteem and reading scores clearly is implied as an appropriate empirical test of the relationship. The constructs of self-esteem and reading achievement, however, are quite broad and might be taken by some readers to indicate variables different from those

intended. These potential sources of ambiguity might be resolved without destroying the simplicity of the question by altering it to ask, "Does a relationship exist between scores on the Children's Test of Self-Esteem and scores on the reading portion of the Tri-State Achievement Test?" Whether it also might be important to provide more specificity for the generic word "children" would depend on whether the intent was to examine self-esteem and reading in a particular type of child. If not, the generic word would be adequate, but if so, the importance of that variable calls for more careful specification in the question.

In the case of qualitative research (discussed at length in Chapter 5), because pre-established hypotheses are seldom used, questions are the tool most commonly employed to provide focus for thesis and dissertation studies. Although there is disagreement among scholars about the use of formal questions in qualitative research, there is no escape from the need to have a question (whether explicit or implicit) that will serve to direct what is observed, or who is interviewed—at least at the outset of the study.

The question(s) frequently are phrased in ways that make them appear very different from those used in the natural science model (and, thereby, discrepant with some aspects of the advice given in this chapter). Some, for example, will sound highly generalized, as in the following examples paraphrased from qualitative proposals.

1. What is going on in this urban school classroom?
2. How do professional wrestlers understand their work?
3. What does residence in a hospice mean to a patient?

Other question statements reflect the intention to use a particular theoretical framework in the study.

1. What perspective do medical students adopt to make sense of their experience in medical school?
2. How do gay and lesbian soldiers manage the presentation of their sexual preference within the social setting of their workplace?
3. How do social roles influence the interaction between teachers and students as they attempt to realize personal goals in the classroom?

In contrast with quantitative research, questions in a qualitative proposal often are treated as more tentative and contingent on the unfolding of the study.

Nevertheless, their careful formulation is no less important. They must give initial direction to planning, bring the power of theoretical constructs to the process of analysis, and reflect the degree of sophisticated thought employed in determining the focus of inquiry.

Experienced qualitative researchers sometimes do, in fact, elect not to package their curiosity, interests, concerns, and foreshadowings into the form of explicit research questions. Graduate students, however, embarking on their first attempt within the qualitative paradigm, often find that their advisors are greatly reassured when the proposal contains a careful accounting of what the data are expected to reveal that is not already known. In other words, it is a good idea for the novice to explicate the questions that motivate their interest, thereby firmly grounding the study in the conventions of scholarly inquiry. How a qualitative investigator's assumptions about the world, and about research, serve to shape those questions will be addressed in Chapter 5.

Research *hypotheses* differ from research *questions* in that hypotheses both indicate the question in testable form and predict the nature of the answer. A clear question is readily transformed into a hypothesis by casting it in the form of a declarative statement that can be tested so as to show it to be either true or false. Getting precisely the hypothesis that is wanted, however, often is more exacting than it appears.

Unlike a question, the hypothesis exerts a direct influence on each subsequent step of the study, from design to preparation of the final report. By specifying a prediction about outcome, the hypothesis creates a bridge between the theoretical considerations that underlie the question and the ensuing research process designed to produce the answer. The investigator is limited to procedures that will test the truth of the proposed relationship, and any implications to be deduced from the results will rest entirely on the particular test selected. Because it exerts such powerful a priori influence, a hypothesis demands considerable attention at the start of a study but makes it easier to preserve objectivity in the later stages of design and execution.

Aside from specific impact on design of the study, the general advantage of the hypothesis over the question is that it permits more powerful and persuasive conclusions. At the end of a study, a research question never permits the investigator to say more than "Here is how the world looked when I observed it." In contrast, hypotheses permit the investigator to say, "Based on my particular explanation of how the world works, this is what I expected to observe, and behold—that is exactly how it looked! For that reason my explanation of how the world works must be given credibility." When a hypothesis is confirmed, the

investigator is empowered to make arguments about knowledge that go far beyond what is available when a question has been asked and answered.

We would be remiss here if we did not note the current debate among researchers about the value of hypotheses and statistical significance testing. It has been argued (Schmidt, 1996; Thompson, 1996, 1997) that statistical significance testing (one step in the process of testing hypotheses) has certain technical limitations. For some studies, at least, other types of analyses might provide greater benefits. That debate is beyond the scope of this text. What is certain, however, is that graduate students should discuss the matter with advisors and committee members until a consensus emerges that meets both their expectations and those (if any) of the graduate school. Whether hypotheses are tested or questions are used to guide the research, they should be written with the greatest care for precision and must be exactly appropriate to the purposes of the study.

A hypothesis can be written either as a null statement (conveniently called a null hypothesis), such as "There is no difference between . . .," or as a directional statement indicating the kind of relationship anticipated (called a research or directional hypothesis), such as "When this, also that" (positive) or "When this, not that" (negative). Some clear technical advantages are gained by using the null format, particularly when inferential statistics will be used to analyze the data. Research specialists are not in complete agreement, however, on the wisdom of writing hypotheses in directional form.

Many arguments favor the use of directionality because it permits more persuasive logic and more statistical power. If a pilot study has been completed or the literature review provides strong reasoning for a directional result, then directional hypotheses are clearly appropriate. In some instances, particularly evaluation studies, practical matters may dictate use of a directional hypothesis. For instance, if a therapy program is being evaluated and the only practical consequence would be finding that therapy provides greater gains in stress reduction than the program in current use, a directional hypothesis would permit a direct test of this singular outcome.

Some of the technical debate about the form of hypotheses is beyond the scope of this guide, but a good rule of thumb for the novice is to employ directional hypotheses when pilot data are available that clearly indicate a direction, or when the theory from which the hypotheses were drawn is sufficiently robust to include some persuasive evidence for directionality. If the investigation is a preliminary exploration in an area for which there is no well established theory, and if it has been impossible to gather enough pilot data to provide modest confidence in a directional prediction, the format of the null



hypothesis is the better choice. Ultimately, as a researcher pursues a line of questioning through several investigations, directional hypotheses become more obvious and the null format less attractive.

Hypotheses can be evaluated by the same criteria used to examine research questions (lack of ambiguity, expression of relationship, and implication of appropriate test). In addition, the statement must be formulated so that the entire prediction can be dealt with in a single test. If the hypothesis is so complex that one portion could be rejected without also rejecting the remainder, it requires rewriting.

Several small, perfectly testable hypotheses always are preferable to one that is larger and amorphous. For example, in the following hypothesis the word "but" signals trouble. "Males are significantly more anxious than females, but male nurses are not significantly more anxious than female teachers." The *F* test for the main effect of sex in the implied analysis of variance (ANOVA) will handily deal with males and females, but a separate test as a part of a factorial ANOVA would be required for professional status. Should the tests yield opposite results, the hypothesis would point in two directions at once.

Similarly, the presence of two discrete dependent variables foreshadows difficulty in the following example: "Blood pressures on each of five days will be significantly lower than the preceding day, whereas heart rate will not decrease significantly after Day 3." The implied multivariate analysis of variance (MANOVA) could not rescue the hypothesis by indicating whether we could accept or reject it. The required follow-up test might reject the blood pressure prediction while accepting it for heart rate. In all cases, division into smaller, unitary hypotheses is the obvious cure.

When a number of hypotheses are necessary, as a result of interest in interaction effects or as a consequence of employing more than one dependent variable, the primary hypotheses should be stated first. These primary statements may even be separated from hypotheses that are secondary or confirmatory, as a means of giving prominence to the main intent of the study.

Finally, hypotheses should be formulated with an eye to the qualitative characteristics of available measurement tools. If, for example, the hypothesis specifies the magnitude of relationship between two variables, it is essential that this be supportable by the reliability of the proposed instrumentation. Returning to the earlier example of self-esteem and reading, the fact should be considered that the correlation between scores from two tests cannot exceed the square root of the product for reliability in each test. Accordingly, if reliability of the self-esteem test is .68 and that of the reading test is .76, then a hypothesis of a positive correlation greater than .80 is doomed to failure ( $\sqrt{.76 \times .68} = .72$ ).

### ***Delimitations and Limitations***

Often, a listing of delimitations and limitations is required to clarify the proposed study. Delimitations describe the populations to which generalizations may be safely made. The generalizability of the study will be a function of the subject sample and the analysis employed. *Delimit* literally means to define the limits inherent in the use of a particular construct or population.

Limitations, as used in the context of a research proposal, refer to limiting conditions or restrictive weaknesses. They occur, for example, when all factors cannot be controlled as a part of study design, or when the optimal number of observations simply cannot be made because of problems involving ethics or feasibility. If the investigator has given careful thought to these problems and has determined that the information to be gained from the compromised aspect of the study is nevertheless valid and useful, then the investigator proceeds but duly notes the limitation.

All studies have inherent delimitations and limitations. Whether these are listed in a separate section or simply discussed as they arise is an individual decision. If they are few in number and perfectly obvious, the latter is desirable. Whatever format is used, however, it is the investigator's responsibility to understand these constraints and to assure the reader that they have been considered during the formulation of the study.

### ***Providing Definitions***

All proposals for research use systematic language that may be specific to that field of research or to that proposal. We discuss the use of definitions in greater detail in the section of Chapter 6 titled "Clarity and Precision: Speaking in System Language."

### ***Discussing the Background of the Problem***

Any research problem must show its lineage from the background of existing knowledge or previous investigations, or, in the case of applied research, from contemporary practice. The author must answer three questions:

1. What do we already know or do? (The purpose here, in one or two sentences, is to support the legitimacy and importance of the question. Major discussions of the importance and significance of the study will come under the "rationale for the study" section.)

2. How does this particular question relate to what we already know or do? (The purpose here is to explain and support the exact form of questions or hypotheses that serve as the focus for the study.)
3. Why select this particular method of investigation? (The purpose here is to explain and support the selections made from among alternative methods of investigation.)

In reviewing the research literature that often forms the background for the study, the author's task is to indicate the main directions taken by workers in the area and the main issues of methodology and interpretation that have arisen. Particular attention must be given to a critical analysis of previous methodology and the exposition of the advantages and limitations inherent in various alternatives. Close attention must be given to conceptual and theoretical formulations that are explicit or implicit within the selected studies.

By devising, when appropriate, a theoretical basis for the study that emerges from the structure of existing knowledge, by making the questions or hypotheses emerge from the total matrix of answered and unanswered questions, and by making the selection of method contingent upon previous results, the author inserts the proposed study into a line of inquiry and a developing body of knowledge. Such careful attention to background is the first step in entering the continuing conversation that is science.

The author should select only those studies that provide a foundation for the proposed investigation, discuss these studies in sufficient detail to make their relevance entirely clear, note explicitly the ways in which they contribute to the proposed research, and give some indication of how the proposal is designed to move beyond earlier work. The second section of Chapter 4 provides guidelines for preparing the literature review.

It is important for students and novice proposal writers to resist the impulse to display both the extent of their personal labors in achieving what they know and the volume of interesting, but presently irrelevant, information accumulated in the process. The rule in selecting studies for review is exactly the same as that used throughout the proposal—limit discussion to what is essential to the main topic. A complete list of all references used in developing the proposal (properly called a bibliography as distinct from the list of references) may be placed in an appendix, thereby providing both a service to the interested reader and some psychological relief to the writer.

Whenever possible, the author should be conceptually or theoretically clear by creating organizing frameworks that encompass both the reviewed studies and the proposed research. This may take the form of something as obvious and practical as grouping studies according to certain methodological features (often

for the purpose of examining divergent results), or something as esoteric as identifying and grouping the implicit assumptions made by various researchers in formulating their statement of the problem (often for the purpose of clarifying the problem selected in the present proposal).

In many proposals, creating an organized conceptual framework represents the most important single opportunity for the application of original thought. In one sense, the organizing task is an extension of the need to achieve clarity in communication. A category system that allows division of diverse ideas or recondite events into easily perceived and remembered subsets is an organizational convenience for the author, as well as for the reader. Beyond convenience, however, organizing frameworks identify distinctive threads of thought. The task is to isolate the parallel ways by which researchers, working at different times and in varying degrees of intellectual isolation, have conceived of reality. In creating a schema that deals meaningfully with similarities and dissimilarities in the work of others, the author not only contributes to the body of knowledge but also deals with the immediate needs of communicating this research to others.

Even relatively simple organizing or integrating systems demand the development of underlying conceptual plans and, often, new ways of interpreting old results and presumed relationships. The sequence of variables in the study may provide a simple and generally adequate place to begin arranging the review. Such questions as "What is the relationship between social class and school achievement when ability is held constant?" consist of concepts placed within a convenient sequential diagram. In turn, such conceptual schemata often contain useful assumptions about causal relationships and thus can serve as effective precursors to explanatory theory. The most elegant kind of research proposals achieve exactly that sort of linkage, using the framework for organizing the review of literature as a bridge connecting existing knowledge, a proposed theory, and the specific, theory-based hypotheses to be empirically tested.

### *Explaining Procedures*

All proposals for empirical research must embody a plan for the careful and systematic observation of events. The methods selected for such observations determine the quality of data obtained. For this reason, the portion of the proposal dealing with procedures the researcher intends to employ will be subject to the closest critical scrutiny. Correspondingly, the presentation of methodology requires great attention to detail. The discussion of method must

include sources of data, the collection of data, and the analysis of data. In addition, the discussion must show that the specific techniques selected will not fall short of the claims established in previous sections of the proposal.

The section(s) dealing with methodology must be freely adapted to the purpose of the study. Whatever the format, however, the proposal must provide a step-by-step set of instructions for conducting the investigation. For example, most studies demand explication of the following items:

1. Identification and description of the target population and sampling methods to be used
2. Presentation of instruments and techniques for measurement
3. Presentation of a design for the collection of data
4. Presentation of procedures for collecting and recording data
5. Explanation of data analysis procedures to be used
6. Development of plans for contingencies such as subject mortality

Many justifications for particular method selections will emerge in the development of background for the problem. The rationale for some choices, however, will most conveniently be presented when the method is introduced as part of the investigation plan.

In describing such elements, proposals can include pages of description that fatigue and frustrate the reader without yielding a clear picture of the overall pattern. In many cases, this problem can be avoided by the use of diagrams. Although Figure 1.2 displays a counterbalanced treatment design of moderate complexity, it would require no more than a brief paragraph of accompanying text to provide a clear account of the procedure.

When data are to be gathered from multiple subject groups, the proposal can consume pages of explanatory text without providing the reader with an adequate sense of how subject variables are related. Figure 1.3, however, shows a complex design in which a subject population is divided into 16 subgroups using the four variables of gender, role, subject matter, and affective state, with immediate transparent clarity. Diagrams also are helpful when presenting statistical models that will be tested later, once the data are collected. Note how clearly the interrelations of a hypothetical statistical model appear in Figure 1.4. In the figure, the ovals represent clusters of variables, the boxes show the variables in each cluster, and the various arrows represent interrelationships. Imagine how many words it would take to describe these relationships! Given a brief exposure to these figures, however, most readers would find further explanation unnecessary.

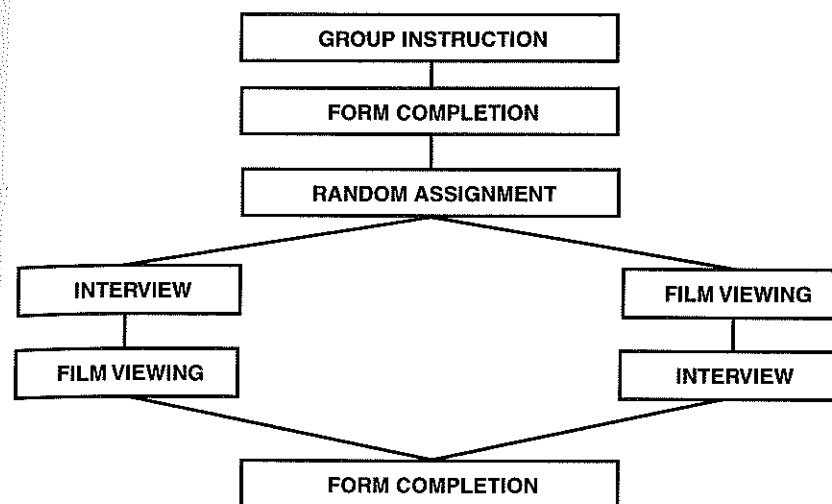


Figure 1.2. Example of Method Flow Chart

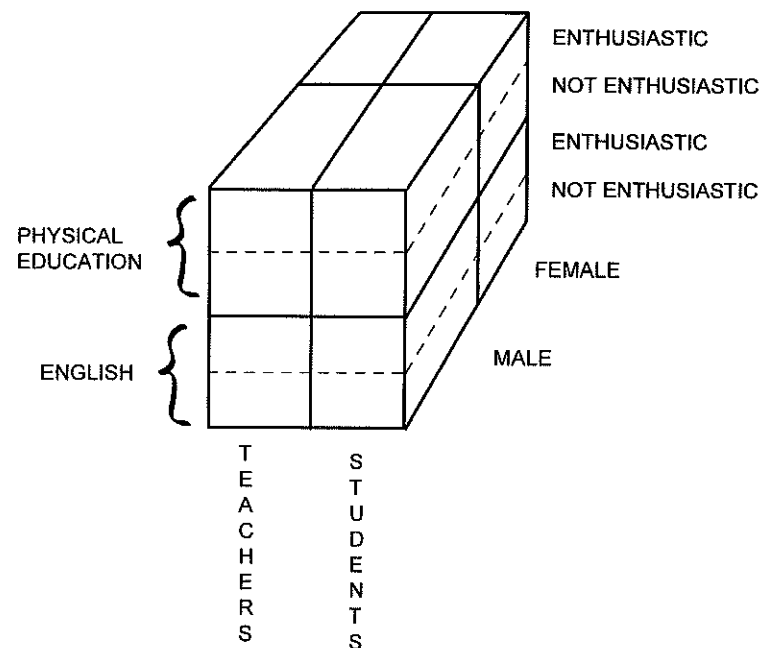


Figure 1.3. Example of Sample With Multiple Subgroups

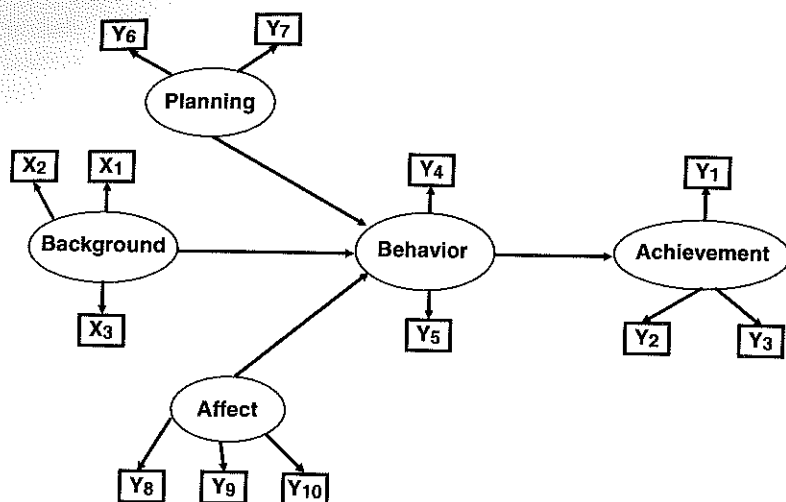


Figure 1.4. Example of Statistical Model

### *Providing Supplementary Material*

For the purpose of clarity and economical presentation, many items may be placed in appendices keyed to appropriate references in the main text. So placed, such materials become options available to the reader as needed, rather than distractions or impediments to understanding the main themes of the proposal. Included in the appendices may be such items as the following:

1. Specifications for equipment
2. Instructions to subjects
3. Letters and other relevant documents
4. Subject consent forms
5. Raw data or tabular material from pilot studies
6. Tabular materials from related research
7. Copies of paper and pencil instruments
8. Questions for structured interviews
9. Credentials of experts, judges, or other special personnel to be employed in the study

10. Diagrammatic models of the research design
11. Diagrammatic models of the statistical analysis
12. Schematics for constructed equipment
13. Chapter outline for the final report
14. Proposed time schedule for executing the study
15. Supplementary bibliographies