Dissertation Guides Workbook – Chapters 1-5 2008-2009

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Dissertation and Proposal Chapter Guides Workbook

Welcome to the *Dissertation and Proposal Chapter Guides Workbook.* You will use this workbook in your Track III dissertation sessions. Each chapter of the workbook will be covered in a session during your Track III colloquium. *Please review the guide carefully before attending your Track III colloquium*.

The workbook is a practice guide and exercise to prepare you to use the five *Dissertation and Proposal Guides* to construct each chapter of your dissertation. Like the Guides, the Workbook includes the primary sections for each chapter of the dissertation. In each section of the workbook, you will see *key points that are underlined and italicized*. To fully understand these key points, *please read the entire section explaining the key point*.

We're provided "key points" to highlight information in a quick reference format. The dissertation is a complex task that requires attention to detail and precision. To fully prepare for your Track III colloquium experience, and achieve maximum value from this experience, you must:

1. *Read each chapter of the workbook*
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- Identify the structural components of Chapters One through Five
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Dissertation Guides Workbook: Chapter One

All research reports (including dissertations) begin with an introduction describing the problem under investigation and its background, its relevance to the field, the assumptions and the limitations of the study, and the expected findings. In the Capella University approach to the dissertation, this introduction is contained in Chapter One of both the proposal (the detailed description of the proposed dissertation) and of the dissertation itself. This *Guide* outlines the main sections required in Chapter One.

Chapter One should discuss eight specific points: (a) an introduction describing the background of the problem; (b) the statement of the problem; (c) the purpose and significance of the study; (d) the research design; (e) the research questions and hypotheses (in quantitative designs); (f) the assumptions and limitations of the study; (g) operational definitions used in the study; and (h) the expected outcomes. In the proposal, you will follow Chapter One with Chapter Two, the Literature Review section, and the Methods section, which will be Chapter Three in your dissertation. Chapter One lays the groundwork for the proposal. In Chapter One, you describe the conceptual basis for what the study will investigate, in Chapter Two, you present a review of the literature, and in Chapter Three, you describe the methods and concrete procedures you will use to answer the research question developed in Chapter One. Throughout the proposal, you should keep in mind the ethical implications of these elements and discuss them openly. Chapter One should follow the outline presented here.

This *Chapter One* Guide is organized according to the seven sections found in most proposals and dissertations. Each section explains the terminology and identifies the issues that need consideration in that section.

Before Starting: What is a "problem"?

Before writing Chapter One, you should understand what is meant in dissertation terminology by the word "problem." In social science methodology texts, the word is typically used in two ways: *First, a "problem" is a real-world or theoretical situation or condition which someone defines as requiring a solution*. For instance, if the managers in an organization are having morale problems with their staff workers and don't know how to approach them, they would consider this their problem. *The Capella University Dissertation Manual (2006) suggests that the problem can be stated in a few words, a phrase, or a very short sentence, at most*. For example, the managers' problem could be stated as "solving the manager-worker morale breakdown."

To illustrate this general use of the term, suppose that you are interested in one of the following for your dissertation:

Problem 1: Managers need to deal with workers' low morale.

Problem 2: Helping adults recover from childhood sexual abuse.

Problem 3: Helping hurricane survivors' social needs without bankrupting agencies.

These problems are large-picture "mission statements," orienting you to the kind of study you will undertake, but they are far too unfocused to provide a basis for a realistic research project. *You will want to move from the "problem" in the general sense to a statement of the research problem*. *The first step in that direction is to do a literature review designed to tell you everything that is already known about the problem. At the end of that literature review, you should be able to answer these four questions: (a) What has been researched about the topic*? *(b) What controversies exist about the problem*? *(These controversies typically arise from competing interpretations of the data or competing theories used to explain them.) (c) What flaws in the research methodology and design have hindered our understanding of the topic*? and *(d) What unanswered questions remain for further research*? (For a similar perspective, see Howitt and Cramer, 2000, Chapter One.)

A *research problem* could be derived from items (b) through (d). Using Topic 2 as an example, here are some potential research problems a learner might derive from a thorough review of the literature on trauma and psychopathology:

What controversies exist among the interpretations of that research? Suppose that the learner discovers that there are, in the literature, two competing interpretations of the bulk of the findings. One group of workers claims that the findings support the notion that early trauma predicts that adolescents will be at risk for developing psychological problems, but that no specific kinds of pathology can be predicted. But a second group claims that some findings do predict particular adolescent problems, particularly depression. The learner realizes that this is a *research problem*: to determine which interpretation of previous findings is better supported by new research.

What problems in research methodology and design have hindered understanding of the topic? In evaluating the previous research, the learner finds that most of the studies used relatively small or localized samples and that their designs failed to control for other possible causes of adolescent psychopathology. She realizes that this is a research problem: To design a study which uses a more externally valid sample and controls for other possible causes of adolescent problems.

What unanswered questions remain for further research? In reading the discussion sections of many articles, the learner finds that a number of them reach similar conclusions and make similar recommendations for further research. She decides that any of these commonly mentioned "recommendations for further research" can be the basis of a new research problem.

Occasionally, while answering question (a) above, the learner discovers that very little research exists on the topic of interest, and this in itself could be a research problem: to explore the topic area to find what may be happening "in the field." However, it is generally not a good idea to tackle this sort of research problem in a dissertation, because the challenges, expense, and complexity of such an exploratory descriptive study can be daunting for a novice researcher. It is preferable to derive one's research problem from a well-established line of research (by answering questions (b), (c), or (d) above). This

allows for a clear demonstration of "contributing original knowledge," and establishes the significance and purpose of the study much more easily.

Keeping these two senses of the word *problem* clear helps in preparing the first five sections of Chapter One. The opening section, "Background of the Problem," discusses the real-world problem of interest and the relevant literature about it. The "Statement of the Problem," on the other hand, states the *research problem* derived from the literature. The "Purpose of the Study" typically discusses how the *research problem* focuses a study that will fill in a gap in the literature, repair a flaw in earlier designs, or address a controversy about existing theory or evidence. The "Significance of the Study" articulates how the value of the study is adding to the existing literature as well as increasing our knowledge about the larger biopsychosocial problem. Finally, in the "Research Question and Hypotheses" section, the *research problem* will be explicitly rephrased as a tightly focused research question and a set of predicted findings (in quantitative designs; qualitative research may state "expected findings" later, rather than hypotheses strictly stated). In the following, each section is discussed.

A. Background of the Problem (Introduction)

Identifies the wider issues underlying the research problem and question. Essentially a brief synopsis of the literature review (fully developed in Chapter Two of the dissertation) about the problem itself and the theoretical framework the researcher has chosen to evaluate the problem and the eventual data obtained about it.

This section articulates the following main points:

What is the general problem of interest to the researcher? In what setting(s) does this problem occur, and whom does it affect? What are the negative effects of the problem?

What did the researcher find in the literature about the problem? What is already known? What are the current best explanations of the problem or its solutions? How strong is the underlying evidence supporting the current explanations and are there problems with those studies? What issues remain to be understood? These questions would be answered only briefly, in summary form, in this section. They will form the backbone of the discussion in the next section (Statement of the Problem).

What interests the researcher in choosing this problem for investigation?

What general theory is the study going to use to understand the problem?

The Capella University *Dissertation Manual* makes the interesting point that sometimes a learner is interested in a situation or condition where there is apparently no problem – nothing is going wrong or bothering anyone. Occasionally, this could be of great interest. Therefore, it may be valuable to investigate that situation to discover why things are going so well. Some very valuable organizational research, for instance, has been based on studies of exemplary corporations. Such studies could be said to have the

general problem of "understanding the factors in the company's success" – the problem is not that the company has a problem, but that we do not completely understand why the company is succeeding. The *research problem* thus could be stated as adding to the literature about corporate success factors.

This first section need not be lengthy, but it should clearly describe the general problem that will be investigated and summarize briefly the literature on the problem (this will be done in detail in Chapter Two of the proposal, so it should only be outlined here).

This section also should identify the *theoretical framework* of the study (which will be fully discussed in Chapter Two). This is the basic explanation of the problem currently accepted by the researchers who have been working on the problem. This simply means that one uses an already-accepted account of the wider problem as the framework for considering new information about the problem.

For instance, in a study investigating the impact of child abuse on adolescents' risk for depression, one might use attachment theory as the theoretical framework. In doing so, certain constructs (explanatory ideas) from attachment theory (such as secure vs. insecure attachment, attachment disruptions and repair, and emotional dysregulation) will be used throughout the study, and other constructs which might be used in, say, the diathesis-stress model of psychopathology (such as environmental stressor, temperament, etc.) would not be used. You can analogize the theoretical framework as being related to the general problem area as one's religion may be related to particular life challenges. One's religion gives one a set of perspectives with which to interpret things. For instance, a Roman Catholic will interpret statements from the Vatican within a different theoretical framework from that which a Buddhist would use to interpret the same Vatican statement. Similarly, if a researcher adopts a theory of management-by-objective as his theoretical framework in the study about the workers' morale problems, he will use a different set of ideas to organize the analyses than a researcher who adopts human potential theory as her framework. In the MBO framework, the focus is on goals, goal attainment criteria, goal-attainment scaling, and so on. In the human potential framework, on the other hand, the focus instead is on the workers' potentials, their skills, areas needing training, and so forth.

Naturally, like everything in a research design, *the theoretical framework needs to be justified*. *Showing the following three things will justify the choice of a theoretical framework*:

Show that the theory is consistent with all the other design elements. In a study of whether child abuse is a risk factor for adolescent depression, it would be inconsistent with the research problem (to control for other risk factors for psychopathology) to select a theoretical framework that has nothing to do with psychopathology (say, the Treisman's (1986) feature-integration theory of signal detection).

Show that the theory is used by other researchers investigating the same or

similar kinds of problems. For example, many studies of adolescent psychopathology have relied on attachment theory as their framework.

Show that the theory flows logically from the problem. In the study of workers' morale problems, it would be logical to adopt a human potential theory, because one well-known prediction of human potential theories is that people's morale tends to go down when they are not allowed to express their potentials. It would be less logical to adopt attachment theory or a theory of psychopathology, because, in principle, low morale is not usually due to psychopathology. (Not that this might not be a research problem worth investigating; in that case, adopting a psychopathology-oriented theory would be more logical and consistent).

Group Activity One - Background of the Problem:

Topic: Online learning in graduate education

IMAGINE THAT THIS IS ALL THAT IS KNOWN:

- There are ten studies:
- Eight describe online programs.
- Two studies look at outcomes, one is positive, one negative.
- Positive study claims "efficiency and flexibility." Negative focuses on "lack of interpersonal contact with faculty." Neither compares outcomes with land-based programs.
- Educational theorists argue over whether personal contact is necessary and/or to what extent. No research evidence supports definitive answers.

TASK: Write a 3-sentence Background or Introductory Statement:

***Discuss your Background or Introductory Statement with your group*.**

B. Statement of the Problem

Clearly states the research problem–the form of the problem that is the specific object of investigation in this study. *The research problem is not the general social or psychological problem described in the Background section (which may require many different components for solution), but a specific problem that a research project is required to solve*.

This section focuses on the *research problem.* Recall the distinction between the general problem and the research problem discussed above. *This section should clearly articulate how the study will relate to the current literature*. *It also should make a statement that embodies the research problem*. Using the illustration we used about the damage done by child abuse, suppose what the researcher finds in her literature review shows that the field knows that child abuse is related to adolescent psychopathology, but that no one has yet shown whether abuse is actually a strong predictor (risk factor) of the latter. In that case, one statement of the research problem might be:

> It would be useful to know, in this context, whether early childhood trauma is a *predictor* of adolescent psychopathology. [A passage would follow this statement very succinctly summarizing (and citing) the existing literature on that issue, showing that this problem is not sufficiently described. A detailed discussion of that literature will follow in Chapter Two.] Although previous research has shown that early-childhood traumatic experience is a risk factor for adolescent psychological dysfunction, it has not been shown that it is a predictor when other risk factors are controlled. This study will address that gap in the existing literature. The research problem therefore is to investigate whether early childhood trauma is in itself a predictor of adolescent psychological disorders, when other risk factors are controlled for.

This section need not be lengthy, but should be very clear what the research problem is (as the first section should clearly state what the general problem is. *This section is the basis for describing the purpose of the study (section C) and for developing the research question* (section F, below).

You may have noticed in the example that the study was described in the *future tense*: "This study will address a gap . . ." *In the proposal, all references to the proposed study should be written in the future tense*. *When the actual dissertation is written, much of the proposal material can be rewritten into the past tense and used in the dissertation*.

Group Activity Two - Statement of the Problem:

Evaluate the "Introductory Statement" you wrote in last unit.

Identify a few (at least two) research problems that might come from it.

Choose and write the Research Problem statement in no more than one sentence.

Discuss your two research problems with your group.

C. Purpose of the Study (p. 8)

The core purpose of the study is to answer the research question (see section F), whose purpose is to solve the research problem (see Section B). *The wider social or psychological problem (e.g., stopping or treating childhood abuse or developing effective management techniques for organizations) cannot be solved by a single research project. The research project, however, should be, and that is the core purpose of the study. Contributing knowledge toward a solution of the wider problem can be a second purpose.*

In this section, which follows on the preceding "statement of the [research] problem," you will discuss in more detail how your study will add to knowledge about the general problem. To do this, you will need to address both senses of the word "problem." *Essentially, the broad purpose of your study is to help the wider community of interest to solve a problem it considers important, by means of solving the more narrowly focused research problem. Here, you will lay out your argument that your research problem must be solved in order to contribute to the broader knowledge about the problem. To make that argument, you will refer to the current literature and research evidence, showing how your study takes the next step, fills in an important gap, or corrects a previous mistake or flaw. It is the general purpose of your study to contribute to knowledge about the wider problem, and the specific purpose to solve the research problem.*

Continuing with the example, you would attempt to show how the more narrow

research problem - establishing early trauma as a risk factor in itself - needs to be solved in order to tackle the broader social problem of predicting which adolescents might develop psychological problems. Obviously, there are two foundations to such an argument, and you will use both in this section. The first foundation is the relevant literature, which should support your claim that this problem and research problem are both considered important enough in your field to warrant another study. The relevant literature also should support your argument that your study will fill in a gap, answer an unanswered question, or correct previous flaws in the research design of similar studies.

The second foundation to build on is logic. *A strong purpose section shows how the transition from the general problem to the research problem is logical, as well as showing that the claim that the research question logically underpins the wider or general question*. If the claim is that the wider social problem of knowing which adolescents are at risk for developing psychological problems cannot be solved until a more narrowly focused study (your dissertation) on trauma as a risk factor is completed, this claim must be logically sound. It would not be logical to claim, for instance, that the general problem of adolescent risk factors in general depends on solving the narrower research problem of risk factors of alcoholism in adults.

Group Activity Three - Develop a Purpose Statement:

Start with "RESEARCH PROBLEM" statement from the last exercise

Discuss it and write a one-sentence "Purpose statement."

Add another one or two sentences showing secondary purpose(s) in light of the "background statement" written earlier.

Discuss your purpose statement with your group.

D. Significance of the Study (p. 9)

Presents the argument that fulfilling the purpose of the study (see Section C) is important to the field of psychology, to some specialization within psychology, to a community of persons interested in the problem, or to researchers interested in the problem.

In this section, once again you should keep in mind the two senses of "problem" described earlier - the general problem, which affects many people (perhaps), and the research problem, which may only affect researchers, experts in the question, etc. Here you also will focus on any other intended audiences or the *stakeholders* in your study. What will your study offer them?

You will show how your study will be meaningful or valuable to:

1. The wider community who have the problem or are trying to solve it. In our previous examples, this group may include depressed adolescents and their parents, demoralized workers and their managers, displaced hurricane survivors and their social service agents, and so on. This wider community (related to your general problem) may include those who fund a study, for example.
2. The psychology or human services professionals (e.g., providers, researchers, teachers, therapists, etc.) who are interested in your problem (as shown by the existence of a body of research relevant to it). Here you focus on the research problem and the community interested in that.

In the first part of the significance section, you will discuss how important the problem is to groups in the wider communities. Avoid sentimental statements in favor of using evidence that makes your case. For example, the managers who are having morale problems with their staff certainly want to have help, but is that important outside a

particular work-group? *Will the findings from your study have any value beyond the actual individuals involved*? *If solving their problem will create knowledge that can be used by others engaged with similar problems, the relevant community is wider and the significance of the problem - and therefore of your study - is greater*.

Suppose your study really will not have much importance outside a specific community or group. This can be the case in evaluation studies (studies to assess the effectiveness of specific programs, for instance). In that case, the significance rests in the consistency between the needs of the group under investigation and the design of the study: Does it answer the group's question and help them solve their problem? That is its significance. There is no reason to apologize about this, just to state it clearly. Of course, one should never make claims of wider significance that the study will not deliver.

Another important community that will use your findings - you hope – is your field of study, or one of its specialization areas. *The simplest demonstration of significance to human services professionals and psychological worker,s such as teachers, therapists, consultants, researchers, etc.,- is that there exists previous research on it published in the literature!* (This is another reason not to choose a topic and problem about which no previous research exists.) Even if the wider problem is not particularly significant to ordinary people beyond the troubled group, the issue may be quite important to some professionals in your field. *But do not simply assert that your findings will potentially be valuable to the professionals in your field, show why you think so*. *The surest way to do this is to cite research which calls for the type of study you plan to do*. (Another way is to cite sources showing the costs of not understanding how to solve the problem.)

That discussion focuses on the significance of the wider problem. Next, you will turn to how important the *research problem* is, and to whom. For example, suppose that the workers' morale problem has been effectively solved by earlier research. Your study is no longer significant to that community. But let's say in one of the earlier studies a particular aspect of the solution could not be widely generalized, due to a too-small sample. The authors recommended that the study be replicated with a larger and more randomly selected and assigned sample. Although it would be tidy to do this improved study, it really is not needed to solve the wider problem. However, the replication study would be useful to **researchers** in the area because it would strengthen generalization to a wider population. There is nothing wrong with choosing a research problem that is of interest only to a narrow group of experts, such as researchers. Discuss it with your Mentor and Committee to ensure that they agree that your study is significant enough in some relevant community to carry forward. Some studies of this type prove to be of interest in unexpected fields - for instance, to the community of philosophers of science.

In other words, it is acceptable to do a study whose research problem is of value only to a very narrow group of specialists (e.g., philosophers of science or methodologists), even if the wider general problem has actually already been fully-enough investigated. The Mentor, the committee, and the Chair of your specialization (who must approve your title in the Methodology Review Form process) are the final deciders of that question of significance. In the last analysis, they must consider the study

to be significant.

Group Activity Four - Significance of the Study:

List the various communities to whom the study of the online graduate programs might be significant.

For each community, state at least one reason why the study will be important.

Discuss the significance of your study with your group

E. Research Design

Describes the *general* blueprint for the study itself—how its elements (overall methodology, sample selection and assignment, data collection methods and procedures, data analysis methods, data presentation methods) are aligned and coordinated in order to maximize cogency and to reduce threats to validity or credibility.

Introduction to "Design" and Notation.

The idea of a "research design" confuses many people. *You can compare "design" in the research process to the "blueprint" used in building a house or a recipe in creating a culinary dish*. *Your design is a blueprint showing how all the elements of your study - samples (usually groups), measures, treatment conditions or other variables and factors being investigated, methods of assignment and analysis - are coordinated in the effort to answer the research question*. *Design* is how you protect your study from threats to its validity (and in qualitative research, threats to its credibility). *You can think of design as taking place in two phases: deciding what the potential validity threats are and then setting up the order of events and procedures of the study to protect against those threats*.

Thanks to generations of researchers since the Enlightenment, and particularly the past 75 years in psychology, social science, human service, and psychology researchers have a variety of "short-hand" design terms that stand for more elaborate but standardized approaches to coordinating all the elements of your study. (For a classic and thorough discussion, see Campbell and Stanley, 1963; also, Norris, 1996, provides a succinct but useful summary.)

For instance, here is a brief (and not exhaustive) table, using items borrowed from Campbell and Stanley (1963), listing the most common design names. Each one represents a much more elaborate and detailed set of blueprints for building and carrying out your project. The material here merely summarizes high points of design; it is up to you to become knowledgeable about all the details lurking behind the terminology, because as we know, "The devil is in the details"!

Table 1. Descriptions of Quantitative Design Notation (from Campbell and Stanley, 1963).

Design Item	Descriptor
X	Represents the exposure of a group to an experimental variable or event
O	Refers to some process of observation or measurement
"Time"	The left-to-right dimension indicates the temporal order The vertical dimension indicates simultaneous Occurrences
R	Means "Random" assignment to separate groups
N	Means "Non-random" assignment to separate groups
Sub-scripts	Means additional information about a group; e.g., N_1 means "non-randomly assigned group #1"

Quantitative researchers should pay attention, but all should read on, because this background is important for everyone. According to William Trochim, whose 2001 *Research Methods Knowledge Base* is published in both paper and electronic versions (visit www.atomicdogpublishing.com noting that there are later editions than the one

used here), settling on your design begins with two simple questions:

1. Question 1: Is random assignment used? If you answer YES to the first question, your design will be a **randomized experimental design**. If you answer NO to the first question, you must ask the second question:
2. Question 2: Is there a control group or multiple measures? Answering YES to this question means that your design will be a **quasi-experimental design.** Answering No means that you have a **non-experimental design.**
3. That's it. In quantitative studies, the available designs are ***experimental***, ***quasi-experimental***, or ***non-experimental***. (Some call the third type "pre-experimental.")

These two questions clearly put us in the realm of quantitative (statistical) research, because randomization and control are simply not an issue in qualitative designs. However, read on even if you are planning a qualitative study, because the general features of design apply to both methodologies.

The word design implies some kind of picture. And so it is. In most research texts, designs are depicted by different kinds of "notations" or "diagrams" that show the actual structure of the study. For convenience, Table 1 (above) summarizes some of the most commonly used notations for research design, taken from Donald Campbell and J.C. Stanley's 1963 classic *Experimental and Quasi-experimental Designs for Research.*. (Qualitative learners, be patient: your turn will come.)

For example, suppose we are proposing a pre-test/post-test non-randomly assigned two-group comparison study of the outcome of a particular form of psychotherapy. To put that verbal design description into Campbell and Stanley's notation would look like this:

Design	**Time** > > > > > >
Pretest-posttest Nonequivalent groups quasi-experiment	**N O X O** **N O O**

In the design diagram, you see the verbal description of the design type on the left, and in the right column you can visualize the structure of the study. Two non-randomly assigned groups (which are therefore "non-equivalent" and notated as "N") start at the same point in time (left-right dimension indicates time, and simultaneous things occur at the same point vertically). First, each is "observed" at the same point in time, that is, the pre-test is given. A little later in the time sequence, the first group (the "treatment" group) is given the "treatment", while the second group (the "comparison" group) waits or is otherwise occupied. Finally, both groups are again simultaneously measured by the post-test.

Look at the words in the "design" box: "pretest-posttest nonequivalent groups quasi-experimental design." Notice that there are three major components: ***measures*** (a pre-test and a post-test), ***groups*** (how the sample is assigned, "non-equivalent groups"), and ***type of design*** (quasi-experimental). You can add specifications for any one of those three if doing so more clearly identifies your design. For example, if we did the pre-test twice for some reason, we could call it a "double-pre-test post-test nonequivalent groups quasi-experimental design."

What is the purpose of a design?

*Research designs protect the study from various **threats** to validity and reliability (and in qualitative analysis, threats to credibility and dependability). Essentially, researchers want to design against the sorts of threats to validity and reliability (or credibility, utility, and transferability for qualitative studies) they think their study is prey to*. Of course, besides the design, researchers have other protections against validity threats, such as logical arguments, measuring the threat itself to show it does not invalidate the study, using statistics to gauge the impact of other variables, and so on. *In general, you want to use as many approaches to reducing or eliminating threats to validity as you can, and design is one of them* (cf. Trochim, 2001, pp. 240 ff, also Chapter 6; also, consult Norris, 1996, for a succinct but quite lucid discussion of quantitative design principles).

Let's look at an example of using design to protect against a *maturation* threat (one type of the larger class of *confound variance*). (See any text on research methods for various threats to validity and reliability.) This means that you think that between the pre-test and the post-test your group might grow more mature and any changes you note at post-test might be due to maturation rather than to your treatment. If you do the pre-test twice, with a time-period similar to the treatment period between the pre-tests, you will see if any change occurs between them. If a change occurs, you can expect that a similar degree of change will happen between the second pre-test and the post-test – whether you administer your treatment or not. So if measured changes at the post-test are significantly greater (or less) than those measured between the two pre-tests, you may conclude that your treatment may be having an effect. Likewise, if there is no change between the pre-tests in the first place but there is a change at the post-test, then you might be justified in thinking that your treatment condition made the difference (cf. Trochim, 2001, p. 242 for a more detailed discussion). When you added the second pretest, you were using design to counter a maturation threat.

Consider as many possible types of threat to the validity (or credibility) of your study as you can, and play with various design possibilities to protect against them. Ask yourself these questions (or their equivalents in qualitative language) taken from Norris (1996):

1 *"How am I minimizing error variance?"*
2 *"How am I maximizing experimental variance?"*
3 *How am I minimizing confound variance?"*

4 *"How am I minimizing extraneous variance?"* (pp. 52-53).

There are many similar ways to design your sequences of observations and treatments to ensure that the various kinds of validity threats are minimized. Below is a set of other commonly seen research designs in quantitative research. They will allow you to practice generating the verbal description of a design, as well as seeing how the notational design would look.

- Pretest-posttest randomized experimental design (a classic).

Pretest-Posttest Randomized Experimental	**R O X O** **R O O**

- Single observation survey (non-experiment) design (another classic)

Single observation Non-experiment	**N O**

- Post-test only non-experiment (no comparison group; this is a descriptive design).

Posttest Non-experiment	**N X O**

Multiple measures pretest posttest non-randomized quasi-experiment (because two groups and multiple measures).

Multiple measures pretest-posttest non-randomized non-experiment	**N O_1 O_2 X O_1 O_2** **N O_1 O_2 O_1 O_2**

Designs can include multiple measures, different times of measuring variables, applying different treatments (Xs) to different groups, and a myriad of variations on all the elements. It is possible to design studies (especially quantitative studies) which measure different dependent variables in the same group of participants against separate treatment conditions. *The variations are endless*. For a thorough discussion of design, see any good text on research methods; Campbell and Stanley (1963) is the classic for experimental and quasi-experimental designs. William Trochim's *Research Methods Knowledge Base, 3rd Ed.* (2006) is especially helpful to get a clear idea of how designs work collaboratively with the research question and the purpose of the study. It is available in both electronic and paperback versions.

Qualitative design and notation

Now we turn to design notations for qualitative research. In fact, the same kind of notation can be adapted for use in qualitative studies, although most qualitative texts do

not discuss this. There is, as Robson (1993, p. 467) puts it, "principled resistance" among many qualitative scientists to using the same terminology as statistical workers use. Nonetheless, we recommend doing so for the simple reason that diagramming the design in notation allows one to think through the potential threats or complications of the study, which a verbal description alone might not uncover. In qualitative studies, randomized assignment is almost never used. Sometimes the "group" is actually a small number of individuals and, of course, no aggregate analysis will be done. In that case, be creative. But in any case, remember to account for

- Measures (that is, kinds of data collection procedures such as interviews, sampling archived data, collecting photos, etc.)
- Assignment (that is, how participants will be selected)
- Type of design

Qualitative researchers tend not to think so much about "validity" and "reliability," which are statistical concepts, but they are deeply concerned about maintaining the ***credibility*** and ***dependability*** of their studies, and they use design to accomplish these. For example, if a phenomenological study will explore the attitudes and beliefs of African American middle class professionals about police profiling practices, it could threaten the credibility of the study if all the interviews were conducted immediately after the event, when the participants could be expected to be most reactive and upset. Conducting a second interview six months later, when they have had the opportunity to process their emotional reactions and get some distance from the event itself might ensure a more credible set of data. This is a design issue: how will the various steps of the project be sequenced and orchestrated?

Qualitative researchers can use the same notation, simply by slightly adjusting the definitions. Here is a table for qualitative notation:

Table 2. Descriptions of Qualitative Design Notation Items

Design Item	Descriptor
X	Represents the *exposure* of participants (groups or individuals) to some sort of condition or event that is relevant to the research question. For example, "X" could mean the occurrence of the phenomenon of interest. If "X" occurs prior to the study, of course, it would not appear in the design diagram
O	Refers to some process of observation such as interview, questionnaire, field observations, photo collection, videotaping, etc.
"Time"	The left-to-right dimension indicates the temporal order The vertical dimension indicates simultaneous occurrences
C	Means assignment to groups based on some

	characteristic of the participant
N	Means "**N**on-equivalent" assignment to groups that will be compared on some factor. While this is not typical qualitative terminology, some qualitative studies may use this design element.
P	Indicates individual participant(s), often accompanied with numerical subscript (e.g., P_1, etc.) to denote individuals. Because the majority of qualitative studies tend to focus on individuals, the participant notation is most often "P."
Sub-scripts	Means additional information about a group; e.g., N_1 means "non-randomly assigned group #1," P_3 means "participant 3."

One design for the qualitative study of the African American professionals stopped by police might be notated thus, where the X stands for the event of being stopped by a police officer for no reason. Notice that this design calls for the participants to be "observed" (interviewed) first, and only after the experience of being profiled occurs will it be followed some time later by an interview, and then a second interview a longer time after the first (to capture adjustments and "settling" in attitudes over time). This presents a graphic illustration of two potential problems in the study: (a) what if no event of profiling occurs? (b) even if all participants are eventually profiled, this could take a very long time for the researcher. Notice that the participants are listed individually, and that the third line indicates that the total number may as yet be unknown ($P_{\ldots n}$). Note also that the sample is "purposive," meaning that participants will be selected on the basis of their capacity to give meaningful information about the question:

Design Type	**Time** >>>>			
Three-interview purposeful phenomenological design	**P_1 O**	**X**	**O**	**O**
	P_2 O	**X**	**O**	**O**
	$P_{3\ldots n}$ O	**X**	**O**	**O**

Let's look at another qualitative example. Suppose ten graduate students in an online program will be interviewed in depth about their lived experience of learning at a distance and online, following a large survey of 400 online graduate student respondents on the same topic. This sounds like a survey with two measures: the questionnaire to the 400 followed by the interview of ten. So we have two groups as well: the first is non-randomized and purposive (graduate students), obviously, and the second will be selected from the subset of survey respondents who live close enough to be interviewed face to face. This is a *convenience* sample. In our adapted notation (Table 2), we added to Campbell and Stanley's quantitative notation the letter "C," for "**c**haracteristic," denoting a group or set of participants who are chosen on the basis of some specific **c**haracteristic. For instance, our convenience sample of ten is chosen on the basis of their geographic

proximity. Similarly, if we were to choose a sample based on their expert knowledge of our topic (probably a purposive sample), that would also be a **c**haracteristic-based selection. Incidentally, Campbell and Stanley also used "C" (for "cut-off") for a group assigned on the basis of some cutoff score on a measure (e.g., all persons scoring above T-score 70 on the depression scale of MMPI-II, for instance), which is a kind of "characteristic."

So we've accounted for our *group assignment*: one group is "N (non-equivalent)" with a size of 400 and one is "C (characteristic-based) with a size of 10." We've also accounted for *measures*–there will be a large-scale questionnaire and a small scale, intensive interview. What about *design type*? Well, it is a survey. However, we can be more precise than that: the questionnaire is going to be a Likert-type scaled measure, which will be quantitatively analyzed. The interview, on the other hand, will be more phenomenological in nature. So we really have two methodologies mixed together. Conventionally, then, this will be a *mixed-methodologies* survey design.

Our descriptor then is "a two-group, two measures, mixed methodologies survey design." Let's diagram it:

Two-group two measures mixed methodologies survey design	**N_{400} O_1 (questionnaire)** **C_{10} O_1 (questionnaire)** **O_2 (interview)**

In this "research design" section of the Proposal, you will ***write*** about all the elements of your design, describing how they promote or reduce threats to validity (internal) and reliability (for quantitative studies) (cf. Trochim, 2001, pp. 171-190, or Norris, 1996, pp.22-55). For qualitative studies, you will focus not on validity and reliability as much as credibility, utility, and transferability or extrapolation (cf. Patton, 2002; Cronbach and Associates, 1980). Remember, validity and reliability are statistical terms, because they are determined by calculation of quantities; qualitative analysis does not use quantitative analysis. The key point is to describe in this section how your research design is coordinated with your research question and purpose of the study such that it clearly demonstrates that you will be able to answer the question and achieve the purpose if you carry it out step by step.

You should also prepare a design diagram using the principles described here.

Group Activity Five - Research Design Diagram:

Quantitative: Two randomly selected but purposefully assigned groups (one online, one land-based) of grad students, tested twice before, twice during, and twice after (once at end, once six months later) their programs for knowledge and competence in the field of study.

A. Write this in words:

B) Create a diagram with symbols showing the sequence of steps:

QUALITATIVE: Ten purposefully selected online graduate learners and ten land-based grad learners will be <u>interviewed in depth</u> about their experience of their programs, <u>relevant documents</u> (tests, papers written, dissertations) will be obtained and evaluated, and <u>post-program satisfaction</u> of graduates will be surveyed.

A. Write this design in words:

B) Create a diagram with symbols showing the sequence of steps:

<u>Discuss your research designs with your group</u>.

F. Research Question and Hypotheses

States exactly the question which the study will answer, including any sub-questions. The research question must include the variables or phenomena being

investigated and their relationship (if any is sought). Hypotheses are predictive statements of the expected answers to the research sub-questions; *qualitative projects do not use hypotheses*.

Having stated in Section B the nature of the research problem, you are well on your way to answering the main issue in this section: what is your research question and what hypotheses flow from that question?

First a word about "hypotheses", which are statements often associated with (and unfortunately often confused with) research questions. There are two schools of thought about hypotheses, one traditional and the other oriented to what Robson calls "real-world research" (1993, pp 28-29). The traditional approach follows these four guidelines:

> ***Guideline 1***. *Hypotheses are used only in quantitative (statistical) research studies.*
>
> ***Guideline 2***. ***Formal*** *hypotheses are used only in studies whose purpose is to test a prediction.* ***Informal*** *hypotheses (called research hypotheses) may be used in descriptive and correlation statistical studies to express expected findings.*
>
> ***Guideline 3.*** *Formal hypotheses should be stated as a* ***null hypothesis****, accompanied by an* ***alternative hypothesis****. Each two-sentence pair can be thought of as an hypothesis set. This guideline is debated even within the traditionalist community (cf. Leedy & Ormrod, 2005).*
>
> ***Guideline 4***. *For each research question, there should be one hypothesis set (formal) or one research hypothesis (informal).*

Others, like Robson (1993), argue that hypotheses are a normal element in all research, indeed in all inquiry. *We cannot start an investigation without some educated hunch or guess about how to proceed or what is important to look for. In this looser sense, then, the research hypothesis should be considered a statement about these "educated guesses" or "intuitive hunches" that inform research. They are more formalized statements of what we expected to find in the inquiry*.

Both camps agree that the *hypothesis or hypotheses are directly linked to the wording of the research question, which in turn is directly linked to the wording of the research problem*. Let's turn our attention to the research question now, and then return later to the issue of hypotheses.

Research questions

The statement of the research problem (back in section B) should be a concise statement, ideally one or two sentences long. It should set up the "purpose of the study" neatly. And in turn, *the statement of the problem should lend itself to translation into a research question that asks precisely what this study must answer in order to (a) solve*

the research problem and (b) achieve its purpose. *The research question is a conceptual question, indicating the exact scope of the study*. Let's use an example.

In our example, the study of the workers' morale problem, the statement of the (research) problem might be something like:

It is not known whether a management-by-objective approach to morale problems will improve or worsen the workers' morale compared with a human-potential development approach.

This statement and its links to the background research and its relevance to the wider problem would be defended in the earlier section; it should lend itself to straightforward translation into a research question. This question is the precise question that must be answered if the research problem is to be solved. For example:

How is workers' morale affected by a management-by-objective management approach compared with a human-potential-development approach?

This meets criteria for a respectable research question:

1. *It is a question.*
2. *It can be answered.*
3. *Because it is closely linked to a viable research problem (which in turn is linked to a wider problem which is important to some stakeholders), it has significance and has not already been answered.*
4. *It clearly identifies the variables and the relationships that will be investigated*: some level of workers' morale is the dependent variable, and the two independent variables are the MBO management approach and the human-potential management approach. It is suggested that there will be some relationship between the DV and the two IVs, and those relationships will be compared with one another. (For a full discussion of constructs, variables, and operational definitions, see Section H).
5. *The question, if reduced to its keywords (management, management-by-objective, human potentials, worker morale, etc.), will give readers a good idea of what the study investigates and will bring up the study when others search published dissertations*.

Inspect the sample research question and you can see that answering it will require a number of steps or 'mini-projects,' that can be stated as sub-questions. For instance, we will need to know how morale is affected by the MBO approach (mini-project 1), how morale is affected by the human-potential approach (mini-project 2), and how those two outcomes compare with each other (mini-project 3). A sub-question for each will clearly break out the three somewhat separate mini-projects. For example:

How is workers' morale affected by a management-by-objective management approach compared with a human-potential-development approach?

1 Sub-Question 1: How is the level of workers' morale affected by an

MBO approach?

2 Sub-question 2: How is the level of workers' morale affected by HPD approach?

3 Sub-question 3: How do the two outcomes compare with each other?

In this section, the research question should be written out clearly, and the variables and their relationships explained. (See Section H, below, for a full discussion of variables and their definition and operationalization.) Following that, there should be a statement of the hypotheses (if the study is quantitative). We will discuss hypotheses further, but first a word about qualitative research questions.

Qualitative research questions

There is nothing inherently different about a qualitative research question, except for the fact that words such as variables and relationship among variables do not easily apply. The basic principle in writing any good research question is to be sure that it includes the relevant variables or constructs and indicates their relationship. As background, consider the three-fold discussion of "constructs, variables, and operational definitions" in the opening paragraphs of Section H, below. The research question asks about the relationship between or among the main constructs (usually the variables in quantitative projects). Qualitative analysis does not measure things, so variability-based definitions and operational definitions are not relevant to it. But phenomena or experiences (the stuff of most qualitative analysis) can be named conceptually and the research question must ask about those conceptual constructs. (and if relationships between or among phenomena or experiences or constructs are of interest, the research question must ask about those relationships).

Because qualitative research does not inquire into relationship between variables, words like "effects," "impact," "influence," and the like are seldom used. In a study of the experiences of African American middle class professionals of being racially profiled by police officers, one might see a research question like this:

How do African American middle class professional men feel about, think about, and integrate into their self-image the experience of being stopped by a police officer for no reason other than race?

In this version, the constructs involved are clearly identified: "African American middle class professional men's experience," "racial profiling," "feelings, thoughts, and integration into self-image," etc. A more broadly worded research question might ask:

What is the lived experience of African American middle class professional men who have experienced racial profiling?

In general, it is better to write a more narrowly focused question asking precisely what the researcher is interested in finding out. Although questions about "lived experience of X" are common, the construct "lived experience" is extremely broad and

encompasses a wide range of conscious cognitive, affective, and behavioral aspects. If one's interest is correspondingly broad, fine. But if one's interest can be more clearly and narrowly focused, that is preferable.

These sample questions, although they are a bit awkward in their wording, meet the criteria for a respectable research question. Each is (a) a question that can be answered, (b) based on a literature review that has revealed that this is a research problem that needs investigation, (c) not yet satisfactorily answered, and (d) clearly identifies all the elements that the study will investigate: the phenomenon of interest, the population of interest, and the focus on their actual experiences (thoughts, feelings, etc.). In the first instance, it clearly states that the inquiry will focus on their emotional, cognitive experience, as well as on how they integrate these experiences into their sense of themselves. While the first is a bit wordy, it is extremely clear what the study will investigate, and its keywords will alert interested readers to precisely what they will encounter. The second, meanwhile, allows for a much wider range in its inquiry, focusing not only on cognitive and affective dimensions, but on the entire "lived experience," whatever the participants care to include in that phrase.

Hypotheses

Qualitative studies do not employ hypotheses, which are formal predictions about the outcomes of statistical analyses.

Remember guideline 4: there should be one hypothesis or hypothesis set for each research question. What this really means is that many research questions break down into sub-questions, just as the research problem may break down into sub-problems, and there should be an hypothesis set for each sub-question. For instance, our quantitative research question above might break down as follows:

1. Research question: *How is the level of workers' morale affected by a management-by-objective (MBO) management approach compared with a human-potential-development (HPD) approach?*
    - Research sub-question 1: What is the level of workers' morale before and after a period of experiencing an MBO approach?
    - Research sub-question 2: What is the level of workers' morale before and after a period of experiencing a HPD approach?
    - Research sub-question 3: How do the results of the two measures compare?

In this study, then, there could be three hypothesis sets, perhaps as follows:

2. Null hypothesis 1: There will be no difference in measures of morale before and after management by an MBO approach. (See standard statistical texts for the proper algebraic notation for the null and research hypotheses. Your mentor/chair will let you know if that notation is required, or if a verbal sentence is sufficient.)

3 Alternative hypothesis 1: There will be a negative difference in measures of morale before and after management by an MBO approach, significant at the 0.05 level.

4 Null hypothesis 2: There will be no difference in measures of morale before and after management by an HPD approach.

5 Alternative hypothesis 2: There will be a positive difference in measures of morale before and after management by an HPD approach, significant at the 0.05 level.

6 Null hypothesis 3: There will be no significant differences between the morale measures of the two groups.

7 Alternative hypothesis 3: The morale of the HPD managed group will be significantly higher than the morale of the MBO managed group, at a significance level of 0.05 or better.

The hypotheses will be justified by reference to (a) the previous literature on the subject and to (b) one's theoretical framework. For example, in setting up these hypothetical examples, the author recalled (without having access to the citations, unfortunately) early MBO management studies which suggested that MBO approaches are very effective in increasing productivity in work groups, but only marginally helpful in maintaining or increasing worker morale unless productivity increases are accompanied by direct worker incentives. At the same time, the literature in the human potential movement provided the construct (theoretical idea) that when managers allow workers to organize their work to optimize their potentials, within constraints of feasibility, morale usually improves. Thus, the alternative hypotheses were worded to reflect the tenets of the chosen theoretical framework.

Group Activity Seven - Research Questions and Hypotheses:

Topic: Online learning in graduate education

(Refer to your work on *Research Problem* from Part I.)

Develop a respectable research question, then a null and alternate hypothesis

- **Remember, a *research question* is . . . a *question* . . .**
  - **that can be answered.**

- **that reflects the elements of the research problem.**
- **that clearly states the relationship among variables or key phenomena to be investigated.**
- **that can be reduced to keywords that capture essence of study.**

- **And that, if answered, will solve the research problem**

Discuss your research question and hypotheses with your group.

G. Assumptions and Limitations

States the assumptions (constructs being taken as given, usually four kinds: general methodological assumptions, theoretical assumptions, topic-specific assumptions, and assumptions about instruments or methods) being accepted for the study and the limitations (things the study does not do either intentionally or because of inherent design limitations).

Assumptions

Your study, like all research, necessarily takes many things for granted. In legal terminology, it "stipulates" them. This means that everyone agrees without more ado to accept them as true without going through the tedious business of proving them to be true. But this acceptance does not mean that assumptions must not be defended; like every other element of your prospectus, they must have some support.

Two issues must be addressed about your assumptions: (a) Where do they come from? (b) How far down the "chain of assumptions" must you go in identifying them and supporting them?

Where do assumptions come from? There are a number of sources of your assumptions. We can list them as general methodological assumptions, theoretical assumptions, topic-specific assumptions, and assumptions about measures.

General methodological assumptions. *First, in any methodology, generations of methodologists before you have done the tedious work of identifying some important and basic assumptions one must make to do the kind of research you are setting out to do*. For instance, if you are going to interview participants, you must assume they will be telling you the truth (unless you can figure out a way to catch them if they lie). This and many similar assumptions are "universal research assumptions", and you will find them in the advanced methodology articles devoted to your particular study's methodology. Your particular design and sample may imply certain assumptions as well. For instance, you might have to assume that they can read at a certain specified level in order to answer your questionnaire. Think carefully about all elements of your design to make sure you understand what you are assuming or taking for granted by using them.

In general, all methodologies make a number of critically important assumptions about the *nature of reality (ontology)* and the *nature of knowledge (epistemology)* which you need to be familiar with and to identify in your prospectus. These fall into the following categories:

- ***Ontology***: Is reality a single phenomenon or are there multiple realities? (Most quantitative studies assume that reality, measured in units, is the same for everyone; qualitative studies assume that one person's reality may be independent or different from another person's reality).

- ***Epistemology***: Are the knower (researcher) and the known (participants and data) dependent or independent? (Most quantitative researchers assume them to be entirely or nearly entirely independent; how the researcher feels or believes is irrelevant to the outcome of a measurement. Qualitative researchers, on the other hand, assume the opposite: Interviewer and interviewee mutually influence each other in their conversations.)

- ***Axiology*:** Should research and researchers be value-laden or value-free? (Quantitative work assumes a degree of "value-freedom," but qualitative analysis does not. Be careful to specify values you bring to your study, particularly if you are doing qualitative work. For instance, believing that law-and-order is a cardinal principle of a sane society may affect a researcher studying the behavior of the police. Quantitative workers assume that it would not, if they are making measures. But this is an important assumption to critique as you prepare this section.)

- ***Generalizations*:** Is it possible to infer things about one group from knowledge about another? (Quantitative workers set stringent rules for generalization and believe a study is less than ideal if generalization cannot be

done; qualitative workers do not feel that generalization is a primary necessity for research: understanding real people is more important. Some extreme statements suggest that generalization, from the qualitative perspective, is impossible.)

- ***Causality*:** Do causes exist separately from their effects, preceding them temporally, or are causes and effects circular and mutually influential? (Quantitative workers often assume linear causality, although in recent years that clear distinction has broken adown and statistic methods for analyzing non-linear systemic behavior have been developed. Qualitative analysis does not consider reality to be linear, and understands that an effect may loop back and become a cause, as when an alcoholic's drinking (cause) angers his wife (effect) and in turn her anger becomes a cause of his further drinking.)

- ***Logic***: Is it better to search for principles from which to deduce predictions (theory), or to gather numerous facts and infer meanings from observations? (Many texts make the broad claim that quantitative analysis is deductive whereas qualitative is inductive. This is not so clear in practice, where some of the best quantitative analysis is a mix of inductive and deductive (sometimes called the "hypothetico-deductive method").

Obviously, when you select a methodological stance (quantitative vs. qualitative) you are selecting one end of the continua implied by this list. Quantitative workers tend to be *positivists* and qualitative workers tend to be *constructivists* or *interpretivists*. Become familiar with the assumptive sets underlying these intellectual positions, so that you can (a) defend them as appropriate to your research question and (b) articulate at least their overall description. "This study accepts the assumptions of positivism [or constructivism]," for example, is a statement seldom, if ever, seen in Capella proposals, but the failure to include it betrays a lack of understanding of how important this range of assumptions actually is. State your overall philosophical assumptions, at least at this generic level.

Theoretical assumptions. Next, your *theoretical framework* (see the *Chapter Two Guide* for a full discussion of the "theoretical framework") carries with it many particular assumptions. Some of them will bear on your study and you will need to identify them. In our study of workers' morale, for example, the human potential theory chosen for the study's framework makes a number of assumptions about human beings - that they develop along continua of talent and potentials, that thwarting a person's potential can lead to frustration and morale problems, and so on. *You will need to identify in your theoretical framework what the important or relevant assumptions are (ones that your study needs to accept as given), and describe them in this section*.

Topic-specific assumptions. Additionally, *the previous research and literature on your topic may reveal other topic-specific assumptions made by researchers in your field*. For instance, for a study of whether child abuse is a risk factor for adolescent depression, most researchers assume that child abuse does indeed have long-term psychological

consequences. (This may seem obvious, but that is the nature of assumptions: they typically are important findings that have been made so often in the past that they seem self-evident now. However, as anyone can attest who has felt the sting of a lawsuit from a disgruntled disbeliever in the impact of child abuse, not everyone agrees with the assumption, and it is no doubt not true in every single human case.)

Assumptions about measures. Finally, *there may be important assumptions built into the measures you are going to use; if so, they should be discussed*. When using psychological tests, for instance, it is assumed that standard administration protocols will be followed by all testers, that the participants will appropriately resemble the norm groups for the measures, and so on. If there is any deviation from those assumptions, they profoundly threaten the validity of the study. As such, these assumptions should always be clarified and reference to the methods section (Chapter Two) of the proposal should be made, where the conformity of the sample with the assumptions can be discussed in detail.

When specifying your assumptions, particularly the major ones, you should refer to literature where those assumptions are established or where they are simply "stipulated" by earlier researchers. Any assumptions (indeed, any design element) that have been accepted in a peer reviewed journal article can fairly safely be made in a dissertation. Check with your mentor for his or her position on where to find and how to justify assumptions.

You also will consider how far down the "chain of assumptions" must you go? There is a famous tale in the literature of mysticism, reported by various writers (cf. for example, Patton, 2002; Wilber, 2000) as being told in variant forms in Native American cultures, Hindu cultures, and Sufi cultures. In one version, a great king comes to the sage and asks the wise man on what the king's power rests. The sage replies, "Your power rests on the back of the army." So the king asks, "What does the army's power rest on?" The sage says, "The back of the people." "And what does the people's power rest on?" And the sage says, "On the back of the earth." The king asks what the earth rests on, and the sage replies, "The earth rests on the back of a huge turtle." And the king asks, "So what does the turtle rest on?" to which the sage replies, "After that, king, it's turtles all the way down."

It's like that with assumptions: if you keep pushing back, or down, you come to a point where its "turtles all the way down." In other words, we have to stop somewhere, because ultimately we would end in an infinite regress. By convention, the stopping point is usually described when you have named the main assumptions you are making about these elements:

1. Your methodological stance (positivist assumptions? constructivist assumptions? some mix of the two?)
2. Your theoretical framework's main assumptions about the subject matter.
3. The main assumptions about your subject matter shared by the previous researchers whose work you are relying on.
4. Assumptions germane to the proper use of your measures or methods of

data collection.

Once you have specified this range of assumptions, you need not go any deeper. There are only turtles down there.

Limitations

In addition to the study's assumptions, Chapter One also discusses its *limitations* (sometimes termed *delimitations*, check with your mentor). *There are basically two forms of limitations you must discuss. The first group comprises any important issues regarding your research problem which for one reason or another you are not going to investigate. The second group contains elements of the study that limit its power, validity or credibility, its capacity for generalization, and so on. In other words, flaws in the design*. Let's treat that group first.

Design flaw limitations.

Limitations that arise from flaws in the design need to be considered carefully. On one hand, you want to design as good a study as you can under the circumstances. However, the "circumstances" are important too. You want to finish the dissertation someday, and you want not to spend a fortune getting there. So although the perfect study might include an *N* of 10,000 or the use of five measures instead of two, time and resources may simply not allow for perfection. In contemplating all the ways your study could be stronger and more comprehensive, you need at the very least to make it good enough to validly and credibly answer the research question and to contribute a bit to the pool of knowledge about your subject. Set those criteria as the *minimum acceptable design*. Then, if you can afford the extra time, money, and sweat, try to improve as many elements of the design as you can within the limits of your own constraints.

When you have reached that balance between perfection and realism that does not settle for anything less than a study that answers your research question well enough, then the main ways that your study remains flawed should be discussed in this limitations section. The question from your committee and from the world will be: "Why not improve that?" And you need to be ready with a reasonable answer for why not. There are many reasonable answers, including:

1. It is not affordable, possible, achievable, or any other such adjective (this needs to be the case, of course).
2. Previous research or theory suggests that this degree of rigor and perfection is not required for this question, topic, population, and so on.
3. The limitation will not have a negative impact on the findings or conclusions, even if eliminating it would improve their robustness. Or, if they *will* have a negative impact, it is off set by other considerations (that you now specify).
4. The methodological literature suggests that the more limited approach you are adopting is equivalent in power or utility to the improved, more perfect approach.

Consequently, the two main criteria for allowing a circumstances-based or design-flaw limitation to stand are these: (a) The flaw does not prevent you from doing a study that validly answers the research question and solves your research problem appropriately and relevantly; (b) the flaw neither impairs your ability to draw necessary conclusions nor renders those conclusions suspect.

Delimitations (intentional areas not investigated).

There is a second class of limitations: things that an educated or expert reader might expect your study to investigate that you are not going to investigate. Put generally, these limitations are "things the study will not investigate." ("Things the study will not investigate" are often called *delimitations*, because they create artificial boundaries, they delimit, your study's focus.) *To identify such delimitations, you will usually rely on two main sources: your literature review of the general problem and your theoretical orientation*.

For example, in our study inquiring whether child abuse is an independent risk-factor for adolescent depression, if we adopt attachment theory as a main theoretical framework, most students of attachment theory would expect the study to look at the adolescent's attachment style as a way to assess "psychological damage." In that sort of investigation, the standard method of data collection would be to use a variant of the Adult Attachment Interview (Main, 2000). That instrument is the "state of art" method for assessing adult attachment difficulties systematically. If the researcher elects to use a different method of assessment (the AAI is time consuming and elaborate, albeit very powerful), this could be addressed as a limitation of the study in the sense of "something that will not be done that might be expected by educated or expert readers."

Another example: in the workers' morale study, an educated or expert reader might think that we would explore differences between various worker types (clerical vs. information processing vs. IT staff, for instance). If the study will not compare at that level of detail but consider all workers in aggregate, then this would be a limitation of the study. The expectation is not that you must do it all and please every potential expert or educated reader. To the contrary, you are expected only to successfully answer the research question which you and your committee agree you will answer. But you should be aware of at least the main limitations which an educated or expert reader would find in your study - the main issues they would have liked you to investigate.

If there are specific tests or statistical analyses that most readers would expect to be done and are not being done, that would also count as a delimitation if the decision not to do so is deliberate and made after careful consideration. However, if a standard test or analysis is not done because the researcher did not realize that it should be done, that is not a limitation. It is a mistake.

You only need state your reasons for not doing so.

Group Activity Eight - Assumptions/Limitations:

Topic: <u>Online learning in graduate education</u>

Review previous work.

Give <u>one</u> example each of:

1. **A methodological assumption**
2. **A theoretical assumption**
3. **A study limitation**
4. **A delimitation**

<u>Discuss each of your above examples with your group</u>.

H. Definitions of Terms (p. 29)

<u>Defines all constructs investigated in the study along with characteristics of the sample and any other characteristics or variables which are of importance in the research question</u>. <u>In quantitative projects, define the construct variables operationally</u>. <u>In qualitative projects, all constructs and characteristics need to be clearly and fully described in sufficient detail that readers can observe them in appropriate contexts</u>.

(Qualitative designs require definitions of terms, although they are not "operationalized" in a technical sense. We recommend that qualitative researchers familiarize themselves with this section nonetheless.) *To approach the art of "operationalizing" variables, first think about variables for a moment. A variable is a way to define a construct, which is a key idea or concept or structure in a theory*. In attachment theory, for instance, one important construct is the idea of "security of attachment." Babies are thought to develop some kind of attachment to their mothers, which in turn can predict later relationship development and styles. There is a great deal of description and theory underlying that term "secure attachment," which is a construct (an important theoretical element). Secure attachment, as a construct, can be defined as a *variable* as well: security can vary in different people and so one can think of "levels of secure attachment" or one can think of whether attachment is present or absent. For instance, one could say that a baby exhibits secure attachment by X, Y, and Z behaviors, and if they are not present, there is no secure attachment. This would be a "yes/no" or dichotomous way to measure secure attachment, and thus would define it in terms of dichotomous data. However, we could also talk about secure attachment as being a quantity measured on some kind of scale from 1 to 10, with 1 being very weak secure attachment and 10 being very strong secure attachment. In this case, the variable definition of the construct will yield continuous data. *The key notion is that a construct is an idea or set of ideas in a theory, but the variable definition of that construct defines how that construct varies across individuals or groups*.

In qualitative analysis, we really are not interested in variability as much as in experience, which is a construct. For example, "experiencing racial profiling" can be defined in terms of what it means, what happens in that experience, to whom it happens most, and so on and so forth. It is a construct, a theoretical idea. In our earlier example of the study of African Americans' experiences of being racially profiled we are interested in that construct, but it is not defined as a "variable," in that we're not interested in how those experiences change (vary) over time. Rather, our interest is in describing and understanding those people's experiences.

However, if we became interested (as a result of that qualitative study, let's say) in what ***how many*** African American middle class professionals had actually experienced profiling, or in ***how much*** (on some scale) it had changed their attitudes toward police, the construct would be defined a variable (a factor or element that can vary in a population).

From the qualitative perspective, an experience is described, richly and detailed; but it is not measured. On the other hand, a variable (that which varies) only is meaningful if we can measure it. (Of what value is "the rate of change" in something if we cannot measure that rate?) *Defining a variable in terms of how it will be measured is called operationalizing the variable*. *In truth, we are actually operationally defining the construct, but commonly it is referred to as operationalizing the variable*. As such, operational definitions of variables are found in quantitative proposals only. For example,

in the study of secure attachment, the construct “secure attachment” might be defined as a variable like this: "Secure attachment is the degree to which the baby exhibits attachment behaviors when the mother leaves and re-enters the room." To operationalize that construct, we might write, "Secure attachment will be defined as the score on the XYZ Secure Attachment Scale."

However, *in qualitative prposals, although their constructs are not defined in terms of measurements and variability, the key phenomena under investigation must be defined in terms that allow readers or later researchers clearly to identify them in the real world*. For instance, "racial profiling [the key phenomenon] will be defined as a racial minority group member's experience of being stopped by a police officer when no observable offense (e.g., speeding, open bottle, reckless driving) has been committed." Although the definition contains no measure ("operationalization"), any reader should be able to "see" racial profiling when it occurs.

Quantitative definitions of terms.

Earlier, we said that the research question should include all the variables that the study will investigate, as well as the relationship between or among them. Let's look at an example, again from our previous discussion:

1 *How is workers' morale affected by a management-by-objective management approach compared with a human-potential-development approach?*

In this question, *morale,* an *MBO approach,* and an *HPD approach* to management would be the three constructs. Defining “level of morale [a continuous variable],” “use of MBO approach [a dichotomous variable],” and “use of HPD approach [a dichotomous variable]” would state the constructs as variables. The relationship between them is implied in the word "affected." One variable might positively affect or negatively affect the other. We could make that relationship even clearer by asking, "Is the level of workers' morale improved by . . ." Here the word "improved" clearly states the direction of the relationship we are looking for.

In the *Definition of Terms* section of your Proposal, you will define each of the variables. But there are other variables in most studies as well:

2 Your participants will have characteristics you consider important (which usually can vary across a population), and so they will be defined. Age, gender, socio-economic status, religion, education levels, are common examples of such "population variables" which identify the population. The terms "inclusion criteria" and "exclusion criteria" (variables which allow a potential participant into the sample or keep him or her out) refer to variables which you select to characterize the sample (inclusion criteria) or which might confound or unhelpfully affect the findings (exclusion criteria) will be defined.

3 There may be important *moderating* or *intervening* variables (these both have specialized meanings which you should familiarize yourself with in some standard textbook on research design) which you will need to consider, and these will be defined here as well. In the *workers' morale* example, suppose the study investigated the MBO approach in one company which had employee stock purchase plans as incentives and another company did not. Keeping in mind that the (putative) theoretical framework that MBO plans have not been shown to increase morale unless workers' increased productivity is rewarded, the employee stock purchase plan might be a variable that has an indirect effect on the morale question. Thus, as a "moderating" variable, it probably will be defined in this section.

What sort of definition is required in this section?

It is not a "Webster's dictionary" definition, although one might start with that. Rather, these definitions have two levels or components. *First, they should describe the theoretical construct in terms of how that construct is thought to vary*. Remember that how you define your constructs as varying will determine the kind of data you will get. This will become important in Chapter Three, when you discuss data analysis. *Second, the definition should provide a statement of how the variable will actually be measured, defining it operationally (in terms of some measurement)*.

Look again at our example. "Workers' morale" is the first construct we encounter, and it is the dependent variable in the study. Suppose that in our theoretical framework (the previous research outlined in Chapter Two, perhaps summed up on a particular theory published by Jones), workers' morale was defined (by the fictitious Mr. Jones) as "the overall sense of confidence, optimism, and well-being associated with one's job and work relationships." Our definition would build from there, moving along to a variable-definition: "Workers' morale is defined as the level of overall confidence, optimism, and well-being associated with one's job and work relationships." By adding the words "level of," we have transformed the construct into a variable, completing the first main level of the definition.

But now the second level must be addressed: How will *workers' morale* be measured? By adding this level or component, we *operationalize* the definition. Howitt and Cramer (2000) write that "an *operational definition* of a variable is merely a way of defining a concept by the way in which it is measured" (p. 165). We might operationally define workers' morale, then, like this:

Workers' morale is defined as the level of overall confidence, optimism, and well-being associated with one's job and work relationships (Jones, 2000) as measured by the worker's scores on the Workers' Morale Inventory *published by Smith and Jones (2001)* [fictitious citations].

Notice that the measurement instrument must be closely linked to the conceptual definition. The first of our examples - "the level of overall confidence, optimism, and

well-being associated with one's job and work relationships" - requires an instrument which measures confidence, optimism, and well-being about the job. Choosing an instrument that measures something else – say job satisfaction – would be a mistake. Make sure that your instruments measures the variables expressly defined in your operational definitions.

Take another example: Imagine that we have a different conceptual definition, proposed now by the employer who may be hiring us to do evaluation research at her plant: *Workers' morale is their overall attitude toward the company leading to working harder and more productively.* Such a conceptual definition creates a different challenge: measuring some correlation between their attitudes and their productivity. If we ask the employer for more detail, we might find that she actually does not care about the attitude part, but wants us to measure productivity, on the assumption (mistaken or not) that better morale means higher productivity. Without debating the wisdom of that assumption, this simplifies our operational definition (otherwise, we would have two operational definitions to craft, *attitudes* and *productivity*):

Workers' morale will be defined as their degree of productivity over the period September 2005 through April 2006. Degree of productivity will be measured by _____. (Notice that the operational definition of morale includes another variable-productivity-which in itself must be defined operationally.)

You will define your terms conceptually and operationally and there must be a definition for each important or relevant variable in your study, including relevant sample variables and variables hidden within other definitions.

Qualitative definitions of terms.

The key real difference in qualitative analysis proposals is that they rely on description and interpretation, not on measurement. Therefore, the definitions should have two components: a conceptual definition of the phenomena or conditions or experiences being investigated, plus a statement of how the phenomenon will actually be observed. These correspond to the two levels (variable definition and operational definition) in quantitative studies. Let's see an example.

In our example about African American middle class professionals' experiences and meanings of being racially profiled, we stated this research question:

How do African American middle class professional men feel about, think about, and integrate into their self-image the experience of being stopped by a police officer for no reason other than race?

Here are the key constructs we want to define:

1 The men's feelings about their experience;
2 Their thoughts about their experience;
3 Their process of making sense of their experience (integrating it into their

self-image);
4 Racial profiling (being stopped for no reason other than race).

There are also some important *population characteristics*, such as being *African American*, *socio-economic status*, or being *professional*, which also must be defined in a way that is clear enough that no mistake can be made about whether they are present or not. *Our definitions then will need to provide (a) conceptual clarity and (b) a statement of how we will observe these things*. Here is an example:

1 How men "feel about" the experience will be defined as their stated emotions - e.g., neutrality, anger, hurt, fear, etc. - as reported by participants during interviews with the researcher or written by them in the journal they will keep as part of the research.
2 How the men "think about" the experience will be defined as any statements showing their understandings, beliefs, attitudes, or ideas about the experience, as reflected in their reports during the interviews or in journal entries kept as part of the research.
3 The men's "integration into self-image" will be defined as their reports - in either interview or journal entries - of their attempts to "make sense" of the experience, to link this experience with previous meaningful experiences, and/or to describe how the experience has changed them in some way.

These may not be excellent definitions—the conceptual part of the definition should come from your theoretical framework (about feelings, about thinking, etc.)—but they do provide some sense of what an operational definition in a qualitative study might be like.

Group Activity Nine - Definition of Terms:

Research Question: Quantitative: How do admissions standards interact with IQ to affect cumulative GPA after five quarters in an online graduate program?

Research Question: Qualitative: How do graduates understand and interpret their personal experiences in an online graduate program?
For each term, write one example:

Quantitative Analysis:	**Qualitative Analysis**
Construct: _____	**Key Phenomenon: _____**
Variable: _____	**Key Phenomenon: _____**
Op Def: _____	**Key Phenomenon: _____**

Discuss each of your examples with your group.

I. Expected Findings (p. 33)

States the findings expected from the data analysis from a conceptual standpoint, showing how the findings are expected to answer the research question in terms of the theoretical framework for the study. In qualitative studies, researcher expectations should be bracketed or set aside, and this section can identify them so they can be put in abeyance during data collection and analysis. *Qualitative researchers may rename this section "Researcher Expectations" or "Researcher Biases for Consideration" to indicate clearly that these expectations are conscious and are being identified in order to bracket them during data collection and analysis*.

Here, you will describe what you expect your study will reveal about the research question. The most fruitful way to structure this, in a quantitative study, is simply to re-state, perhaps in paraphrase, the alternate hypothesis or research hypotheses. However, a deeper emphasis is required here than merely affirming the null or the research or alternate hypothesis. Here you should discuss what acceptance or rejection of the null hypothesis and acceptance (or rejection) of the alternate hypotheses might mean in light of the research problem and its significance. In addition, you should state, although briefly, the theoretical reasons why you expect the findings to turn out the way you do.

In this Chapter, discuss your expected findings conceptually, in terms of your theoretical framework (which you will describe in detail in Chapter Two). In Chapter Three (Methods), you will describe your expected findings in terms of the null and

alternate hypotheses for a quantitative project.

For instance, the available literature on your subject may strongly support the idea that frequently the variables you are investigating are not highly correlated, but other literature suggests that they should nevertheless be carefully investigated under the new conditions your study will impose, perhaps as a "long-shot" that, if it turns out positively, will have deep implications for the field. You expect that the null hypothesis will be accepted, on the basis of the research that shows that usually these variables do not correlate. This would be something to ***briefly*** mention here. You will go into much more theoretical detail in both Chapter Two (where you will describe and argue the appropriateness of your theoretical framework) and Chapter Five (where you will discuss what the actual findings are and what they mean in light of all this theory and research).

In qualitative research circles, there is disagreement about whether it is appropriate to state expected findings for a qualitative study. For example, because in most qualitative studies researchers must "bracket" their personal biases about the phenomena to "allow the meanings to emerge from the data," there should be no expectations allowed about the findings. Others believe that that is impossible, that researchers, being human, can never enter a research project without expecting to find something. On this position, the requirement of "bracketing" preconceptions is designed precisely to account for this and to reduce the biasing effect of expectations by naming them explicitly. It would be appropriate to re-name this section something like "Role of the Researcher" or "Researcher Expectations" to clearly identify this issue.

Discuss with your mentor/chair and your committee their position on this issue if you are designing a qualitative study. One argument in favor of stating the expected findings here, especially in qualitative analysis, is to put the reader on notice about the researcher's biases and preconceptions. Knowing beforehand what the researcher expected to discover allows the alert consumer of research to analyze the results more critically. This is good (perhaps especially in qualitative research), because it enlists the readers (the dissertation committee) as co-interpreters who may spot flaws in the findings which the researcher might have missed because of the preconceptions. It also puts you, the researcher, on notice that you must be especially careful about designing for credibility and dependability (by using multiple methods, triangulation in its various forms, and in other ways), so that your stated expectations (biases) can more effectively be ruled out even if you find what you expected.

In both qualitative and quantitative studies, the description of the expected findings should follow the order of your research question and sub-questions. *This is a good principle to follow throughout the proposal: use parallel constructions, terms, phrases, and the like consistently throughout*. *Your readers will appreciate the consistency and the familiarity of terminology and structures, and it will help them to keep oriented to what you are doing*.

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Dissertation Chapter Guides Workbook: Chapter Two

The Literature Review

All research reports, including dissertations, contain reviews of the literature about their topics. A literature review appears in dissertations as a separate chapter or part (in the Capella format, Chapter Two). *A successful literature review will accomplish the following objectives*:

1 *Describe the **line of research** or investigations of which the dissertation is meant to form a most recent part.*

2 *Identify, describe, and evaluate the studies that support the dissertation's or research project's formulations of the **research problem**, the **research question**, and the **significance** of the study.*

3 *Describe and evaluate the studies that present the **theoretical framework** used to select the variables or the focus for the study and to guide the **analysis and interpretation** of the data collected in the dissertation project.*

4 *Identify, describe, and evaluate the studies supporting the selection of the dissertation's **methodology and approach**.*

5 *Support the appropriateness of the dissertation's **instruments, measures, and/or methods** used to collect data*.

This Guide will outline the basics of the dissertation literature review. Each of these objectives should be reflected in your final draft of Chapter Two, although you may combine them in a different order than presented. Your readers should be able to easily identify all the components regardless of how they are organized.

This *Chapter Two Guide* is designed to help you prepare the literature review (Chapter Two of the dissertation). Although the comprehensive and formal literature review is not written up for the proposal, you will need to have completed the literature review in order to compose Chapters One and Three of the proposal. Use this *Guide* to assist you in organizing your thinking about the literature reviews and how to present the information you find.

Did you notice the phrase “literature reviews”? Is there more than one? Yes. You will complete a preliminary literature review as you start thinking about your dissertation topic in order to learn what has been published in the area and whether there is sufficient support in the literature for moving ahead with that subject. When you discover that there is sufficient literature support, you will then conduct a deeper literature search to learn everything you can about the topic and its related issues. This will enable you to demonstrate (in Chapter Two) that your research problem is indeed a meaningful and important one. Finally, you will review the literature(s) about methodology in order to establish the proper methodology, approach, and methodological models to apply to your particular research question.

Finally, another way to look at the plural word “literatures” recognizes the reality that each area of science has its own literature, usually found in a the profession’s journals and publications. For instance, clinical psychology has a literature with five or six major journals; educational psychology has a separate literature, and so on. Public safety and counseling, as social sciences, each has a body of literature . As you engage in

literature research, therefore, it is often useful to explore the research found in other disciplines to deepen your understanding of the topic you have selected. For example, a study of group psychotherapy (a clinical or counseling psychology topic) might build on the literature of social psychology and group psychotherapy, but the field of sociology will have a large body of research into small-group behavior that is relevant to the topic. Similarly, topics in health psychology or health care administration may benefit from a literature search in nursing or medicine. Particularly when you do not find much on your particular topic in one literature, it is necessary to search the cognate literatures before claiming that there is "little previous research" on your research problem.

A. The Introduction to the Literature Review

The introduction to the literature review states the overall topic of the dissertation and provides an orienting paragraph or passage so the reader knows what the literature review will address. Describe how the chapter will be organized (what are the main points and in what order do they appear?). Describe (briefly) how the literature was surveyed, providing enough information about search criteria (keywords used, databases searched, libraries accessed and journals investigated, for example) that the reader can evaluate the thoroughness of the review. (Search criteria and procedures can also be described separately for different parts of the review, in the respective sections.) This should not be more than a page or page and a half long.

The main points of a dissertation literature review will also be discussed, though not in such depth, in Chapters One (i.e., background including the theoretical framework and methodology) and Three (methods). In those discussions, references will be made to the research and theory from which the elements of the study are derived. In Chapter Two, those references will be organized and discussed in depth, so that Chapter Two describes and evaluates in detail the various literatures or bodies of research that were consulted in preparing the other two Chapters. For example, in Chapter One, one might say that "attachment theory forms a primary theoretical framework for this study," providing a line of references that support the argument. In Chapter Two, then, this line of research will be described and evaluated to ensure it is clear how it will be used in the present study. .

To summarize:

1. Chapter Two will discuss the previous research and theory in which the researcher discovered and developed the research problem.
2. *Chapter Two will show the relevance of the particular theoretical perspective or framework for identifying the issues, variables, phenomena, or key factors to investigate, including the significance of the problem.*
3. *Chapter Two will synthesize and critique the literature reviewed, showing both the main foundation points for the dissertation and the opposing viewpoints, controversies in interpretation, or contrary findings relevant to the study*. For example, attachment theory has many components and constructs; the literature review synthesizes them with other relevant

research findings and selects those constructs that will be used to focus the present study. These discussions will either be addressed in their own section, or included in other sections as the writer prefers and as the argument requires.

4 *Chapter Two also justifies the selection of the particular methods of data collection, by discussing how the previous research supports (either theoretically or practically, that is, by using them) the use of those methods for obtaining data about the research question of the study*.

The term "justifies" is often used in the context of literature reviews. It means simply that the researcher argues for any element of the proposal and dissertation by showing how the element is supported in previous literature. *"Support" means a number of things*.

5 *Previous studies may have arrived at conclusions that provide direct evidence of the acceptability of the point*. For example, one can justify the selection of a research question by showing that it is an obvious "next question" for investigation a line of articles on the topic.

6 *Previous research or theoretical studies may provide indirect support for a point by showing how it flows reasonably from established findings or theory*. For example, the research question may have been derived from a prediction made on the basis of a particular theory in the literature on the topic.

7 *The researcher found a particular method of measurement used in similar studies on similar samples to answer similar research questions*.

8 *When little work has been done on a topic in one's specific field, work on similar or analogous topics may be found in related literatures*. For example, investigations of large social-psychological phenomena are often found in sociological journals or anthropology journals, and often suggestions for a sample selection procedure or a data collection method may be found there.

Group Activity Ten - Using the Literature for Support Quiz:

The task: Each table provides a consensus answer to each item:

1. Showing that my research question was a “recommended for future studies” question in a prior dissertation justifies my selection of the question. True or False?

2. To establish the claim that it is worthwhile to investigate if computer gaming is

bad for cognitive development, it is acceptable to argue logically from the fact that TV watching has been shown to impair cognitive development and involves similar cognitive mechanisms, computer gaming should be studied. True or False?

3. Your committee should accept your use of a controversial test if it was used in a similar study, on similar people, asking a similar question. True or False?

4. You cannot find anything on your topic about group behavior in a unique community in the I/O literature, but there is a great deal about it in the social psychology and anthropological literature. You may support your study with references to those literatures. True or False?

***Discuss your answers with your group*.**

Group Activity Eleven - Introduction to the Literature Review:

Discuss at your table, and generate a consensus opinion on this question:

"*Should the researcher write the introduction to Chapter Two before writing the Chapter or after writing the Chapter?"*

Write a brief narrative explaining your response.

Discuss your response with your group.

B. Theoretical Orientation for the Study

In this section of the literature review, cite the major references to support your theoretical orientation and briefly describe the orientation. *Essentially, the "theoretical orientation" or framework is one's "point of view" from which one writes the paper or conducts the research project* (integrative project or dissertation). This is very important in all papers. For example, in a study on problems in infant cognitive development, one might select Piaget's or Vygotsky's theory to organize the description and analysis; alternatively, one might use attachment theory, nonlinear systems dynamics theory, or a combination of both (as in Siegel, 1999) to organize the discussion. Do not blur or blend theoretical frameworks unless they can be authentically integrated and unless the objective of the paper is best served by their integration. In that case, a careful description of all the relevant theories in terms of their major references will be written.

When you intend to use more than one theoretical framework, you need to synthesize and integrate the different theories carefully. *You must show how the concepts work together and can be validly considered together*. For example, Siegel (1999) combines elements of complex (nonlinear) adaptive systems theory with elements of mainstream attachment theory. From the former, he borrows the concept of auto-regulation of complex state changes and integrates it with attachment theory's construct of affective self-regulation. The integration allows him to consider the neurobiological substrates of emotional self-regulation in the developing mind. However, that would not have succeeded had the two concepts not been compatible.

In this sense, your "theoretical framework" can comprise a number of different theories, but be sure that they—or the constructs you borrow from them—are compatible (i.e., they deal with the same material).

Group Activity Twelve - Theoretical Orientation:

Here is a sample research topic: <u>The effectiveness of online graduate education in psychology.</u>

<u>[Note: If you'd prefer, substitute the word "human services" for "psychology]</u>

Discuss <u>how you would pull together a theoretical framework or orientation</u> to approach the study.

- E.g., a theoretical framework to address concepts of "educational effectiveness," "online grad education," "online grad ed in psychology," etc.
- E.g., how to demonstrate "effectiveness" (methodology)

<u>Discuss your theoretical framework with your group</u>.

C. Review of Research Literature and Methodological Literature Specific to the Topic or Research Question

Review of research on the topic

How this is organized is important. *It can be organized by variables, by factors or constructs to be addressed, by elements of the theoretical framework, by elements of the research design*, or by another principle. *The flow of this section should be apparent to your readers*. *All literature review sections follow some "logic," namely a method of organizing the main points so that they flow logically and support one another*. *You also want to ensure that you review the literature you used in Chapter One to establish your research problem*. *The objective is to persuade the reader to accept your approach to the study or research. To that end, you must show that your research is a logical development out of the previous research and is not heading off in some uncharted and unsupported direction*. *It's never wise, in a dissertation, to chart new territory: save that for when you have your doctoral degree in hand*!

This section has two sub-sections: (see its title, above) *Review of research on the topic and Review of methodological literature*. These could be further subdivided into research supporting or developing the theoretical framework to be used; research on the first variable to be investigated or main point to be discussed; research on the second variable to be investigated or main point to be discussed; and so on. Following that, in the second main section (*Review of methodological literature . . .*), there might be subdivisions like this: Common approaches to research on this topic; alternative approaches to this topic area and their pros and cons; methodological studies justifying the approach used in this dissertation.

When actually writing the literature review, do not simply string one study after another in a random fashion, even if they are well summarized and evaluated: Follow your organizing principle. For instance, in a quantitative dissertation, a common organizing principle is to address each of the main variables in the study in order (sample selection criteria, independent variable, dependent variable, other relevant variables, and so on). There will also be literature reviewed to support the methodological choices made in designing the study - quantitative vs. qualitative, types of measures, the appropriateness of tests and measures to the subject, and so on. In essence, this section of the literature review - in course papers as well as in dissertations - shows the research from which the key elements of the study or paper have been drawn. By following your chosen organizing principle or logic, you will help your reader follow the flow of your own thinking about how you approach the study and its elements. Remember, the key objective of the literature review is to persuade your reader to accept your view of the topic.

To gain an understanding of how research should be presented, read the "literature review" sections of a number of research articles. Your reader needs to know the particulars of the studies you are presenting - the ones which offer key support for your

own main points and variables. Typically, you will identify the research question, describe what was being investigated, who the participants were, what methods were used to collect and analyze the data, what the results and conclusions were, and how they bear on your topic or question. Secondary studies can be presented succinctly, but make sure their inclusion in your literature review makes clear, logical, and obvious sense.

Whatever the organizing principle you chose, follow it strictly and use section sub-headings to keep the reader oriented. Each section or sub-section should support a conclusion or theme bearing on your overall answer, solution, or argument. The following section is where all these themes or conclusions will be synthesized.

Review of methodological literature relevant to the study (dissertations only)

This section presents your review of methodological issues relevant to your design. *Of particular use are studies which support your selection of measurement instruments, methodological models, sample size (if unusual), or any element of your research design which could need justification*. Key methods of justifying design elements are a) demonstrating that similar designs are used in previous research on the subject; b) demonstrating that key methodological texts support or encourage similar designs on similar research topics; or c) demonstrating that the types of data required by the particular research question logically demand the design elements proposed.

This section may be rather brief, particularly if your methodological choices are common and well-understood. However, in studies using methodological approaches and models which are less well understood or less commonly used, this section should be more detailed. *The basic question to answer is "What literatures support the choice of methodology, approaches, and methodological models selected regarding the actual research question being investigated*?" It is not sufficient to simply refer to a textbook that says something like, "When you want to understand people's personal experience, a phenomenological approach is best."

Instead, you need to show how a phenomenological approach best fits *your* research problem and question, and you should refer to specific articles about that methodological approach, articles about similar studies that used that approach (and justified it), or articles on your topic that either used the approach or recommend using it for the research problem you are working on.

Group Activity Thirteen - Review of the research:

Topic: ***Effectiveness of Online Graduate Education in Psychology***

Develop a "logic" for Chapter Two.

Hint: Do you think you will be most persuasive if you organize this

section by the constructs/variables in the research question, by the research question and sub-questions, or by some other organizing principle?

Hint: You need to report literature that supports or explains:

1) **The theory you are using as a lens to develop your ResQ;**

2) **The variables/constructs/phenomena you have chosen to focus on;**

3) **The way (methodology and methods) you've chosen to answer the ResQ.**

Discus the logic that you developed for your Chapter Two with the group.

D. Synthesis of Research Findings

In this section, you pull together the findings and discuss the larger themes, inconsistencies, or relevant patterns based on the research studies you evaluated. Look at Bloom's (1956) work to get a better understanding of this level of critical analysis. *In general, here is where your reader will see what the literature leads you to conclude about your own question, problem, or thesis; it also sets the stage (in a dissertation) for a discussion of the research methods in detail (Chapter Three)*.

This section will summarize the main points of Chapter Two, showing both the strengths and the weaknesses in your theoretical orientation and your project's

relationship with the previous research on the topic, both in content (research findings) and methods (methodology).

Although some writers elect to combine this synthesis of previous research with another section, we recommend separating it out here so that your readers will have ready access to the key organization and logic of your findings in the literature reviews you have done. You want your readers to have a clear understanding of your theoretical framework and the chief constructs and ideas you will use to organize, understand, and interpret your data and findings.

Group Activity Fourteen - Synthesis of Research:

Topic: *Effectiveness of online graduate education in psychology*

Discuss what you would imagine a synthesis section might include if, in your lit search and evaluation, you discovered that:

1. 10 articles find "moderate" positive outcomes of online grad programs in psychology (Pearson's r = 0.65 to 0.78);

2. Four articles find "weak effectiveness" of online degree programs (BA, BS, and grad) in general (no correlation reported), but one notes moderate-to-good (r = 0.75) effectiveness in two psychology-related grad programs (M.Div and MS, both in counseling);

3. Six articles question, in *principle*, "any possible effectiveness," but (reporting another study) note moderate/strong (r = 0.80) positive results in one under-graduate online effectiveness study (no degree field reported); also, the six studies fail to report any negative *empirical* results.

***Discuss your findings with the group*.**

E. Critique of previous research

In this section examine the quality of the research you have reviewed. *What are the methodological strengths and limitations of the works you reviewed*? *How do those weaknesses, in particular, affect your own argument* (see section 4)? *You will be considering things such a rigor of designs, sampling errors, size of samples, quality or research instruments, appropriateness of statistical procedures, and any other issues related to the quality of research*.

Here, too, is where you may bring up the opposing viewpoints, disconfirming evidence, or counterarguments to your main points. *These can be discussed in conjunction with earlier sections if you prefer; we recommend that you clearly identify sub-sections dealing with contrary opinions, evidence, or views, so that your readers will be fully informed both (a) that you did your literature review well and (b) understand all sides of the issue*. It will be very important, when you describe your final theoretical framework, to explain why you abandoned any contrary evidence or adopted one viewpoint on a debate rather than another.

For example, in a study of traumatic memory for childhood abuse, one might adopt a neurobiological theoretical framework, building the argument on evidence from a wide array of biological and medical studies of the consequences of child abuse. You would need to describe the counter-arguments to such an approach, including both the psychoanalytic view and the so-called "false memory" view. You would also need to show the strengths or weaknesses of the opposing views in order to demonstrate why you selected the theories you did.

What if there is no controversy about your subject? (Be certain that is the case before asserting it.) In that case, show the methods you used to comb the literatures (including related literatures in closely-related fields), so that the readers can judge whether your claim (that there is no controversy) is well founded.

This section may be integrated into Sections C or D if you wish, showing how the research and theory analyzed in Section C is strong or weak or how your arguments (in Section D) are supported not only by the conclusions drawn from previous work, but also from the strongest and most relevant previous studies. However, it is a good practice to separate or emphasize this element (your evaluation of the strength of the underlying research) for clarity, so that readers will understand when you are reporting and summarizing the relevant research and theory and when you are actually evaluating and analyzing it.

At the end of this section you should have constructed a strong case for why your study will be a step forward in terms of research rigor.

F. Summary

This should not be more than a page, and in general will summarize the conclusions you have drawn from the previous literature on your topic or methodology which support your own project. This is of great importance in the dissertation, where this section sums up Chapter Two and provides a transition into Chapter Three.

References

Bloom, B. & Krathwohl, D. (1956). *Taxonomy of educational objectives: The classification of educational goals. Handbook I: Cognitive domain***.** New York, NY: Longman, Green

Siegel, D.J. (1999). *The developing mind: Toward a neurobiology of interpersonal experience.* NY: Guilford Press.

Dissertation Chapter Guides Workbook: Chapter Three

The Elements of Chapter Three (Methods)

Every research paper, including the dissertation, has a section describing how the researcher carried out the study. Capella's approach to the dissertation provides that information in Chapter Three. Of course, you have already described your basic research design and your research questions and hypotheses (Chapter One, Sections E and F), and in Chapter Two (the literature review) you described your theoretical framework, how you developed your topic and the specific research problem and question, and all the design elements by analyzing the related literatures in your field. *Now in Chapter Three, you will describe the step-by-step the methods and procedures used in your study, in a way that will enable future researchers to replicate your study*.

In fact, make this a working principle to follow in writing Chapter Three: *Describe your steps clearly enough that a reader could follow them like a recipe and repeat what you did*. A key skill that will help you achieve this level of specificity and clarity is to read your work from the perspective of a stranger who is unfamiliar with the topic or research about any aspect of the topic. As you "see" your work in this manner, you'll be highlighting details that you may have forgotten to describe.

Some of the sections in Chapter Three mirror sections in Chapter One ("Research Question and Hypotheses," "Expected Findings," for example). Do not simply copy and paste your text from Chapter One here. Instead, rewrite them with a new emphasis. Here's how that's accomplished. In Chapter One, you focused on the nature of your study and its problem and each section had to be consistent with that. The focus of Chapter One on the research question, for instance, was how it will fit with the research problem and its significance, and help you to solve that problem or contribute to its solution. *Chapter One is a conceptual presentation*. *Here in Chapter Three, your emphasis is on methods and procedures, so when you discuss the research question, you will focus on the kinds of data the question requires for its answer, among other things, and how your instruments and procedures are designed to collect and analyze those kinds of data*. While the actual wording of the research question and hypotheses (or the expected findings as well) should be the same, the surrounding discussion will vary in emphasis and depth.

In shorthand, Chapter One describes why the research question is being asked, and Chapter Three describes how the research question is going to be answered.

Chapter Three has at least the following elements, which will form the structure of this *Guide* as well:

- *A.* *Purposes of the Study*: Re-introduce the purpose of the study.
- *B.* *Research Design*: Define more fully the research design, citing its strengths and weaknesses (with focus on issues of internal and external validity of the design).
- *C.* *Target Population and Participant Selection*: Identify the population from which participants are to be selected and the method of sampling.

Discuss and justify the sample size in this section.

D. *Procedures*: Describe the methods and procedures for conducting the study including informed consent protocols for human participants and field tests preliminary to conducting the study.

E. *Instruments*: Describe the data collection instruments and their psychometric properties.

F. *Hypotheses and Research Questions*: State the hypotheses or research questions in the proper form and style.

G. *Data Collection and Data Analyses*: Describe the collection and data analysis procedures, including data coding and statistical analysis methods.

H. *Expected Findings*: Discuss expected findings.

Readers will note that the text here is written to reflect Chapter Three of the dissertation, and so it will seem as if the research has already been completed. For example, in discussing sampling procedures, the *Guide* says, "However, if you used a non-conventional technique or procedure, in this section [of Chapter Three] you should detail it and give your rationale for that choice." Readers of this *Guide* who are working on their Proposal should take that grammatical point into account. They should read the sentence as "However, if you *are planning to use* a non-conventional technique or procedure, in this section you should detail it and give your rationale for that choice." In other words, *write the proposal in the future tense and the dissertation in the past tense*.

A. Purposes of the Study

Reviews the research purpose of the study, including a restatement of the research question. Key elements are the research problem, the research question (and sub-questions), any hypotheses, and a clear statement of the research purpose (solving the research problem). The objective is to reorient the reader to the nature of the study.

This section repeats the information given in the opening sections of Chapter One: the research problem, any background relevant to the methods, the research questions and hypotheses (if any) which are designed to gather information needed to solve the problem, and what the study is meant to accomplish, that is, its purpose. *The objective is to reorient the readers so that the methods to be described here will make sense*. Obviously, the order of these points is less important than ensuring the readers remember enough about the study's purposes to critique its methods, but it seems more logical to start out describing the research problem before discussing its background or the research question. Because the title of the section is "Purposes of the Study," it would also seem appropriate either to start the section with the purposes or to end it with them.

Put as bluntly as possible, *a study's purpose is to solve or contribute to the solution of its research problem*. (It might be useful to recall—or to go back and review—the information in the opening section of the *Chapter One Guide*, where we discuss the notion of a "problem" in research terminology.)

Pay attention to two things:

First, remember the distinction between the general problem (mental illness needing more effective treatments, for example) and the research problem (answering the next research question in a line of research studies on the general problem or repairing the flaws in a previous study, for instance). Some studies explicitly propose to contribute to solving the general problem in some way. More often, the purpose contributes to that larger issue indirectly by *helping* solve the research problem. It is important to be clear about what your data and findings are capable of and what you designed your study to accomplish.

The second thing to pay attention to in writing this section is scholarly modesty. *As in everything, claim for your results only what they actually can support, and be satisfied with a well-stated purpose even if it is not grand*. Not many dissertations provide the final solution to a vexing problem or rank with Freud's discovery of the topography of the unconscious. Most, indeed, are modest achievements, advancing the knowledge in the learner's chosen area one useful and important step along what usually is a very long road. In writing your study's purpose, focus on solving at least the research problem and (if the study can do it) helping to solve the general problem; but don't claim more than it actually can do.

Keep in mind that in Chapter One the issues are discussed conceptually, in terms of the theoretical framework for the study. Here, they are discussed in terms of methods and procedures for answering the research question.

In this section, although you do repeat what you have earlier said in Chapter One, you are now *rewriting them*, usually in greater detail. *The key principle is to write such that readers will be prepared both to critique the methods and if desired, to be able to repeat them*.

However, without contradicting the above principle, repeat verbatim important and recurring technical terms (such as your variables and constructs), relevant formulations (such as key descriptors or the names of your main theoretical framework concepts), or frequently-used "code phrases" which quickly tell your readers what you are referring to (such as referring to your study as a "two-group pre-posttest quasi-experimental design"). For instance, if you will be investigating the effects of cognitive behavioral therapy (CBT) on recidivism rates among three-time-convicted sexual offenders, do not refer to the therapeutic variable by different names at different times. *Keep all key terms consistent so your readers always know exactly what you are referring to*.

It is perfectly legitimate to paraphrase a previous passage very closely. As always in scholarly writing, guide your readers to the original material in case they want to review it. Whenever borrowing from an earlier passage, refer back to the place from which you are borrowing. Conventional APA in-text citation (author, year and a later reference) is not used for this, because the earlier passage (your earlier chapter) is not yet published material. Writing "As described previously (see pp. 9-11), the design of this

study will be . . .” is an easy and conventional way of doing this; or you might write something like, “Section E in Chapter One described the design of the study. Here, that material will be repeated but with significantly more detail.” How you actually reference the earlier material is up to you, as always, but help your readers by reminding them where the original material comes from.

B. Research Design

Describes the research design with emphasis on methods and procedures. Critical elements include methodology, sample type, data collection methods and frequency, and data analysis type(s). Emphasis should be placed on description of validity threats (credibility issues in qualitative designs) and how the design minimizes or eliminates them.

Like the previous section, you already outlined this in Chapter One from a conceptual standpoint. Here you can repeat (rewritten, as above) much of that material for the readers' convenience, adding in greater clarity and detail, with your focus being a concrete description of your design. Again, the aim is to create a step-by-step recipe to support possible replication in the future.

In preparing Chapter One, you will have given much thought to the strengths and weaknesses of your design, and by now, you should have revised and enhanced the design wherever feasible and realistic to eliminate as many weaknesses as possible. Preparing a “design diagram” was a very helpful exercise (see Item 29 in the *Methodology Review Form*) for seeing where flaws in the design reside which might threaten validity and reliability (or credibility and dependability in qualitative work). *Tthe research design section in Chapter Three now will describe both your design in detail, and discuss the strengths and weaknesses of the design, incorporating all the most recent design changes that improved it and reduced the threats to internal and external validity (or in qualitative terms, the threats to credibility and dependability).*

It is a very good idea to reinsert your design diagram in this section and to use it to guide your readers to a full understanding of your design. Creating the design diagram was discussed in the *Chapter One Guide* in Section E: Research design. There, you probably wrote out the basics of your design, with the emphasis being on conceptual issues related to the theoretical framework and your general research problem. Here, you should focus on the concrete steps in the design with an eye to minimizing threats to validity (for quantitative studies) or credibility (for qualitative studies).

Group Activity Fifteen - Research Design:

Using the following items, ***craft a code phrase*** describing the research

design for a quantitative study on online graduate programs:

Methodology & approach: ***Quantitative quasi-experimental***

Sample type: ***random selection & assignment to conditions (experimental, control), but unable to control other variables***;

Data collection: ***Measure IQ at entry to PhD program in education, measure IQ and GPA at exit from program, measure annual income one year post-graduate.***

Data analysis: ***Calculate correlations and their significance levels among entry-IQ with exit-IQ, entry-IQ with exit-GPA, and entry-IQ with one-year post-grad income level.***

<u>Discuss your code phrase with your group</u>.

C. Target Population and Participant Selection

Describes the characteristics of the larger population from which the sample (study participants) will be drawn. Include in this section, after the characteristics, a discussion of sample size, including all steps taken to determine and justify sample size (e.g., power analysis). General references to textbooks are insufficient documentation; refer to methodological articles or research examples closely relevant to the research question.

In this section, again, you will expand on information presented more cursorily in Chapter One. *Before getting into details, please refresh your memory about the differences between the population and the sample.* For this discussion, we're going to use the terms loosely. Statisticians use the terms to refer to groups of data, not people, because we work with and analyze data, not actual persons. But because the data refer back to people, more loosely the terms often refer to the people from whom the data (numbers in the statistical world) come from. In that sense, the population is the larger group of people who experience the general problem (remember that?). In a study exploring the impact of a particular management style in improving worker morale, the population would be all the workers who might conceivably be affected by the intervention. The sample, then, is the selected and much smaller group who will actually be participating in the study.

In this section, you will first describe the characteristics of the population. In statistical work, these characteristics include both the actual features that define the population and the (assumed but unknown) statistical parameters of the population, which are assumed for the study to be similar to the actual parameters you discover in the sample. (Remember that we are speaking loosely here—"parameters of the population" strictly speaking means statistics describing data, not people.) In qualitative work (see below), describing the population is often less important than the actual phenomenon or issue being investigated. However, if a population for your study exists (rather than "all human beings who experience this phenomenon"), its characteristic features should be described. Obviously, in qualitative analysis, you will not describe population *parameters*. In quantitative work, on the other hand, not only will the characteristics of the population be carefully spelled out, but the relevant population statistics (parameters) must be clearly described.

Next, describe the sample, consistently with the description of the population. This simply means that the researcher specifies the features of the sample that reflect the larger population. *Representativeness* (see the following discussion) is a key issue, especially in quantitative work, but sometimes also in qualitative studies. *Remember that these features of the population that are reflected in the sample are constructs themselves, and if they are to be measured, are expressed as variables*. (For a review of the three key ideas of *construct, variable,* and *operationalization*, see Section H in the *Chapter One Guide*. Some of these—*inclusion variables* or *criteria*—will allow a potential participant to be included in the sample; others—*exclusion variables* or *criteria*—will exclude that person or entity from the sample (in order to control unwanted variability, usually).

If the inclusion or exclusion features are to be measured and described statistically, call them variables. If not (as in most qualitative studies), call them criteria or characteristics. In general, *variables* will occur in most quantitative studies, *criteria* or *characteristics* in most qualitative studies.

Describing populations and samples in quantitative analysis

In quantitative studies, your research methodology and approach (experiment? quasi-experiment? non-experimental correlation?) will dictate how demanding your sample selection and assignment methods must be. *The question is whether the sample sufficiently represents the population from which it is drawn*. *You, the researcher, must decide ahead of time how representative of the population your sample must be, and then must design the study to account for that*. *In this section, you must show your readers how you accomplished representativeness in your sample selection procedures*.

For instance, in a true experiment (in the lab), because wide external validity is quite important, random selection and assignment are the best tools to get high external validity (representativeness). Consequently, your design will demand truly random selection of your sample and random assignment to groups. In a quasi-experiment, you generally try to design for EITHER random selection of the sample OR random assignment of participants into the groups. Some correlation studies don't demand quite that high level of random selection or assignment, but you must determine yourself how widely you are going to try to generalize your correlations to the population, and design your selection procedures accordingly. The more external validity you require, the more you need to design for a representative sample of the population. This section should describe your thinking on this issue, to lay the groundwork for describing the actual sampling procedures you will carry out.

Describing populations and samples in qualitative analysis

Qualitative designs are not usually preoccupied with matters of external validity. *Their purpose is different—to achieve rich and textured knowledge about people's experience of some phenomenon or issue*. As a result, qualitative analysis focuses more narrowly and deeply on "information-rich" participants, rather than on a larger and broader sample representative of large populations. Nevertheless, the question of whether you want to generalize your findings to a larger population (and who that population might be) remains critical in designing qualitative studies. Any intent to generalize one's findings means that the sampling procedures must be designed as stringently as in quantitative studies.

Ethnographic studies (including methods designed to study culturally distinct groups) require that the sample truly represent the target population. For instance, in a study of the corporate culture of a large global corporation, the sample might be all the employees in a particular community. But care must be taken that those employees genuinely represent the company. If the company has many Asian branches or subsidiaries and employees, for example, studying only American employees in a homogeneous Tennessee community would not be an adequate sample.

Grounded theory requires that the participants actually be representative of the issue that is being investigated. For example, in a grounded theory study of how child sexual abuse develops into adult psychological problems, the sample participants must

have experienced child sexual abuse (obviously), and must have experienced adult mental health problems. Investigating the issue with persons who either were not sexually abused as children or who somehow grew up without mental illness would result in invalid findings.

Case studies, obviously, study cases which are rich in information about the case issue inquired about. Because a "case" is a "bounded system" (see *Qualitative Approaches in Psychology*), the case boundaries (identifying characteristics) need to be clearly specified in this section. Identifying a larger "target population" is typically unnecessary in a case study: by definition, case study is interested in a particular case (or a number of instances of a particular case), not in the universe of possibly related cases.

For example, a case study of a particular center's approach to treating alcoholism does not focus on how other centers might operate. The focus is consistently kept on the single center that is the case. That being said, however, remember that the intention of the researcher must be clear. If the intention is to make recommendations to other treatment centers based on the detailed case study of a single (presumably uniquely successful or uniquely incompetent) center, then that larger group of centers would be the population of interest.

Phenomenological studies typically focus on a phenomenon of human experience (falling in love, anger, losing one's job, attending therapy, working in a particular environment, etc.). The "population" would conceivably be all persons who experience the phenomenon. This fact may underlie the phenomenologists' emphasis—unique among the qualitative approaches—on finding *universal structures* of the phenomenon. For this reason, phenomenological researchers do not discuss populations too much. However, the participants in the sample must be chosen very carefully to ensure that they can describe their experience of the phenomenon.

All qualitative researchers wrestle with sample selection. On the one hand, they want information-rich participants who can report on their experiences. On the other hand, they need their sample to faithfully represent the underlying phenomena or issues or case or problem. For instance, if the study inquires into the practices of a successful treatment center, care must be taken to establish what a "successful" center would be and then to find one that represents those characteristics. Similarly, an ethnographic study of the cultural experiences of urban undocumented Mexican domestic workers would fail if the sample selected included many Cuban and Puerto Rican workers. These two pressures—depth of information vs. faithful sampling of the target issue—affect every study, quantitative or qualitative. However, qualitative researchers must be especially attentive to both of these qualities.

Describing Sample Size

Describe the size of your sample next. In quantitative studies, this subject requires careful thought and study of relevant statistical texts. Statistical calculations have various requirements for the sample size, and you need to be familiar with them. In your

dissertation, you should stay within conventional practices (using sample sizes adequate to the kind of analysis you plan to do), unless you have a very strong rationale to depart from the conventional practice supported either by relevant methodological literature or by empirical studies. Here, you should discuss how you arrived at the sample size. For example, if you performed a power analysis, describe its results. If you consulted a statistics text, describe how the recommendations there match the characteristics of your data and statistics.

Sample sizes are typically smaller in qualitative studies, but that general statement does not justify any particular sample size. Nor is it sufficient (if departing from any conventional practice) to resort to general statements like that. Rather, always have a rationale for your decisions (even when conventional) based in accepted methodological literature. Phenomenological studies, for example, often have samples as small as seven to ten participants. However, these can be very weak studies. At the same time, interviewing hundreds of participants is unrealistic. Qualitative researchers balance their practical needs against the need to have a wide enough spectrum of experience to make for meaningful findings. It is not enough to decide on a sample of eight participants simply because a textbook says that "phenomenological studies typically have samples between seven and 15 participants." The acceptable rationale must include reference to the research problem and question, showing that the sample size will provide an adequate depth of information to answer that question meaningfully.

Similarly in quantitative analysis, it is insufficient to justify a sample size of 30 merely by referring to a textbook says "for this analysis a sample of 30 is usually sufficient." Rather, one's research question and problem, and the actual demands of the statistical tests that will be used, must be carefully considered. Will the sample size give sufficient information to not only carry out the tests desired, but to be fairly representative of the target population? For instance, while a sample of 30 may be sufficient for a test considered out of context (in a textbook), if the target population is 30 million people, will a small sample size suffice for external validity and for statistical power? Perhaps it will. You must demonstrate that, however, in this section, supporting your arguments with references to methodological articles relevant to the issue and your topic and to empirical studies which have paved the way for you to follow. Note that "methodological articles relevant to the issue" are not general textbooks.

Sampling Procedures (unless discussed in the following section)

Some dissertation writers place the sampling procedures together with the data collection procedures rather than in the population and sample section. Either approach is acceptable. Discuss it with your mentor or committee members. We place sampling procedures here where we discuss the "sample," but it logically fits with "procedures" as well.

Once you have described how you determined the sample size, describe how you plan to select the sample. *Include the steps taken for recruitment of participants*. Any text on research methods and design will list the various kinds of sampling procedures to use

(e.g., random, stratified, cluster, convenience, purposive, snowball, etc.). Please use standard terminology throughout the proposal and dissertation, and be consistent. Be sure your terminology is congruent with your methodology and approach. For instance, in quantitative analysis, one does not typically use purposive sampling techniques, which are associated with qualitative analysis. However, if you used a non-conventional technique or procedure, in this section you should detail it and discuss the rationale and how the procedure or technique is consistent with your research question and design.

Before moving ahead, let's be clear about the distinction between "methods" and "procedures." Purposive sampling (or random sampling, etc.) would be a *method*. In describing *how* you plan to carry out that method (e.g., obtaining a voter registration list as a sampling frame, enumerating the list, generating a random number table, and so on), you describe your *procedures*. So simply saying that you will obtain a sample by doing "snowball sampling" still requires you to describe what steps you will take to accomplish that.

After describing your method of sampling, you carefully describe all the steps you took (or will take, if writing the prospectus) to create your sample (i.e., the procedures). Each procedure—identifying potential participants, contacting that pool, recruiting or inviting their participation, and organizing your sample—requires its own procedural description (a recipe clear enough that others can repeat your work). *In this section, "organizing the sample" includes a variety of steps, including how the inclusion and exclusion variables or criteria will be measured or identified and how the participants are assigned to groups (if that is to happen) after they were accepted into the sample*.

As an example, imagine a mixed methods study of the research question "Are professional orchestral musicians' opinions about contemporary music similar to those of the general public?" This obviously required a large sample of the "general public," and random selection was very important (to ensure that the sample represented the "general public"). The sampling procedures for the large opinion survey specified how the respondents to that survey were approached, how they were invited to participate, and how they were to be organized once they agreed to participate.

But that only accounted for the large opinion survey. The second part of the research question required a sample of "professional orchestral musicians," and once again representativeness was crucial. The procedures section next described, in detail, what steps were taken to identify musicians that fit the inclusion criteria, to invite them to participate, and how those who agreed were then organized.

Even in small-sample qualitative studies, these points must be covered carefully. Indeed, in qualitative studies, these procedures can become deceptively complex. For example, suppose one wanted to do a study of the experience of being hospitalized for a severe mental illness. How will a pool of such persons be identified? How can they be contacted with an invitation to participate? Not only are there serious logistical obstacles to these steps (requiring sometimes very time- and resource-consuming procedures),

there can be ethical challenges as well. How will such a pool of persons be identified without compromising their rights guaranteed by the Health Insurance Portability and Accountability Act (HIPAA)? It sounds simple to say "a pool of available mentally ill persons will be identified," but that says nothing about the actual procedures (steps) taken to actually do so. The same applies to procedures for contacting, recruiting, and ultimately organizing them.

D. Procedures

Describes procedures (detailed description of steps taken to implement methods) for the following methods: sampling, protection of participants, data collection (including data organization, management, and storage), data analysis, and presentation of findings. Sampling procedures may be described within Section C, above. Some prefer to have separate sections for each method sub-heading/grouping. In either case, (a) organize the section(s) by describing first the method and second the respective procedures used to implement that method; and (b) if presenting each group of methods in a separate section, consider placing the "Instruments or Measures" section immediately after "Data collection procedures" section. Qualitative researchers should include a discussion of procedures that will be followed to bracket, or set aside the researcher's biases, previous knowledge, and the like.

As before, the terms " methods" and "procedures" mean different things. *Methods is a general term describing what you will do to accomplish the task at hand*. *Procedures, on the other hand, are step-by-step descriptions of how the methods will be carried out*.

The procedures section describes the procedures that will be used to carry out all the major methods of the study. Usually, the methods are clustered in these main groups: methods of sampling; methods of ensuring protection of the participants and their rights; methods of data collection; methods of data analysis; methods of presentation of the findings. Each of these groups of methods have procedures for implementation.

For example, in a large survey study, administering a questionnaire or conducting a number of focus groups would be methods of data collection. Each of them would require that detailed procedures (recipes, if you will) be described. Describe each of your methods, and then write out the step-by-step procedures for carrying them out. As mentioned above, you may have included the sampling procedures above, when you discussed your sample and population. If not, start with it here.

The goal of this "methods and procedures" section is that your readers could follow your descriptions like a recipe in order to repeat your study exactly if they chose to do so. *A second goal: When writing out your methods and procedures, carefully examine each step for hidden flaws in the design, assumptions you had not considered, or other threats to internal and external validity*.

For instance, suppose you are conducting a study to examine consumers' attitudes

about some new advertisements your company wants to run about an established product. They want to know if the new ads change users' attitudes toward using the product sufficiently to warrant the costs of running the ads. Your method of data collection will be to conduct two focus groups: Group A will be persons who have used your product for a long time and who will see the new ads; Group B will be persons who have used the product for a similar period, but will not see the ads. The focus groups will then discuss attitudes about the product. In writing your procedures for this method of data collection, you write,

> *Group A (those who viewed ads) will be interviewed first. They will meet with the researcher in a room in the community library. Group B (those with no prior knowledge of the product) will wait in the community library waiting area, while Group A is interviewed. Group B will then be ushered into the meeting room by the researcher and shown the ad, then interviewed about their attitudes..*

As you write this, you realize a possible flaw: What if Group A people talk to Group B people in the library waiting area after the first focus group? Seeing the potential for data contamination here, you can revise your procedures accordingly.

The Procedures section should contain at least the following subsections: (a) the methods and procedures for sample recruitment, sample selection, and assignment to groups (if relevant); note that you may have covered some or all of this material in the preceding sub-section of Section C; (b) the methods and procedures for obtaining informed consent and for protecting the rights and well-being of the participants; (c) the methods and procedures adopted to maintain data securely, including the length of time data will be kept and how they will be destroyed; (d) the methods and procedures for data collection, including how data will be organized and prepared for analysis; (e) the methods and procedures for data analysis; and (f) the methods and procedures for presentation of the data, findings, and results.

However, you may elect to present these elements in sections all their own. For example, it is very common to separate the data analysis section and present it after the section describing the instruments. This follows a logical plan: the procedures for recruiting and assembling the sample have a logical "fit" with those for collecting data from those participants, but the data analysis happens away from the participants. Thus, it is customary to have a separate section for the (methods and) procedures of data analysis.

You may wish to separate "Methods and Procedures" sections for each element – sample, protection of participants, data collection, data analysis, and data presentation. This is also acceptable. If you decide to present Chapter Three in that fashion, it makes sense to insert the "Instruments" section (discussed next) after the "Data Collection Methods and Procedures," which is where they most logically fit.

If your study has special features or additional kinds of methods, these must be explained and the procedures for implementing them described, again in step-by-step fashion.

Group Activity Sixteen - Methods and Procedures:

1. The "Procedures" section contains discussions of (A) methods, (B) procedures, or (C) both?

2. "Methods" describes general categories of tasks to be accomplished – True or False?

3. A good example of a "method" of data collection would be *transcribing interviews* – True or False?

4. A "procedure" outlines the "implementing rules" for a method – True or False?

5. The phrase "hypothesis testing," defined as calculating correlations and testing their significance in order to determine the likelihood that the hypothesis may be true, exemplifies (A) a method, or (B) a procedure of data analysis?

Review and discuss your answers with the group.

E. Instruments (or Measures in quantitative studies)

Describe in detail all data collection instruments and measures (tests, questionnaires, interview protocols, and so forth). This section should include a description of each instrument or measure, its norming data, validity and reliability statistics, results of field tests conducted to determine validity, reliability, or appropriateness of the instrument. If information about the validity and reliability of an instrument do not exist or if the instrument, test, or measure was developed by the researcher for use in this project, a field test or pilot study must be conducted and fully reported here (including methods, procedures, and results). Ordinarily, open non-directive qualitative interviews are not field tested, but consult with the mentor and Committee to be sure a field test is not needed. Field tests and pilot studies may or may not require IRB approval before being conducted; consult with the mentor and Committee carefully on this question. *Include a subsection on the "role of the researcher," of particular importance for qualitative studies*.

Goals of the "Instruments" Section

This section features any instruments you will use to collect data of any kind. For its purposes, consider the term *instrument* broadly. A questionnaire is an instrument, as is a standardized psychological test. But in many forms of qualitative inquiry, the researcher is considered an instrument, because the research is the data collector "*par excellence.*" Likewise, in some studies there will be actual instruments (cameras, tape recording devices, biofeedback equipment, and the like) collecting data. Make a list of each and every instrument (including yourself) that you will use in the collection of data.

In writing this section and its subsections, discuss the instruments in the order in which they will be used in the study itself. The first subsections of the section will describe each instrument in detail (one subsection per instrument). If an instrument needs a field test or a pilot study, describe it as thoroughly as possible in its initial subsection, and refer to a "Field Test" or "Pilot Study" subsection to follow. When you have fully discussed each instrument, write the Field test or pilot study subsection. If there is more than one to be field-tested or pilot-studied, follow the same order you followed in describing the instruments.

Finally, after all instruments have been described (first subsection) and all field tests or pilot studies described fully (second subsection), complete the subsection on the role of the researcher.

There are two major goals for this section. *The first, as always, is to make it possible for your readers to find these instruments and to use them again in a replication study*. To that end, provide complete references to their original publication (using standard APA citation [author, year] in the text and references in the Reference List), brand or product specifications (including where the instruments were purchased or rented), or other identifying information. Of course, many studies use instruments which are not publicly available. We will discuss this situation below.

The second goal is to indicate clearly how valid and reliable the instrument is for your purposes. Here, be sure you show how the instrument is appropriate both for getting the kind of data you need to answer your research question and for the population you are investigating. For example, a psychological test will have published validity and reliability data and information about the population for which it was normed, which you should report in this subsection. Again, some instruments do not have published validity or norming data or are not in that kind of category at all. We will discuss that situation below as well.

But even when there are no published data about the instrument or it is of a kind (e.g., biofeedback or fMRI machinery) that does not provide standard validity and reliability coefficients, keep the major goals in mind. Describe each instrument's fitness to obtain the kind of data you need to answer your research question and its appropriateness for your population of interest.

Non-validated Instrument:, Field Tests and Pilot Studies

Suppose your instruments have no published data attesting to their validity, reliability, and appropriateness for your population. There are three primary cases of this. First, your instrument is brand new and research on validity, reliability, and appropriateness for the population you are studying has not been completed (case A). Second, the instrument is well-established, but for a different population or use than the one in your study (case B). third, the instrument is of a type to which traditional "validation" does not apply (case C).

For example, in case A, you may be using a new questionnaire which you wrote for the study or a test designed for a significantly different population. Case B might be the use of a standard test of depression in a study on anxiety, relying on current theory which suggests the two are closely linked in most people. Case C might include machinery, apparatuses, or even the self of the researcher.

For each of these cases, you should describe how the instrument can be considered appropriate for use in the study. In the case of the new or un-validated instrument or the novel use of an established instrument, it will need to be field-tested or pilot-studied. The same is generally true for machinery and apparatuses being used without previous evidence that they are both appropriate for the research question and safe and not harmful for the participants. Untested instruments will be carefully scrutinized by the IRB to determine that no risk of harm to participants exists or cannot be ameliorated. In writing the first subsection, the descriptions of each instrument, if a field test or pilot study is called for, mention that it will be described in a later part of the section.

If a field test or pilot study is necessary, it may require IRB approval if it involves participants. Discuss this carefully with your mentor and Committee and ask the advice of the Institutional Review Board (you can write either to your specialization Chair or to PsyResearchSupport@Capella.edu with IRB-related questions).

The "role of the researcher"

What about the case of the self of the researcher? Usually, this should be discussed in a final sub-section titled "Role of the researcher." Usually in quantitative studies, this focuses on the steps you will follow to explain your instruments to the participants and to administer the data collection instrument itself. In other words, anything you (or a surrogate, such an a test administrator) actually will do with the participants themselves. If you already described this in the previous section (Methods and Procedures), it is not necessary to repeat it here. In that case there would be no "Role of the Researcher" subsection.

With qualitative studies (in which your interaction with the participants is a method of data collection) and any study in which you personally interact with the participants but did not describe these interactions in the previous section, this subsection

is required. Your "personal interactions as data collection instruments" would include such methods as interviews; casual conversations; group discussions or focus group interviews; field, naturalistic, or participant observations; and so on. In these cases, the role of the researcher includes at least the following information: (a) what will the researcher actually *do* with the participants? (b) how is the researcher *qualified* by experience, training and supervision, or study to do those things? and (c), if the researcher is unqualified or under-qualified, what will he or she do *to obtain the necessary skills*?

For instance, if you are conducting personal interviews, you need to describe how you are qualified to do such interviewing. Describe your experience doing so, the training or supervised practice you have received in doing so in preparation for this research, books or articles on techniques you have studied or trainings you have attended, and so on. Often your previous work training will contain such experience, but analyze your experience critically to be sure. We recommend discussing this matter with your mentor as well.

Experienced psychotherapists who routinely interview clients in therapy often believe they are qualified to do phenomenological interviews. However, this may not always be the case. Many psychotherapy approaches have an active, directive component, and all are oriented specifically to inducing or facilitating client change. Phenomenological interviewing is very different and more closely resembles psychoanalytic interviewing than, say, cognitive-behavioral therapy interviewing. Likewise, long experience with conducting group therapy sessions does not equip one to conduct focus groups, nor to do field observations in ethnographic research. Similarly, long experience administering and interpreting psychological assessment instruments (such as the WISC-IV or WAIS-IV or the MMPI-2) may not qualify one to administer other instruments, although most of the necessary skills are easily transferable. Still, some practice or training may be required.

Finally, if the design of your study requires you to return to the participants (to validate initial interpretations of the data, for instance, or for a second round of interviews), describe any new instruments or "role of the researcher" which will be required for that round.

A second issue for qualitative researchers to cover (here or in the Procedures section) involves the question of researcher bias and previous knowledge. *You should identify the fund of previous knowledge you have about the question you are studying and any biases or expectations you have about what you will learn from your participants*. *Then you need to discuss your procedures for suspending (bracketing) the biases*. This requires familiarity with the methodological literature associated with your chosen methodological approach (ethnography, case study, phenomenology, or grounded theory) and methodological model (published approach to the particular approach, such as Moustakas's model of phenomenological analysis). Citing textbooks is insufficient preparation for this.

F. Research Questions and Hypotheses

All studies are designed to answer specific research questions. *Describe carefully the research question and sub-questions, followed by the null and alternate or research hypotheses (in quantitative studies) that predict the answer to each*. *Whereas Chapter One was conceptual, this section should focus on the empirical and statistical analysis*. *Therefore, it is important to use conventional notation for the null and alternate (or research) hypothesis*. *In studies where a null hypothesis is unnecessary (which you should prepare to demonstrate), the alternate hypothesis should be called the research hypothesis*.

Qualitative studies do not make predictions of outcome in the sense of hypotheses.

Expected findings of qualitative research might be discussed in Section H.

There are many schools of thought on the order of these items. Some methodologists argue that research questions arise out of hypotheses (predictive statements aimed at testing theory) and should be discussed second, while others argue the converse. *For the purposes of the proposal, we recommend that you derive your research questions from your statement of the problem (see the relevant sections in the Chapter One Guide), and derive your research and null hypotheses from the research question*. The reasoning is as follows.

A hypothesis, as used in this Dissertation Guide, is a prediction of the outcome of specific statistical analyses, which in turn is presumed to offer a serious answer to the research question. (Be sure that your hypotheses do in fact offer predictions of outcomes that, if true, will answer the research question.) A dissertation succeeds to the extent that it answers the research question. Therefore, on this view the research question takes priority. Further, qualitative research (including the qualitative parts of the mixed design) typically does not make predictions about outcomes, but it does ask research questions. Because *all methodologies* must answer research questions, they should take priority in this section, and be followed in quantitative proposals and dissertations with a sub-section on the hypotheses.

In general, this section repeats material covered in the same-named section of Chapter One, but with a different emphasis. *Again, rewrite that material, do not merely copy-and-paste it here*. A simple way to distinguish the nature of the section in Chapter One from this section is to remember that Chapter One provides a conceptual overview, whereas Chapter Three provides detailed and concrete descriptions of all the methods related to answering the question. Some learners will prefer to place only the research questions in Chapter One (because they are conceptual), and the hypotheses here in Chapter Three. We recommend that you include the research question or sub-questions here so your readers do not need to search back through Chapter One to find them.

It is important not only to state the research question and sub-questions here, but to show how they will help solve the research problem. For a very simple example,

consider a study designed to address the problem that very little research exists about the marital impact of graduate school studies in an online institution. The research problem is stated thus: "Whereas there is a body of research showing the impact of graduate studies on marital satisfaction among on-campus (traditional) graduate students, there is as yet very little empirical research describing the impact on their marriages of graduate students' attending an online institution."

Suppose the research question asks, "What relationship exists between one spouse being an online graduate student and the self-reported marital satisfaction of both spouses?" This seems to promise information that will help address the research problem (lack of research on the topic). But if the research problem were framed as "It is unknown whether divorce rates among online graduate students are similar to or different from those among on-campus graduate students," the stated research question will not offer an answer that helps with that problem. You need to be sure that your research question does indeed offer the promise of an answer that will help with the stated research problem in Chapter One.

Group Activity Seventeen - Research Questions and Hypotheses:

Please take a moment to reflect upon this section. If you have questions on research questions and hypotheses, write them down and discuss your questions with your group.

G. Data Analyses

Describes all methods and all procedures for data analysis: types of data to be analyzed (see previous sections), organizing raw data, managing and processing data, preparation of data for analysis, actual analyses to be carried out, storage and protection of data. Procedures must be detailed and carefully described. General statements should be avoided. Remember to state not only what statistics will be used, but also to select the level of significance for all significance tests.

The proposal and later the dissertation, give your audiences (first the Committee, and later the field) a clear picture of how you intend to carry out each step of the study. This is the case for your data analysis methods and procedures as well. You may already have discussed this in detail in Section C, above. If so, you may skip this section. However, be sure that you cover all the items mentioned in this discussion. This discussion will be different depending on whether you are using a qualitative or a quantitative design.

Like every other section of Chapter Three, the major goal is to give your readers a "recipe" showing each step you intend to take (proposal) or actually took (dissertation) in analyzing your data. It is entirely inadequate to restrict this section to statements like this: "The data will be analyzed using SPSS, and a Mann-Whitney U-test will be done" (for quantitative designs) or "a phenomenological analysis searching for the essence of the in-depth lived experience of X will be performed, utilizing the έποχη."

Data Analysis Procedures in Qualitative Studies

Like quantitative analysis, qualitative analysis follows well-described steps, and like quantitative analysis, the type of data being analyzed determines the kinds of analysis that are done. Therefore, the first thing to discuss in this section is the type(s) of data that will be obtained. Interviews yield a kind of data different from field observations, photograph or videotape analysis, archived record data, journals, poems or novels, letters, historical documents, cultural artifacts, and so on. Different data types may require different analysis methods and procedures.

Next, discuss how the data will be prepared for analysis. For example, an interview audiotape needs to be transcribed to be usable. How will it be done (onto electronic media or paper) and who will do it (the researcher often does his or her own transcriptions as a way to enter fully into understanding the data, but perhaps a transcriber will do it)? Will the researcher keep master copies or not? Will there be working copies? How many? Will software (e.g., word processing programs or commercially available qualitative analytic programs) be used? What versions?

Next, discuss how the data will be initially analyzed. Again, each type of data and each methodological approach (e.g., ethnography, case study, grounded theory, phenomenology) and each model (e.g., Giorgi's methodological model of phenomenological research, Goffman's methodological model of ethnomethodological

research, etc.) will have standard procedures recommended for data analysis. *These procedures should be described here, step by step*.

When there are multiple data types, describe not only the procedures (step by step) for analyzing each type of data, but the procedures for combining the results from each separate analysis. For example, a study of an isolated polygamous community in southern Utah used both phenomenological interviewing (to investigate the lived experience of that world) and ethnographic field observations, document analysis, and analysis of old letters and diaries to investigate the experience of living in that cultural milieu. The transcript data were analyzed using Giorgi's analytic method comprised of five or six steps. Interpretation arose out of that analysis about what this experience was for these people. Meanwhile, the analysis of the field observation notes, the documents of the community, and the old journals and letters led to three additional sets of interpretations of the meaning of living in that community. These four sets of interpretations had then to be treated as a new "data set," and analyzed in turn for the universal or essential themes. This second round used a common method of "thematic analysis," which was described in this section as well.

When you have finished these descriptions, read them with a skeptical eye: do they give enough detail that your reader could follow your steps like a recipe? *Try to leave nothing for your readers to guess at*.

Data Analysis Procedures in Quantitative Studies

Recall "methods and procedures." Finding correlations is a "method." What procedures will be used to carry out that method? Before you work out the correlation coefficient itself, you must do the descriptive statistics. Which ones will you analyze? After you decide that, you'll need to decide which correlation method you will use (Pearson's *r*, Spearman's *rho*, the *phi* coefficient, point-biserial correlations, others?). Then, if you intend to further test your correlation for statistical significance (and why would you not?), you must decide which method for doing so you must use. And if you are performing serious comparisons of two groups (for example), you may go on to do further analyses of the comparisons of those two outcomes. As you know, the answers to all these questions depend on the types of data your instruments generate for you, and different instruments will generate different kinds of data.

So there is a logic to the "procedures" you'll follow in doing your data analysis. That might look like this:

First, decide on types of data involved in each separate statistic and correlation (etc.) you will do.

Next, determine the descriptive statistics required or desired, including both descriptive statistics and summaries (diagrams, histograms, scattergrams, etc.)

Next, determine the sequence of methods for the desired analysis. Remember,

there usually are separate analyses carried out sequentially to answer your research question. For instance, scores often must be transformed into standard scores before means are calculated, which precedes correlation coefficient analyses, which precede significance testing, and so on.

Then describe how you will carry out each step. For example, it is inadequate to write, "The data will be examined for correlations using Pearson's *r*." Instead, identify the sequence of analyses or calculations you will perform. "After the data are entered in a data table based on an Excel spreadsheet, identifying the variables as follows . . . , then the scores will be transformed to standard scores. Following this . . ."

Read your description with a skeptical eye: does it tell enough detail that your reader could follow it like a recipe? For example, if you plan to use a MS Excel spreadsheet or a software statistical program such as SPSS or Minitab, what version? What features or special elements will you make use of, if any? Try to leave nothing for your readers to guess at.

Group Activity Eighteen - Data Analysis:

Qualitative example of a method & procedure description:

"Interviews will be transcribed and transcripts will be analyzed using Giorgi's phenomenological psychological method (Giorgi and Giorgi, 2003)."

[Method]"Their method consists of the following six steps: A, B, C, D, E, F. In this study, all will be followed as prescribed."

"Data will first be read for a sense of the whole (step A), then coded for emerging themes (Step B)."

ASSIGNMENT: Develop a similar method-procedure description for a quantitative study of correlations between GPA of online PhD graduates and their two-year-post-graduate income levels.

Discuss your description with your group.

H. Expected Findings

In quantitative studies, describe each outcome of the hypotheses: Was the null accepted or rejected? What correlations were found and at what significance level? In qualitative studies, discuss biases in the researcher that have been identified and how they will be accounted for.

Qualitative researchers should review the discussion in Section I (Expected Findings) in the *Chapter One Guide.* Here, you will repeat some of the material already discussed in Section I of Chapter One. However, do not simply copy-and-paste, but rewrite the section. *The focus in Chapter Three should be on the actual expected results of the analysis (particularly in quantitative studies)*. For example, "It is expected that there will be a statistically significant correlation between A and B, at the p = <.01 level." *In Chapter One, you will have stated your expected findings more conceptually, in terms of the answers to the research question and the expected solution to the research problem*. *It is less important in Chapter Three to discuss, as was done in Chapter One, what the expected findings will mean about the research problem and the general problem (these discussions will be in Chapter Five).*

There is controversy about whether qualitative researchers should present expected findings. Again, the value we see in stating expected findings here is to allow both the researcher and the audience to be on the alert about the biases that all researchers bring to the analysis of qualitative data (and many would argue, to statistical analysis as well). Further, we believe it will stimulate more stringent critical analysis of the methods presented in this chapter: Do the methods in fact protect the qualitative research against the influence of the researcher's biases?

Finally, the actual findings should not be discussed here (in the dissertation), but in Chapter Four, where they are presented in detail. In Chapter Five, the meaning of the findings will be discussed, again in detail and in light of the overall research and general

problem, the theoretical framework of the study, and its limitations and assumptions.

Group Activity Nineteen - Expected Findings:

What is the purpose of an "expected findings" section in the proposal/dissertation? Why would the scientific community have evolved that practice?

See if you can identify at least three factors or reasons.

Discuss your position with your group.

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Dissertation Chapter Guides Workbook: Chapter Four Qualitative

Formal Outline of Chapter Four for Qualitative Studies

Each section of the *Chapter Four Guide* is summarized here, with an opportunity to briefly outline your Chapter Four – Presentation of the Data, by using the typing fields after each entry. After this summary outline, you can find a full description of each section of Chapter Four. This summary should be filled in, as an outline to help you in writing the full Chapter Four of your qualitative dissertation. *The summary outline here corresponds directly to the document Qualitative Research Approaches in Psychology.v.2.1, available along with this Chapter Guide on Learner and Faculty iGuides*.

Be certain to choose the section of this Guide that corresponds to the ***methodological approach*** *used for your study. For example, for grounded theory studies, use the "Grounded Theory" sections only. Do not complete the sections for other approaches*. If you used an alternative qualitative methodological approach (see the *Qualitative Research Approaches in Psychology* document), you can devise your own summary outline based on the analysis procedures appropriate for that approach. The general descriptions of each section of Chapter Four apply to alternative approaches as well.

GENERIC QUALITATIVE INQUIRY

A. The Study and the Researcher

See the text in the general ***A. The Study and the Researcher*** section, below, for what is common to all the approaches. Main items in all approaches include a brief statement of each of these points:

1. The chapter's purpose,
2. Its organization, and
3. How Chapter Four fits into the overall dissertation.

(Information about the research design, methodological assumptions, or any other material covered previously in Chapters One, Two, or Three should not be included in this Introduction. The key thing to remember: this introduces Chapter Four, not the entire dissertation.)

4. Generic qualitative studies may also include a brief description of the background of the study and what preparations were made to enter the field.
5. A brief restatement of the research question (and any sub-questions) is also appropriate.

After introducing the chapter, include a sub-section on the researcher, including at least the following information:

6. The researcher's interest in the phenomenon to be investigated,
7. The researcher's background, training, and experience in conducting the research approach,
8. The role the researcher played in data collection and analysis, and
9. A discussion of significant effects the researcher may have had on the data at any stage of the project.

B. Description of the Sample

See the text in the general section ***B. Description of the Sample***, below, for what is common to all the approaches.

1. This section gives a detailed description of the participant sample actually used in the study, including demographic information. Usually, such information as age, gender, ethnicity, educational status, and area of residence are important, and some studies include additional information. Enough detail about the participants must be described to answer the research question.
2. This section also should describe other participants or near-participants that withdrew or were withdrawn from the study, along with the reasons for their withdrawal. Finally, describe any other aspects of or influences on the sample participants and their participation that might bear on the findings.

C. Research Methodology and Data Analysis

See the text in the general section ***C. Research Method and Data Analysis***, below, for what is common to all the approaches.

Section C in studies using the generic qualitative approach provides the following information:

1. Describes how the generic qualitative approach was applied to the process of data analysis. (Focus on <u>how</u> the analytic methods of thematic analysis and which approach to thematic analysis - *Inductive Analysis, Theoretical Analysis or Thematic Analysis with Constant Comparison* - were applied to the raw data.)
2. Describes any differences or departures from the protocol described in Chapter Three.
3. Describes any problems arising during data collection or analysis.

D. Presentation of Data and Results of the Analysis

See the text in the general section ***D. Presentation and Analysis of the Data***, below, for what is common to all the approaches.

Generic Qualitative analysis begins with the raw data (which is not usually presented here; it may be summarized in appendixes) and completes the following steps using one of the methods of thematic analysis, reported here in Section D:

1. *Patterns of experience* (recurring words, phrases, descriptions, etc.) are

reported that are found in the data. These patterns form the first level of thematic analysis and are derived from and supported by direct quotes and first person passages that correspond to each identified pattern.

2. Next, the listings of patterns are clustered in more abstract *themes* of related patterns. During the development and explication of the themes, first person passages taken from the data collected from the participants are used to further explicate the meaning of the patterns.
3. Then, *the patterns and themes are* synthesized together to form composite description of the question under inquiry. During the development of the synthesis, first person passages taken from the data collected from the participants can be integrated into the synthesis to further explicate its meaning.

E. Summary

See the text in the general section ***E. Summary***, below, for what is common to all the approaches.

In Section E, the researcher has two tasks:

1. First, this section will sum up the answers to the research question and sub-questions, here, so the reader can smoothly transition to the discussion of what the findings mean in Chapter Five.
2. Next briefly recapitulate the main points of Chapter Four. Add nothing new to the previous material, do not speculate or theorize, draw conclusions, or reflect on the larger meaning of the results. Tell the reader what the answers to your research questions are and write a transition paragraph moving the readers along to Chapter Five, where the results will be discussed and interpreted.

Refer to the Five Traditions for Exercises Presented Throughout Chapter Four Qualitative

ETHNOGRAPHY

A. The Study and the Researcher

See the text in the general ***A. The Study and the Researcher*** section, below, for what is common to all the approaches. Main items in all approaches include a brief statement of each of these points:

1. The chapter's purpose,
2. Its organization, and
3. How Chapter Four fits into the overall dissertation.

(Information about the research design, methodological assumptions, or any other material covered previously in Chapters One, Two, or Three should not be included in

this Introduction. The key thing to remember: this introduces Chapter Four, not the entire dissertation.)

4. Ethnographic studies may also include a brief description of the background of the study and what preparations were made to enter the field.
5. A brief restatement of the research question (and any sub-questions) is also appropriate.

After introducing the chapter, include a sub-section on the researcher, including at least the following information:

6. The researcher's interest in the phenomenon to be investigated,
7. The researcher's background, training, and experience in conducting the research approach,
8. The role the researcher played in data collection and analysis, and
9. A discussion of significant effects the researcher may have had on the data at any stage of the project.

B. Description of the Sample

See the text in the general section ***B. Description of the Sample***, below, for what is common to all the approaches.

1. This section gives a detailed description of the participant sample actually used in the study, including demographic information. Usually, such information as age, gender, ethnicity, educational status, and area of residence are important, and some studies include additional information. Enough detail about the participants must be described to answer the research question.
2. This section also should include other participants or near-participants who withdrew or were withdrawn from the study, along with the reasons for their withdrawal. Finally, describe any other aspects of or influences on the sample participants and their participation that might bear on the findings.
3. Ethnographic studies also include descriptions of the communities, settings, locations, etc. in which observations were done or where other forms of data were collected.

C. Research Methodology and Data Analysis

See the text in the general section ***C. Research Method and Data Analysis***, below, for what is common to all the approaches.

Section C in ethnographic studies provides the following information:

1. Describes how the ethnographic approach was applied to the process of data analysis. (Focus on how the analytic methods of ethnography were applied to the raw data.)

2. Describes any differences or departures from the protocol described in Chapter Three.
3. Describes any problems arising during data collection or analysis.

D. Presentation of Data and Results of the Analysis

See the text in the general section ***D. Presentation and Analysis of the Data***, below, for what is common to all the approaches.

Ethnographic analysis begins with the raw data (which is not usually presented here; it may be summarized in appendixes) and completes the following steps, reported here in Section D:

1. *Patterns of experience* (recurring words, phrases, descriptions, etc.) are reported that are found in the data. These patterns form the first level of thematic analysis and are derived from and supported by direct quotes and first person passages that correspond to each identified pattern.
2. Next, the listing of patterns are clustered in more abstract *themes* of related patterns.
3. Then, a *synthesis of themes* constitutes a comprehensive representation of the element of the culture that is being investigated.
4. At the last stage, the research describes "life histories," "life stories," "culture stories," or "organization stories" -- representative or exemplary participants in the culture, group, or organization. This highest level of abstraction does not show actual individual's stories, but highly representative composite stories. If one individual very powerfully represents the synthesis of themes and patterns found across the cultural group, that individual's story may be presented as exemplary.

E. Summary

See the text in the general section ***E. Summary***, below, for what is common to all the approaches.

In Section E, the researcher has two tasks:

1. First, this section will sum up the answers to the research question and sub-questions, here, so the reader can smoothly transition to the discussion of what the findings mean in Chapter Five.
2. Next briefly recapitulate the main points of Chapter Four. Add nothing new to the previous material, do not speculate or theorize, draw conclusions, or reflect on the larger meaning of the results. Tell the reader what the answers to your research questions are and write a transition paragraph moving the readers along to Chapter Five, where the results will be discussed and interpreted.

CASE STUDY

A. The Study and the Researcher

See the text in the general ***A. The Study and the Researcher*** section, below, for what is common to all the approaches. Main items in all approaches include a brief statement of each of these points:

1. The chapter's purpose,
2. Its organization, and
3. How Chapter Four fits into the overall dissertation.

(Information about the research design, methodological assumptions, or any other material covered previously in Chapters One, Two, or Three should not be included in this Introduction. The key thing to remember: this introduces Chapter Four, not the entire dissertation.)

4. Case studies may also include a brief description of the background of the study, the relevant contexts of the case, and what preparations were made to enter the field.
5. A brief re-statement of the research question is also appropriate.

After introducing the chapter, include a sub-section on the researcher, including at least the following information:

6. The researcher's interest in the phenomenon to be investigated,
7. The researcher's background, training, and experience in conducting the research approach,
8. The role the researcher played in data collection and analysis, and
9. A discussion of significant effects the researcher may have had on the data at any stage of the project.

B. Description of the Sample

See the text in the Section ***B. Description of the Sample***, below, for what is common to all the approaches.

Section B for case studies will describe the following:

1. The primary informants (participants); include full descriptions of them, as well as demographic information, size of the final sample, and so on.
2. Any other data sources that were accessed, including descriptions of external informants, data bases, records, documents, and any other source of information.
3. Any participants who dropped from the study and why, as well as any other relevant data sources which could not be accessed and why.

C. Research Methodology Applied to Data Analysis

See the text in the Section ***C. Research Methodology Applied to Data Analysis***, below, for what is common to all the approaches. In general, describe how the case study methodological approach was actually carried out in this study.

In Section C, case studies also describe:

1. What different data analysis tools and procedures were used for various kinds of data.
2. How context and setting were analyzed.
3. Problems with the analysis should also be outlined, although their impact will not be discussed here, but in Chapter Five section.

D. Presentation of Data and Results of Analysis

See the text in the Section ***D. Data Presentation and Analysis***, below, for what is common to all the approaches.

In a case study Section D, there should be six sub-sections, presenting gradually more-general findings (although at each level, the material presented should be supported by actual words, information, or other empirical material drawn from the case). The six levels are:

1. A detailed *description* of the case as a whole and of its setting(s) and contexts, creating a rich and textured picture of the case and its settings; this gives a *sense of the whole*;
2. *Direct interpretation* (of single instances): describe single instances which seem meaningful in light of the research question. Do not (yet) look for clusters of meanings or multiple instances of one meaningful theme;
3. *Categorical aggregation:* At this stage, collections of meaning-rich instances from the data are aggregated into categories of meaning (themes);
4. *Within-case analysis:* Describe themes and patterns of meaning which emerged from the data and illustrate the connections between or among the themes. These themes and patterns should be described and developed using verbatim passages and direct quotes from the data to elucidate each pattern and theme. (The data from the case itself are used, without being compared yet with data from other cases; this is *within-case analysis*).

(Many case studies examine a number of instances [multiple cases]. If so, repeat the first four steps for each instance [case]. Then move to the final two steps. If only one instance [single case], proceed to steps 5 and 6.)

5. *Thematic synthesis:* Synthesize the results of the thematic analyses across multiple cases (*across case analysis*) or within the case using verbatim

6. Develop and present naturalistic generalizations of the results of the *interpretive* phase of the study; these consist of the "lessons learned" from the case study.

E. Summary

See the text in the general section ***E. Summary***, below, for what is common to all the approaches.

In Section E, the researcher has two tasks:

1. First, this section will sum up the answers to the research question and sub-questions, here, so the reader can smoothly transition to the discussion of what the findings mean in Chapter Five.
2. Next briefly recapitulate the main points of Chapter Four. Add nothing new to the previous material, do not speculate or theorize, draw conclusions, or reflect on the larger meaning of the results. Tell the reader what the answers to your research questions are and write a transition paragraph moving the readers along to Chapter Five, where the results will be discussed and interpreted.

GROUNDED THEORY

A. The Study and the Researcher

See the text in the general ***A. The Study and the Researcher*** section, below, for what is common to all the approaches. Main items in all approaches include a brief statement of each of these points:

1. The chapter's purpose,
2. Its organization, and
3. How Chapter Four fits into the overall dissertation.

(Information about the research design, methodological assumptions, or any other material covered previously in Chapters One, Two, or Three should not be included in this Introduction. The key thing to remember: this introduces Chapter Four, not the entire dissertation.)

4. Grounded theory studies may also include a brief <u>restatement of the research question</u> (and any sub-questions).

After introducing the chapter, include a sub-section on the researcher, including at least the following information:

5. The researcher's interest in the phenomenon to be investigated,
6. The researcher's background, training, and experience in conducting the research approach,
7. The role the researcher played in data collection and analysis, and
8. A discussion of significant effects the researcher may have had on the data at any stage of the project.

B. Description of the Sample

See the text in the Section ***B. Description of the Sample***, below, for what is common to all the approaches.

Section B for grounded theory studies will describe the following:

1. The primary informants (participants); include full descriptions of them, as well as demographic information, size of the final sample, and so on.
2. Any other data sources that were accessed, including descriptions of external informants, data bases, records, documents, and any other source of information.
3. Any participants who dropped from the study and why, as well as any other relevant data sources which could not be accessed and why.

In addition to describing the primary informants (participants), in this Section, grounded theory studies should describe

4. The procedures or processes by which the data were collected from participants; this includes such issues as
    a. How often they were interviewed or otherwise observed,
    b. The role they played in interpreting or confirming the researcher's interpretation of the data,
    c. Any other characteristics of the sample or the researcher's interactions with the participants that bear on the study.

C. Research Methodology Applied to Data Analysis

See the text in the Section ***C. Research Methodology Applied to Data Analysis***, below, for what is common to all the approaches.

Section C in grounded theory studies provides the following information:

1. Describes how the grounded theory approach was applied to the process of data analysis. (Focus on <u>how</u> the analytic methods of <u>grounded theory</u> were applied to the raw data.)
2. Describes any differences or departures from the protocol described in Chapter Three.
3. Describes any problems arising during data collection or analysis.

D. Presentation of Data and Results of Analysis

See the text in the Section ***D. Data Presentation and Analysis***, below, for what is common to all the approaches.

Grounded theory typically moves through three sequential phases of analysis, followed by the generation of theory or hypotheses. In this section, the researcher provides information about the following sequence:

1. In the first stage of analysis, the results of the three sequential coding exercises are reported:

    a. First, the results of *open coding* are given,
    b. Next, the results of *axial codin* are given..
    c. Then the results of *selective coding* are described.

(At all stages, support for analyses in the form of words, images, descriptions from the actual data is presented supportively.) After the analysis (coding) results are presented:

2. The conditional/consequential matrix is presented.
3. Finally, the set of propositions or hypotheses (the theory) is described in light of the original research question.

E. Summary

See the text in the general section ***E. Summary***, below, for what is common to all the approaches.

In Section E, the researcher has two tasks:

1. First, this section will sum up the answers to the research question and sub-questions, here, so the reader can smoothly transition to the discussion of what the findings mean in Chapter Five.
2. Next briefly recapitulate the main points of Chapter Four. Add nothing new to the previous material, do not speculate or theorize, draw conclusions, or reflect on the larger meaning of the results. Tell the reader what the answers to your research questions are and write a transition paragraph moving the readers along to Chapter Five, where the results will be discussed and interpreted.

PHENOMENOLOGY

A. The Study and the Researcher

See the text in the general ***A. The Study and the Researcher*** section, below, for what is common to all the approaches. Main items in all approaches include a brief

statement of each of these points:

1. The chapter's purpose,
2. Its organization, and
3. How Chapter Four fits into the overall dissertation.

(Information about the research design, methodological assumptions, or any other material covered previously in Chapters One, Two, or Three should not be included in this Introduction. The key thing to remember: this introduces Chapter Four, not the entire dissertation.)

4. Phenomenological studies may also include a brief restatement of the research question (and any sub-questions).

After introducing the chapter, include a sub-section on the researcher, including at least the following information:

5. The researcher's interest in the phenomenon to be investigated,
6. The researcher's background, training, and experience in conducting the research approach,
7. The role the researcher played in data collection and analysis, and
8. A discussion of significant effects the researcher may have had on the data at any stage of the project.

B. Description of the Sample

See the text in the Section ***B. Description of the Sample***, below, for what is common to all the approaches.

Section B for phenomenological studies will describe the following:

1. The primary informants (participants); include full descriptions of them, as well as demographic information, size of the final sample, and so on.
2. Any other data sources that were accessed, including descriptions of external informants, data bases, records, documents, and any other source of information.
3. Any participants who dropped from the study and why, as well as any other relevant data sources which could not be accessed and why.

C. Research Methodology Applied to Data Analysis

See the text in the Section ***C. Research Methodology Applied to Data Analysis***, below, for what is common to all the approaches.

Section C in phenomenological studies provides the following information:

1. Describes how the phenomenological approach and any preferred model was applied to the process of data analysis. (Focus on how the analytic methods of phenomenology and one's chosen model were applied to the raw data.)
2. Describes any differences or departures from the protocol described in Chapter Three.
3. Describes any problems arising during data collection or analysis.

D. Presentation of Data and Results of Analysis

(Note: these items may vary across different phenomenological methodological models. For example, Giorgi & Giorgi (2003) present a somewhat different outline of the steps of the analysis (see below). Use the procedures or steps appropriate to the methodological model you are following.)

See the text in the Section ***D. Data Presentation and Analysis***, below, for what is common to all the approaches.

A general phenomenological analytical model follows these ***generic*** steps. Each specific model varies slightly, but the overall outlines are followed fairly closely:

1. First, the basic meaning units derived from the data are presented (either in the text or in an Appendix, which is the preferred approach). If the assembled meaning units are presented in an Appendix, all units should be numbered for easy cross-referencing with the individual participants who were their sources).
2. Second, meaning units are clustered into themes. If an appendix contains the complete meaning units, this may be the first sub-section of the
3. Third, the themes are described in more general terms (sometimes in more abstract psychological language [called "transformations" in Giorgi's approach], sometimes in terms of *textures* and *structures* [as in Moustakas' approach].
4. Following this, composite descriptions are presented, showing the common or universal structural/textural or transformed themes found across the data set.
5. Typically, this presentation is given for each participant (*within cases)*, followed by
6. An *across-cases* interpretation of the universal or common themes.

Describe the data analysis in terms of the procedural protocol of the phenomenological model selected in the prospectus, and clearly identify each of the stages or steps of the analysis. For all models, each level of the analysis should be supported by actual words and portrayals from the data themselves.

There are two widely-used methods of organizing this presentation of the analysis: the research-question method of organization and the by-participant method. See the description of the elements section under Phenomenology, in Section D, for a

fuller discussion.

E. Summary

See the text in the general section ***E. Summary***, below, for what is common to all the approaches.

In Section E, the researcher has two tasks:

1. First, this section will sum up the answers to the research question and sub-questions, here, so the reader can smoothly transition to the discussion of what the findings mean in Chapter Five.
2. Next briefly recapitulate the main points of Chapter Four. Add nothing new to the previous material, do not speculate or theorize, draw conclusions, or reflect on the larger meaning of the results. Tell the reader what the answers to your research questions are and write a transition paragraph moving the readers along to Chapter Five, where the results will be discussed and interpreted.

HEURISTIC (HEURISTIC PHENOMENOLOGY)

A. The Study and the Researcher

See the text in the general ***A. The Study and the Researcher*** section, below, for what is common to all the approaches. Main items in all approaches include a brief statement of each of these points:

1. The chapter's purpose,
2. Its organization, and
3. How Chapter Four fits into the overall dissertation.

(Information about the research design, methodological assumptions, or any other material covered previously in Chapters One, Two, or Three should not be included in this Introduction. The key thing to remember: this introduces Chapter Four, not the entire dissertation.)

4. A brief restatement of the research question is appropriate.

After introducing the chapter, include a sub-section on the researcher, including at least the following information:

5. The researcher's interest in the phenomenon to be investigated,
6. The researcher's background, training, and experience in conducting the research approach,
7. The role the researcher played in data collection and analysis, and
8. A discussion of significant effects the researcher may have had on the data at

any stage of the project.

B. Description of the Sample

See the text in the Section ***B. Description of the Sample***, below, for what is common to all the approaches.

Section B for heuristic studies will describe the following:

4. The primary informants (participants); include full descriptions of them, as well as demographic information, size of the final sample, and so on. In heuristic studies, the co-researchers' motivations, investment, reasons for participating, and similar information is important to describe fully.
5. Any other data sources that were accessed should be fully described.
6. Any participants who dropped from the study and why, as well as any other relevant data sources which could not be accessed and why.

Because the researcher is a co-participant and the participants are "co-researchers," the researcher must also be described in the same manner as the co-researchers.

C. Research Methodology Applied to Data Analysis

See the text in the Section ***C. Research Methodology Applied to Data Analysis***, below, for what is common to all the approaches.

Section C in heuristic studies provides the following information:

1. Describes how the heuristic phenomenological approach was applied to the process of data analysis. (Focus on how the analytic methods of heuristic research were applied to the raw data.)
2. Describes any differences or departures from the protocol described in Chapter Three.
3. Describes any problems arising during data collection or analysis.

D. Presentation of Data and Results of Analysis

See the text in the Section ***D. Data Presentation and Analysis***, below, for what is common to all the approaches.

Like phenomenological analysis, the movement in this presentation is from the particular to the general.

1. Begin by presenting a list of the *patterns* that emerged from the data analysis. Often, heuristic analyses start (like phenomenological analyses) with groups of meaning units or individual highly meaningful statements. If using this

approach, it is preferable to attach an Appendix identifying the meaning units or statements. They should be numbered so they can be cross-referenced with the individual co-researchers.

2. Describe each pattern (2-3 paragraphs), supported by illustrative quotes taken from the data; each quote should further explicate each pattern.
3. Next, provide a listing of the *themes* that emerged from the data analysis along with a list of the patterns that exemplifies each theme. (Note: A theme is a more abstract statement of the underlying meaning of a cluster of patterns, and patterns in turn are abstract statements of the meanings of sayings or utterances by participants, including the researcher.) At this level, a common structuring outline would be:

    1 Theme 1
        - Pattern 1.1
            - Supporting utterances, sayings, text.
        - Pattern 1.2
            - Supporting utterances, sayings, text.
        - Pattern 1.3
            - Supporting utterances, sayings, text.

    2 Theme 2
        - Pattern 2.1
            - Supporting utterances, sayings, text.
        - Pattern 2.2
            - Supporting utterances, sayings, text.

    3 And so on.

4. After the listing and description of the themes, write a descriptive essence of each theme. In developing the descriptive essence, you may want to use direct quotes to both breathe life into description and further elucidate the theme.
5. Next, creatively synthesize all the descriptive essences you have found, capturing the underlying essence of the topic/question under inquiry.
6. To conclude, paint two or three portraits of individual co-researchers' experience of the topic/question under inquiry in such a way that the phenomenon and the person emerge as real. These should be both authentic derivations from the data as well as exemplifying generalizations.

E. Summary

See the text in the general section ***E. Summary***, below, for what is common to all the approaches.

In Section E, the researcher has two tasks:

1. First, this section will sum up the answers to the research question and sub-questions, here, so the reader can smoothly transition to the discussion of what the findings mean in Chapter Five.

2. Next briefly recapitulate the main points of Chapter Four. Add nothing new to the previous material, do not speculate or theorize, draw conclusions, or reflect on the larger meaning of the results. Tell the reader what the answers to your research questions are and write a transition paragraph moving the readers along to Chapter Five, where the results will be discussed and interpreted.

Other Qualitative Approaches

The document *Qualitative Research Approaches in Psychology, v. 2.1,* identifies additional qualitative approaches emerging in the field of psychology. Learners wishing to use one of these approaches may do so provided that:

1. They have received appropriate training and education in the approach and
2. Their mentor or a member of the Dissertation Committee has had or obtains training and experience mentoring this approach.

Most of the approaches described in the *Qualitative Research* document can be combined with other standard approaches, under the same conditions.

In addition, many qualitative studies combine elements of a number of approaches. They might combine document analysis and discourse analysis (of casual conversations) with a more traditional phenomenological analysis. In such cases, consult the mentor for guidance, but in general, use the elements outlined in this *Dissertation Chapter Guide* to structure your chapter four.

If you use one of the alternative approaches, develop an outline using one of the standard approaches closest to your alternative approach.

Description of the Elements of Chapter Four in Qualitative Studies

Background

Every research paper, including the dissertation, has a section describing the results of the data analysis and a presentation of the data collected and analyzed and the findings and results of the study. Capella's approach to the dissertation provides that information in Chapter Four. Of course, you have already described your basic research design and your research (Chapter One, Sections E and F), and in Chapter Two (the literature review), you described your theoretical framework, how you developed your topic and the specific research problem and question, and all the design elements by analyzing the related literature in your field. In Chapter Three, you described step-by-step the methods and procedures used in your study for data collection and analysis.

Chapter Four describes the results of your study, a presentation of the data

collected, a presentation of the results of the data analysis and the findings of the study.

The Elements of Chapter Four

Chapter Four has at least the following elements, which will form the structure of this Guide as well:

A. *Introduction*: The Study and the Researcher: a brief introduction to the chapter containing two sub-sections. In the first, three main points: the purpose of the chapter, how it fits into the overall dissertation manuscript, and the chapter's organization. In the second, describe the researcher; his/her interest in the study; background, experience and training to conduct the study; and any relevant ways in which the researcher may have an influence on the data.

B. *Description of the Sample*: a description of the sample of participants who provided data in this study, including significant demographic data describing the sample.

C. *Brief description of how the methodological approach (e.g., ethnography, grounded theory, etc.) was applied to the process of data analysis*: a description of what procedures of data analysis were applied in the context of the chosen approach.

D. *Presentation of Data and Results*: a presentation of the data collected and the results of the analysis.

E. *Summary*: a summary statement of the findings or conclusions, showing the importance of the level of analysis and a summary of the findings of the study. This summary should also provide a transition to Chapter 5.

Each element will be discussed in the succeeding pages.

Readers will note that the text here is written to reflect an outline of Chapter Four of the dissertation. *Since this Chapter will represent the research that has been conducted, Chapter Four should be written in past tense*.

A. Introduction to Chapter Four: The Study and the Researcher

*In this section of Chapter Four, the researcher should provide the reader with a brief introduction stating the purpose of the chapter, a description of how Chapter Four fits into the overall dissertation, and the organization or main sections of the chapte*r. *This introduction should set the stage for the remainder of the chapter, as well as allow the reader to gain an understanding of the logical flow of how this chapter relates to both the preceding chapters and the following chapter*.

Information about the research design, methodological assumptions, or any other material covered previously in Chapters One, Two, or Three should not be included in

this Introduction. The key issue to remember: this introduces Chapter Four, not the entire dissertation.

The second sub-section of Chapter Four is critically important. *Here, you will describe your role in the project*. *Why did you become interested in the topic and what is your personal stake in it*? *What motivated you to investigate this particular topic*? *What background did you bring to the project that both strengthens your vision of it and, conversely, interferes with your objectivity*? *What training and experience have you had in preparation for the project – in understanding the methodological approach itself, in the model you chose, in the data collection protocols and procedures, and in the data analysis procedures*? *Finally, what personal aspects do you bring to the study that may have an influence on what you learn*?

Group Activity Twenty - Qualitative Introduction:

Provide a brief summary of:

Your interest in your proposed study

Your background, experience and training to conduct the study

Any relevant ways in which you may have an influence on the data

Discuss your summary with your group.

B. Description of the Sample (Participants)

This section of Chapter Four consists of a detailed description of the participant sample actually used in the study. *The description of the sample should include demographic information about all the participants in the study*. *In qualitative research, because generalization is seldom the objective, the description of the actual participants is more important than a general description of a group*. Be certain to include all information regarding the participants that is pertinent to the study itself. *While most descriptions of the participants will include such information as age, gender, ethnicity, educational status, and area of residence, some studies—due to the nature of the research question—might include additional information*. *Enough detail about the participants must be described to answer the research question*.

For example a study of spirituality might include information regarding the participants' religious and spiritual background and affiliation, because this information would be pertinent to understanding the results of the study. It is important, while offering the reader a detailed description of the sample, to also carefully maintain confidentiality and to conceal the identities of the participants in the study. It is essential that the participants not be identifiable by any individual reading the manuscript. Be careful not to allow details of setting or context to identify any of the participants.

For example, describing an interviewee as "a professor of psychology at a local university" could potentially identify the participant, if the meaning of "local" became known somehow and if there was only one psychology department in that locality. In contrast, information that the participant is a "tenured professor in a small Midwestern liberal arts college," if it is very important in understanding the results, would not unduly risk revealing the participant's identity because there are many "small Midwestern liberal arts colleges."

This section also should describe, along with the sample participants, other participants or near-participants who for any reason withdrew or were withdrawn from the study, along with the reasons for their withdrawal. *Such information bears on the meaning of the data found, and can be discussed for its implications in Chapter Five*. For

example, in a phenomenological study with 15 participants, if three withdrew during the data collection period, the reasons for their withdrawal might bear directly upon the interpretation of the results.

Finally, describe any other aspects of or influences on the sample participants and their participation that might bear on the findings. These could include, for example, interrupted interviews, deviations from the planned interactions with the participants, happenings in the context or setting which bear on the findings (e.g., an unexpected lay-off occurring in a factory during field observations of a work group were being made), and so on. *Reflect carefully on any and all factors that could have influenced what was discovered about your participants and report it here*.

Group Activity Twenty One - Description of the Qualitative Sample:

Reflect carefully on any and all factors that could influence what will be discovered about your participants and report it here.

Discuss the factors you identified with your group.

B. Research Methodology Applied to the Data Analysis

In this section of Chapter Four, provide a description of how the methodological approach was applied to the process of data analysis and how the data analysis was conducted. Chapter Three presented the reader with a thorough description of the research design and methodological approach; it should not be repeated here. Instead, focus on how the analytic methods of the selected methodological approach (ethnography, phenomenology, etc.) were applied to the raw data.

For example, if the study's methodological approach was phenomenological (1997; Giorgi & Giorgi, 2003), this section discusses the actual steps of the actual analysis. It should reference any particular model of analysis within that framework, such as the phenomenological models of Giorgi (1997; Giorgi & Giorgi, 2003) or Moustakas (1994). However, in this section the aim is not to discuss the model (that was done conceptually in Chapters One and Two and methodological in Chapter Three), but to describe the analysis procedures briefly but clearly.

Section C discusses how the steps of the protocol were actually carried out. In actually performing the analysis, were there differences or departures from the protocol described in Chapter Three? What were they and why did the researcher make those changes?

Finally, if any problems arose during data analysis, these should be described here; For example, if data were lost or somehow contaminated, those events and processes would be described here, including any attempts to correct the problem, reconstruct the data, re-collect them, etc. In Chapter Five, these issues can be analyzed and discussed for their implications about the findings.

D. Presentation of Data and Results of the Analysis

Following the discussion of how the data were analyzed, the researcher presents the reader the data collected and the results of the analysis. *This section is the heart of Chapter Four, and will be presented in a format consistent with the methodological approach chosen for the study.* The summary outline above can be consulted for a conventional structure for data and results presentations in the major qualitative approaches. Build your own Section D. according to the appropriate format above, or according to data presentation models found in similar qualitative dissertations on similar

research problems.

For example, in an ethnographic study, the analysis and results are presented in terms of patterns, themes, synthesis, and synthetic life histories. In the case study approach, data and findings will be presented in terms of a description of the case as a whole, followed by the technical operations of direct interpretation, categorical aggregation, within-case analysis, across case analysis, and finally the interpretive phase. Grounded theory studies present their data and findings in terms of open coding, axial coding, selective coding, the conditional/consequential matrix, all leading to a description of the propositions or hypotheses of the proposed theory. Studies using Giorgi's phenomenological model present their data in terms of the sense of the whole, development of meaning units, transformation of the meaning units into psychological descriptions, imaginative variation leading to structural description, and holistic description of the textural/structural features of the phenomenon. Finally, heuristics (heuristic phenomenology) presents its data and results in terms of patterns, themes, creative synthesis, and finally descriptive portraits.

Group Activity Twenty Two - Presentation of Data and Analysis of Results:

Review the Presentation of Data and Results of the Analysis for the five traditions.

Select the tradition you anticipate applying to your study.

Explain to the group the steps you are following to become expert in the tradition you selected.

Identify and describe potential problems associated with data collection.

Discuss your responses with your group.

When using an alternative methodological approach (see Qualitative Research Approaches in Psychology, v. 2.1), the data analysis and findings should be presented in a way that is consistent with the analytic procedures in that approach. Refer to the methodological literature about the chosen approach or model to determine exactly what the procedures are.

In this section, data and findings should be presented clearly, but with sufficient detail to allow readers to follow the analysis and to refer back to the raw data (words of the participants, field notes, etc.) to find support for the findings. Description should be rich and detailed. Whenever possible, give examples in the words of the participants to support a finding. It is not necessary or appropriate to provide every word from every participant. The researcher's duty is to "digest" the raw data and to present them in a form that gives readers access to the results without their having to read all the data themselves. At the same time, the researcher finds representative quotations which "sum up" or exemplify the theme or pattern discovered across many responses. Each quotation should support a particular result or finding. Every quotation should be clearly related to one or more findings of a theme or pattern, and should represent other responses which may not be quoted. In that sense, while being unique units of data themselves, the quotations in Chapter Four also serve as exemplars of a set of data (other words, phrases, sentences, or passages) which can be found in the transcripts, notes, and other forms of raw data.

There are two widely-used methods of organizing this presentation of the analysis: the research-question method of organization and the by-participant method. Others can be equally useful, and researchers may use organizational models found in previously published studies of a similar nature. *The "research-method" question organizes Section D in large sub-sections devoted to each of the research sub-questions. The "by-participant" organizational model reports the various stages of analysis (see the outline above) for each participant, before abstracting and reporting on the wider, more*

universal themes, structures, or universal issues found across all the participants' data. Both presentations must set the stage for a clear set of answers to the research question, which will be summarized in the final section of Chapter Four.

Group Activity Twenty Three - Presentation of Data and Analysis of Results:

State if you are utilizing the research-question method of organization or the by-participant method

Explain how and why you select specific participant quotations to serve as *exemplars* of a set of data.

Discuss your responses with the group.

All qualitative approaches build their results from the intensely particular (words, observations, field notes) toward the general (descriptions of patterns or themes found across many instances of the particular data). In performing the analysis, this inductive process is followed, moving again from the data themselves up to higher and higher levels of clusters of similar statements, to thematic abstractions from those clusters, up yet further toward interpretation statements abstracting a central meaning of a cluster of themes or patterns.

In this section (presentation of the data and results), however, just the opposite is conventionally found: the researcher reports the general themes or patterns of meaning found in the data, supported by representative quotations showing the more abstract theme "in the flesh," so to speak. Again, not all the possible quotations from transcripts or field notes supporting a particular theme are presented, only the few that best exemplify the sense of that particular theme. Nor does the entire mass of raw data (transcripts, etc.) need to be appended to the Dissertation. Instead, many authors create tables of themes and representative quotations for each theme and attach those as appendixes. Consult with your mentor and Committee members on their preferences.

A word on the final level of presentation in Chapter Four: *interpretation*. Chapter Four reports the process of abstraction—moving from the particulars of the data upwards toward themes, patterns of themes, and abstract meaning-statements. This is a process of *interpretation.* In Chapter Four, we present interpretations of the data, aimed ultimately at answering the research question. Thus, in ethnographic presentations of results, a *life history* or set of life histories may be presented as a synthesis of the interpretations of data. This life history is not necessarily that of a single representative person, although it could be (rarely does a single individual truly represent a cultural group). Rather, the life history may be a composite of a fictional character whose characteristics sum up what has been learned about the culture. Similarly in the other approaches, the last stage of the analysis ("lessons learned" in case studies, "hypotheses" or "propositions" in grounded theory, "universal essences or structures" in phenomenology, etc.) represents the final *interpretation of one's data.*

But there is a higher level of interpretation, which we find in Chapter Five. This level of interpretation addresses the study's overall relationship with previous research and theory. Thus, the results presented in Chapter Four (which include interpretations of the meaning of the data) will themselves be interpreted in Chapter Five by being related to issues raised in other authors' work. *For this reason, Chapter Four goes no further than presenting the sample, the analysis, and the results of the analysis in the form of answers to the research question. It remains for the researcher in Chapter Five to put the overall study and those answers into the larger context of the wider body of literature on the topic*.

Thus, Section D (Presentation of the Results) should focus only on answering the

research question and sub-questions. Themes, patterns, and descriptions of the results should be presented in the context of the research question and sub-questions. A collection of themes and meanings found in the data which cannot rationally be connected to the research question(s) is meaningless, no matter how interesting it might be, and should be left out. The researcher's creativity in presenting the data and the results is welcome; but the objective is always to present a clear and coherent answer to the research question, supported by the analysis and interpretation of the data.

Likewise, no answer to the research question or sub-question should be offered unless it is clearly based on the analysis, and unless supporting data can be presented.

Group Activity Twenty Four - Presentation of Data and Analysis of Results:

Analyze and discuss the inductive process utilized in the data analysis of qualitative studies.

Discuss your analysis with your group.

E. Summary

Present a summary of the findings or conclusions. In short, sum up the answers to the research question and sub-questions here, in such a way that the reader can smoothly make the transition to the full discussion of the meaning of the answers in the context of previous research as well as this study's design in Chapter Five.

Like any summary, this should be brief and recapitulate the main points of Chapter Four. It should not introduce anything new, add anything to the previous material, speculate or theorize, draw conclusions, or reflect on the larger meaning of the results: all this is the task of Chapter Five. Rather, tell the reader what the answers to your research questions are and write a transition paragraph moving the readers along to Chapter Five, where the results will be discussed and interpreted.

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Dissertation Chapter Guides Workbook: Chapter Four Quantitative

Description of the Elements of Chapter Four in Quantitative Studies

Background to the Description of Chapter Four

In Chapter One, you described your research subject and the research problem: its importance, the research design you created to solve it, and your assumptions and limitations (in Chapter One). Then, in Chapter Two (the literature review), you presented your theoretical framework—how you found and developed your topic and the specific research problem and question from the existing research literature, and how you selected your design elements by analyzing the methodological literature. In Chapter Three, you described step-by-step the methods and procedures used for data collection and analysis. Every research paper, including the dissertation, has a section describing the results of the data analysis, a presentation of the data that were analyzed, and the findings or results of the study. Capella's approach to the dissertation provides that information in Chapter Four.

The following paragraphs come from the Capella University *Dissertation Manual* (2006).

> *Chapter Four presents a non-evaluative reporting of the data, supported by tables, figures, and charts where applicable. Quantitative studies are typically guided by hypotheses or research questions, and so the data are typically reported relative to each hypothesis or research question.*
>
> *In the results chapter, review the collected data and explain the statistical analysis you performed on them. Usually, the Chapter begins with a summary of the primary results of the study and then proceeds to describe the data in enough detail to demonstrate the credibility and validity of the conclusions. Tables or figures often provide the most efficient and effective means of communicating the data, but they should always be clearly referenced by title and explained in the body of the chapter so that readers can easily identify and understand them.*
>
> *This chapter will vary considerably in size and detail according to the research methods used. If, for example, the study reports the results of an empirical survey, most of the data will exist in the form of tables. On the other hand, if the study is qualitative in nature with reports of interviews, historical research, or conceptual analysis, more prose may be required. In either case, the chapter must provide sufficient detail for the reader to fully comprehend the results.*
>
> *Because the study has been completed, Chapter Four is typically written in the past tense.* (p. 67)

The writing style should be as simple, concise, and clear as possible; many results chapters become complex by nature because they present the results of multiple complex analyses. *The writing should not add to the complexity*. *Likewise, if the study used mixed methodologies, consider carefully in which order to present the qualitative and quantitative results*. *Think through the logical order required by the research question, and present the results of both analyses in the way that will best allow a clear answer to the research problem*.

For example, if the research question seeks to compare statistical outcomes on a sensitive issue with personal information gathered by qualitative interviews (to "flesh out" the statistical responses), then it would seem logical to present the statistic results of the survey first, followed by the qualitative analysis which casts light on the numerical trends. On the other hand, if the research question wants to know what a particular group believes about a topic and how those beliefs correlate with some other variable, the logic of the question would probably place the qualitative analysis first (what are the beliefs?) followed by the statistical correlation analysis.

The Elements of Chapter Four

Chapter Four has at least the following elements that form the structure of this Guide as well:

A. Introduction: a brief introduction to the chapter containing three main points: a description of the chapter's purpose, how it fits into the overall dissertation, and how the chapter is organized.
B. Description of the Sample: a description of the sample of participants who were in this study including significant demographic data describing the sample.
C. Statement of the Results: A brief point-by-point summary of the results and findings of your data analysis, typically organized around the research questions or hypotheses.
D. Details of the Analysis: The full detailed presentation of the data analysis and results. Again, this section typically takes each hypothesis or research question in order, describes the analysis, and presents the results for that hypothesis or question.
E. Summary: the findings can be recapitulated as a transition to Chapter 5.

Each element will be discussed in the succeeding pages.

A. Introduction to Chapter Four

In this section of Chapter Four, the researcher should provide the reader with a brief introduction stating the purpose of the chapter, the organization or main sections of the chapter, and a description of how Chapter Four fits into the overall dissertation. *This introduction should set the stage for the remainder of the chapter, as well as allow the reader to gain an understanding of the logical flow of how this chapter relates to both the*

preceding chapters and the following chapter.

Information about the research design, methodological assumptions, or any other material covered previously in Chapters One, Two, or Three should not be included in this Introduction. The key thing to remember: this introduces Chapter Four, not the entire dissertation. It is appropriate to restate the research question and hypotheses, because in essence Chapter Four presents the analyses which provide the answer to the research question, usually by accepting or rejecting the hypotheses.

As in all scholarly writing, the Introduction will also tell the reader the main points to be found in Chapter Four

Group Activity Twenty Five - Introduction to Quantitative Chapter Four:

Write a discussion for the following questions:

What drives a quantitative study?

How do you report the data presented in Chapter Four?

What are the three main points presented in the *Introduction*?

Present your discussion to your group.

B. Description of the Sample

What Chapter Four is Not

Although this may seem the logical place to do so, this section is not the place to discuss limitations or problems with the sample, unless they bear directly on the data analysis. In general, those topics are better placed in the Discussion section of Chapter Five. *It is important to keep the distinction between "analysis and results" and "discussion" clearly in mind throughout Chapter Four*. The opening discussion addressed that distinction.

What Belongs in Chapter Four

This section of Chapter Four consists of a detailed description of the participant sample actually used in the study. *First, describe the sampling procedures used in the study*. You will have described the planned procedures in Chapter Three, and if these came off exactly as planned (which seldom happens), you can refer back to the previous description and just summarize it here. But if the sampling procedures needed to be changed for any reason, describe how the sampling was actually carried out.

Next, describe the size and power of the sample. *This is not the place to evaluate or to discuss implications of either the size or the power; Chapter Four simply describes the results as clearly and concisely as possible*. Chapter Five will discuss what the sample size and power might mean for the results, as well as for the larger question of this study's relationship to the previous literature.

After discussing size and power, the demographic description of the sample is presented. *The demographic description should focus entirely on statistical or statistically related information, related concisely to the sample characteristics listed in Chapter Three*.

In quantitative research, where external validity (generalization) is typically an objective, describe the sample at the level required by the statistical analyses. Most quantitative analyses rely on group data and so the "sample" being described typically is the group. Thus, descriptive statistics are the usual way to describe the sample. Specific characteristics occurring within the sample (e.g., gender, race, socioeconomic status, and

so on) are also described, as long as they are related directly to the characteristics of the sample outlined in the earlier chapters.

Do not introduce new sample characteristics in Chapter Four if they were not described as important in Chapters One or Three. *Leave new descriptive data out of Chapter Four unless there is a clear and meaningful reason for including them*. Consult with your mentor and Committee if you think this is the case. (If new characteristics must be added, Chapters One and Three should be re-written to reflect the change.) However, if a researcher found such characteristics in the sample, they might be considered "unexpected findings" and reported in a sub-section of Sections C and D. Better yet, discuss them in Chapter Five (although many faculty do not want new material brought out in Chapter Five. Check with your mentor and Committee.)

Be certain to include all descriptive information regarding the participants that is pertinent to the study itself, and leave out the rest. While most descriptions of the sample(s) will include such information as age, gender, ethnicity, educational status, and area of residence, some studies—due to the nature of the research question—might include additional information. *Include enough detail about the participant sample to support the later presentation of the answers to the research question(s) and to allow following researchers to replicate your study and, you hope, your findings*. In Jack Webb's famous phrase, include "just the facts, ma'am."

It is important, while offering the reader a detailed description of the sample, also to carefully maintain the confidentiality and to conceal the identities of the individual participants in the study. It is essential that the participants not be identifiable by any individual reading the manuscript. Be careful not to allow details of setting or context to inadvertently identify any of the participants.

For example, describing participants as "graduate students in psychology at a local online university" could potentially identify the participants if the meaning of "local" became known somehow (the researcher's locality may be known) and if there were only one such online psychology department or university in that locality. In contrast, information that the participants are "graduate students in an online graduate program," if that fact is important in understanding the results, would not unduly risk revealing the participant's identity because there are many "online graduate programs."

Finally, include other information about your sample (again, not about individuals within the sample) that bears on your research question and the analysis to be reported. However, keep the focus on statistical information, because this is a quantitative analysis. In a mixed methodologies study, follow the guidelines for describing the sample found in the parallel *Chapter Four Guide: Qualitative.* In general, again, restrict the sample descriptions to information relevant to the analysis to follow.

This section also should describe such things as the original number of participants invited to participate or the sampling frame size, the actual response rate, the number of participants who withdrew during some phase of the study, and any similar

information bearing on the analysis of the data. *You will evaluate and discuss such information for its implications in Chapter Five; here in Chapter Four, simply report the facts*. For example, a surprisingly low response rate to a survey, even if there were enough participants, could draw attention to something in the survey design that prevented completions, an important point to discuss later, in Chapter Five. Here you would simply report the response rate.

Finally, describe any other aspects of or influences on the sample participants and their participation that might bear on the findings. These could include, for example, partially completed protocols or missing data, uncontrollable deviations from the planned interactions with the participants, happenings in the context or setting which bear on the findings (e.g., an unexpected lay-off occurring in a factory during an interview survey of a work group), and so on. *Reflect carefully on any factors that could have influenced the information you obtained from your participants and report it here*. And again, do not interpret or explain these elements, simply report them. You can draw conclusions about them and about how they influenced the data and analysis in Chapter Five.

Group Activity Twenty Six - Description of the Sample:

In developing the *Sampling Procedures* in your study, discuss:

The purpose of providing the sampling procedures

The significance of the size and power of the sample

The significance of providing a demographic description of the sample

Discuss your findings with the group.

C. Summary of Results

In Section C, each hypothesis or research question is treated separately, with its corresponding result or finding. *Statements here should simply summarize the results, not provide details or describe the analysis*. All details will be fully presented in Section D. Here, a single sentence is often sufficient for each result or finding. *In a strong sense, Section C is simply a set of statements summarizing each result concisely and nothing more*.

A common organizational structure is:

1. Hypothesis (or research question) 1 results.
2. Hypothesis (or research question) 2 results.
3. Hypothesis (or research question) 3 results.
4. And so on . . .

Consult standard texts on statistical presentation for the proper phrasing of results. *In this section, be as concise as possible, simply giving the results of the analysis for each of the hypotheses or research questions*. Section D. will go into the details of the analysis.

D. Results in Detail

The sub-sections in D. recapitulate the sub-sections in Section C, now presenting for each result the details, describing:

1 *the analysis that was performed (for each result)*;
2 *how that analysis was done*;

3 *the data that were analyzed (frequently presented in tables or figures)*;
4 *the statistics (both descriptive and inferential, as appropriate)*; *and*
5 *related materials in sufficient detail to demonstrate how the results were obtained. For instance, here you would discuss the assumptions of each test, identifying what makes the test valid for the purposes of this particular analysis*.

Each sub-section should contain a statement as to the rejection or non-rejection of the null hypothesis (if one was used) or the answer to the research question that was obtained.

Again, give here all the details of your analysis, but be concise. *Do not include any explanations or interpretations, or descriptions of other aspects of the analysis* (such as limitations, alternatives that might have been tried, etc.). These all will be discussed in Chapter Five. *Here, simply give the details of each analysis performed and each result obtained*.

E. Conclusion

The conclusions should summarize the answers to the original research question in terms of the hypotheses or sub-questions that the analysis answered. *This section serves as the transition to Chapter Five, where these results will be discussed in detail, and so the conclusion should orient the reader to Chapter Five as well as summarize chapter four's findings*.

Group Activity Twenty Seven - Data Analysis and Conclusion:

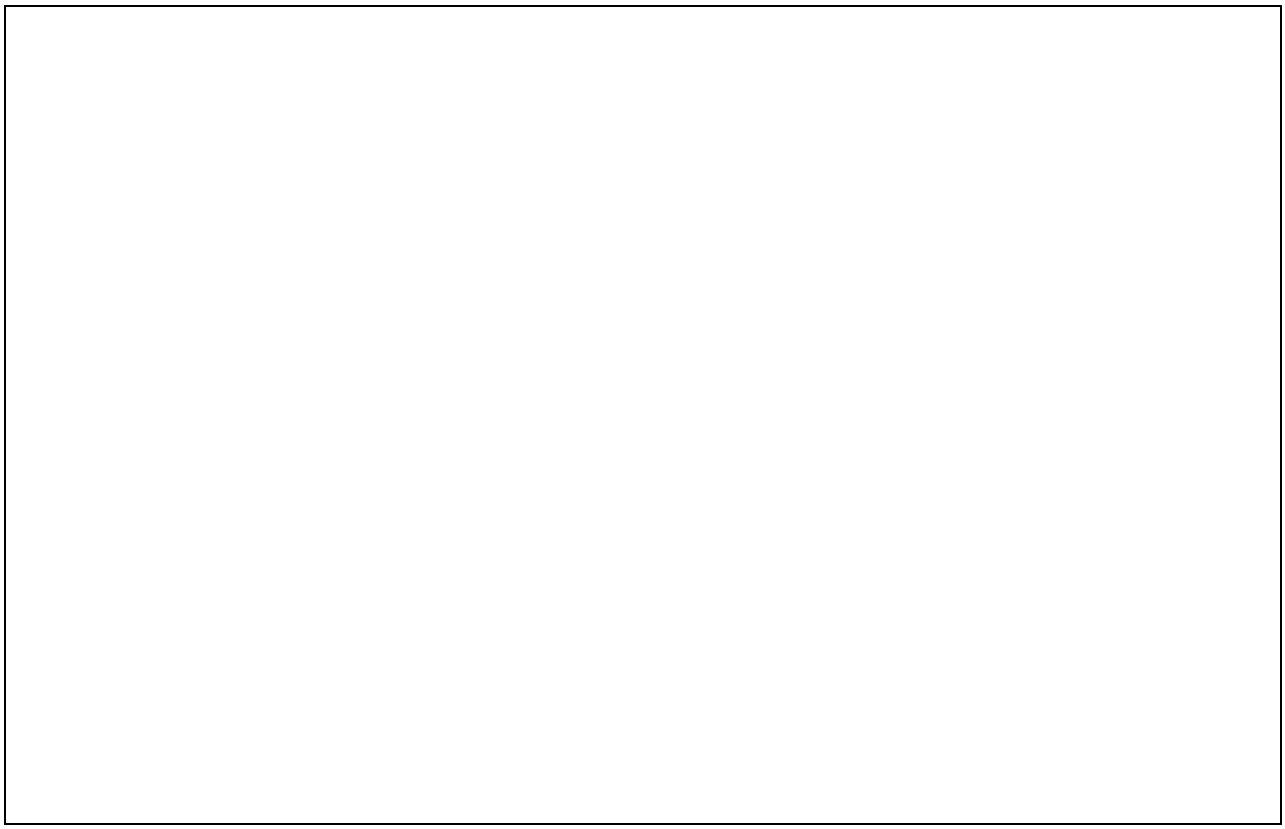
When presenting your results, data analysis, and conclusion, discuss:

How to phrase the results

How to structure the reporting of the results

The key elements in the *Data Analysis*

The information included in the *Conclusion*



Discuss your findings with your group.

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Dissertation Chapter Guides Workbook: Chapter Five

Description of the Sections of Chapter Five

Introduction

It is not unusual for learners to find that writing Chapter Five can be challenging. Having carefully avoided injecting speculation or reflection into the previous sections, assiduously sticking to the previous research to support their claims, and following the famous Jack Webb "just the facts, ma'am" rule, now they find they must become transparent as the author of their work. In Chapter Five, writers must evaluate their own work and provide personal insight into and interpretation of their study's results. This does not mean, of course, that informal, first-person writing is now possible. But within the constraints of scholarly writing, the learner now presents what the study means to him or her, and more widely, what he or she thinks it means to the field of practice, to the line of previous research, and to the communities interested in the topic.

In general, however, Chapter Five must accomplish two primary objectives, found in the Capella University Dissertation Manual (2006):

1. *It should assess whether the dissertation addresses the problems that precipitated the study (and how well); in doing so, the learner should interpret the study's results in light of existing findings in the field.*
2. *It should recommend directions for future study (p. 64).*

To accomplish the first objective, Chapter Five addresses and discusses what the study means: *What its implications are for the research question, the previous literature, and the wider communities of interest. Whereas Chapter Four was limited to simply presenting the results, now the researcher must show how those results do or do not answer the research question and what they mean in its light.*

In those dissertations where the analysis does not support the hypotheses or fully answer the research question, the researcher fully discusses and develops the meaning and possible reasons for this outcome. In these cases, Chapter Five may seem like the reflections of a physician who missed a diagnosis, carefully turning over every possible explanation for why the outcome was as it was.

Such an outcome is not a failure, because the overarching purpose of a dissertation is to add to the body of knowledge. As the *Dissertation Manual* puts it, "Even if the analysis does not support the researcher's contentions or answer the questions he or she posed, the very fact that something is not demonstrable or answerable under the experimental conditions contributes to the disciplinary body of knowledge. Should this occur, the learner should provide an explanation of the probable cause(s) for this outcome." Providing this explanation means turning over every rock in search of a plausible explanation for the results.

The second objective is to make recommendations for future research. To do so,

Chapter Five should discuss design and methodological improvements that could strengthen the study (if it were replicated); what kinds of data might be collected to strengthen the results and their meaning; and new research questions or problems the results leave unfinished.

These two main objectives can be met by following the section outlines above, which will now be described in greater detail. Obviously, each researcher will have his or her own approach, and it is wise to consult with one's mentor as to the final design of Chapter Five. But these sections will cover the main issues involved in the two primary objectives.

A. Introduction to the Chapter

Like all such chapters in the dissertation, this introduction forms the transition (with the conclusion of the previous chapter) section. *It introduces the chapter, not the dissertation*. The researcher should provide the reader with a brief introduction stating the purpose of the chapter, the organization or main sections of the chapter, and a description of how the chapter fits into the overall dissertation. This should set the stage for the remainder of the chapter, as well as give the reader an understanding of the logical flow of the chapter's main points and how it relates to the preceding chapters.

Some writers prefer to combine Section A with Section B (below), which is acceptable. However, sub-section headings should be used to differentiate the content areas covered by Section A (the overall introduction to Chapter Five's organization and logic) and Section B (the summary of the study's results).

Group Exercise Twenty Eight - Introduction:

Discuss the purpose and content of the *Introduction* section.

Discuss your findings with the group.

B. Summary of the Results

Section B (or this sub-section of Section A if they are combined) refreshes the reader's understanding of the overall study. It should restate the general and research problems, show the study's significance, very briefly indicate the literature reviewed (particularly new findings published while the dissertation was being completed), the methodology used, and a very concise recapitulation of the study's findings.

Do not repeat the relevant sections from earlier chapters. Summarize concisely. Provide enough to refresh the reader's understanding of the overall study, including the main points from the theoretical framework and the review of the previous research, then move on to the core of the Chapter, the sections to follow.

The aim of this section is orientation of the reader.

Group Activity Twenty Nine - Summary of the Results:

Discuss the purpose of including new literature in *Summary of the Results*.

Discuss your findings with the group.

C. Discussion of the Results

The key word here is "discussion." In Chapter Four, the researcher simply presented the results without comment – "just the facts, ma'am." *But now begins the researcher's personal interpretation of what those results mean*. *This section relates and interprets the results of the study to their initial hypotheses and research questions, illuminating the practical and theoretical implications and meanings of the study for the reader*. *There really are two interacting questions at play throughout Chapter Five*: *What does the study (and any component result) mean*? And, *Why did it turn out like that*?

Section C interprets the results in light of the original research question(s) or hypotheses, that is, an *intra-study* interpretation. How well do the results answer the research question or support those hypotheses? Can they be interpreted plausibly to provide a stronger answer, and if so, how? And why did the results turn out as they did?

Some dissertations fail to find support for their initial hypotheses or turn out not to or only partially answer the research question. If this is the case, what does it mean in light of the original question(s)? Does a failure to find support for a research hypothesis, for example, mean that the search should be abandoned? Are their other implications of the outcome? What might they be? And finally, what plausible research design or methodological explanations might account for the outcome?

This search for explanations of the results within the study itself will be complemented by the following section's discussion of the relationship of the conclusions with the previous research and the wider fields of interest. *Insofar as Section C focuses inwardly, on the study itself, it also identifies the limitations of the study – its design flaws, problems, or other elements that the researcher finds had some impact on the results* – but a fuller discussion of the limitations and delimitations can be saved for Section E, below. In other words, the focus here is on what the flaws and limitations mean for the results; later, in Section E, the focus will shift to the future, when the writer makes recommendations for improving the design and methodology in future research.

Group Activity Thirty - Discussion of the Results:

Compare and contrast the *Discussion of the Results* in Chapter Five with the *Statement of the Results* in Chapter Four.

Discuss your findings with the group.

D. Discussion of the Conclusions in Relation to the Literature and the Field

As mentioned in the previous section, Section D shifts focus toward the previous literature and the wider field of interest. *What do the results mean for them*? For example, if the study did not strongly confirm results that had been predicted to be fairly strong in the previous research, and if Section C did not turn up any intra-study flaws or design weaknesses to account for that, then perhaps the finding challenges previously-held beliefs. As such, its failure to support an hypothesis may be a very important finding indeed. Section D is where the researcher teases out these meanings of the findings.

As before, the two key questions interact in Section D: *First, What does the outcome of this study mean about the previous research and theory*? *Is there agreement or disagreement, support or disconfirmation*? *What does it mean for the wider field of practice, or for the community of interest who has the general problem outlined in the "Background of the Problem" in Chapter One*? And second, *What is there in that previous literature of research or theory that accounts for the outcome as it is*? *What plausible explanations might there be*?

For example, suppose that the study being discussed had examined the impact of management approaches on worker morale in large corporate environments, using a theoretical framework with six key variables, and had discovered that, contrary to previous predictions, management approaches were not particularly well correlated with worker morale at all. A number of earlier studies had strongly suggested they would be, but not so. What could account for such an outcome?

The researcher, reflecting on the *intra-study* aspects, could find no particular design flaw that would account for it. The sample size was large enough, the statistical correlations correctly carried out, the data themselves were valid and well protected. But when she turned her attention to Section D, she immediately noticed that in the companies she studied, the key variables from her theoretical framework did not seem important. Perhaps her theoretical framework, which indeed differed from that of previous studies, made the difference.

This is the sort of reflection called for here in the heart of Chapter Five. Provide the reader with a clear discussion of what the outcomes of the study mean for the wider literature and community, and what might account for the outcomes.

Group Activity Thirty One - Discussion of the Conclusions:

Propose a research problem and discuss how the potential findings could impact the existing literature and your field.

Discuss your findings with the group.

E. Limitations

One of the most common reasons for studies' not supporting the hypotheses or

research questions as strongly as expected are design limitations. Earlier they would have been mentioned in Section C as possible explanations for a surprising outcome. *Here the researcher more fully discusses design problems or limitations, even if the dissertation outcome was exactly as expected*. *The researcher should identify and discuss any design element that, with improvement, could significantly enhance the quality of the results without being unrealistic*. (Certainly, any study would have better external validity if it sampled the entire population, but that is not usually realistic.) *Here the emphasis should be not on covering every possible improvement or problem, but on reasonable improvements that will result in better future research and stronger results from similar studies*. This section provides the foundation for one sub-section of Section F, which discusses limitations-based recommendations for further studies.

Limitations do not include only the flaws and mistakes, although candidly discussing these is necessary. *They also include good-enough elements that could realistically be made better*. Converting convenience sampling to random sampling is an example. Purposively sampling only five couples for a phenomenological study when ten or 12 would have realistically improved the quality of the data is another. The fact that many dissertations are done on a limited budget and with severe time constraints usually leaves their authors with a wish-list of improvements; here is where those should be candidly and modestly discussed. *No one expects perfection of any study, but the scientific community does expect researchers to be transparent about how they could improve their work*. *Here is where learners provide that transparency*.

F. Recommendations for Further Study

Researchers can discuss as many as four categories of recommendations for further studies in Section F. *Each category reflects back on one of the previous sections of the Chapter*. *The four most common categories of recommendations are*:

1. *Recommendations developed directly from the data (reflects back to Sections C and D)*.
2. *Recommendations derived from methodological, research design, or other limitations of the study (reflects back to Section E)*.
3. *Recommendations based on delimitations (reflects back to Chapter One)*.
4. *Recommendations to investigate issues not supported by the data but relevant to the research problem (may reflect back to Sections C and D)*.

Recommendations developed directly from the data.

These are the typical "recommendations for further study," built directly on the results presented in Chapter Four and discussed above in Sections C and D. *Most results raise as many questions as they answer, and here is where they are described*. *Very commonly, the results can call for the "next level" of investigation – if the study was descriptive, then if certain variables were found to occur regularly in the population, the researcher might recommend that specific correlation studies for those variables and populations be carried out*.

These recommendations can also include recommendations for treatments or interventions supported by the data as well. For instance, if the study showed that a particular treatment for substance abuse had a very high correlation with long periods of sobriety and very low recidivism rates, the researcher might believe that her data support a recommendation for wider adoption of the treatment as well as further studies of its efficacy across larger samples.

Recommendations derived from methodological, research design, or other limitations of the study.

Once again, these are typical and frequent in Section F. They build directly on the limitations described both in Section C (the intra-study discussion) and in Section E, just before.

Recommendations based on delimitations.

This category of recommendations for further research appears less often in dissertations, although it is important. *Every researcher decides early in the process what important questions, issues, variables, or other facets of a topic he or she will leave out*. *The reasons for doing so are usually pragmatic, involving availability of resources, time frames, and other practical considerations*. Sometimes, important and interesting aspects of a problem are left out for sound theoretical reasons, such as when a study of depressed adolescents deliberately does not investigate their sexual abuse histories (or absence thereof) because the study is built using a serotonin-uptake theory of depression. *All such omissions are "delimitations," aspects of the subject that are important and meaningful, but that were intentionally not investigated for one reason or another*.

It is not necessary or wise to try to include any and all such delimitations here. Rather, the researcher focuses on those offering the greatest chance of broadening or deepening our knowledge of the phenomenon. For example, there are many suspected childhood antecedents of adolescent depression, but some (such as quality of peer relationships or degree of secure attachment attained before adolescence) have much stronger empirical support. The author of the serotonin-uptake study just mentioned might suggest that combining her results with an investigation of, say, degree of attachment to parents could significantly strengthen the meaning of her results. This would be a recommendation for further study based on a delimitation.

Recommendations to investigate issues not supported by the data but relevant to the research problem.

This category in many respects resembles the recommendations based on delimitations, but is different in an important way: *It recommends further work on issues that arose during the study and that appear to be "serendipitous*." Suppose that during the serotonin study mentioned earlier, the researcher had found a repeating pattern in her data that does not bear on the study itself – the pattern suggested that adolescents who are

depressed also enjoy loud music – but that is intriguing. She could describe this pattern and recommend further study on it.

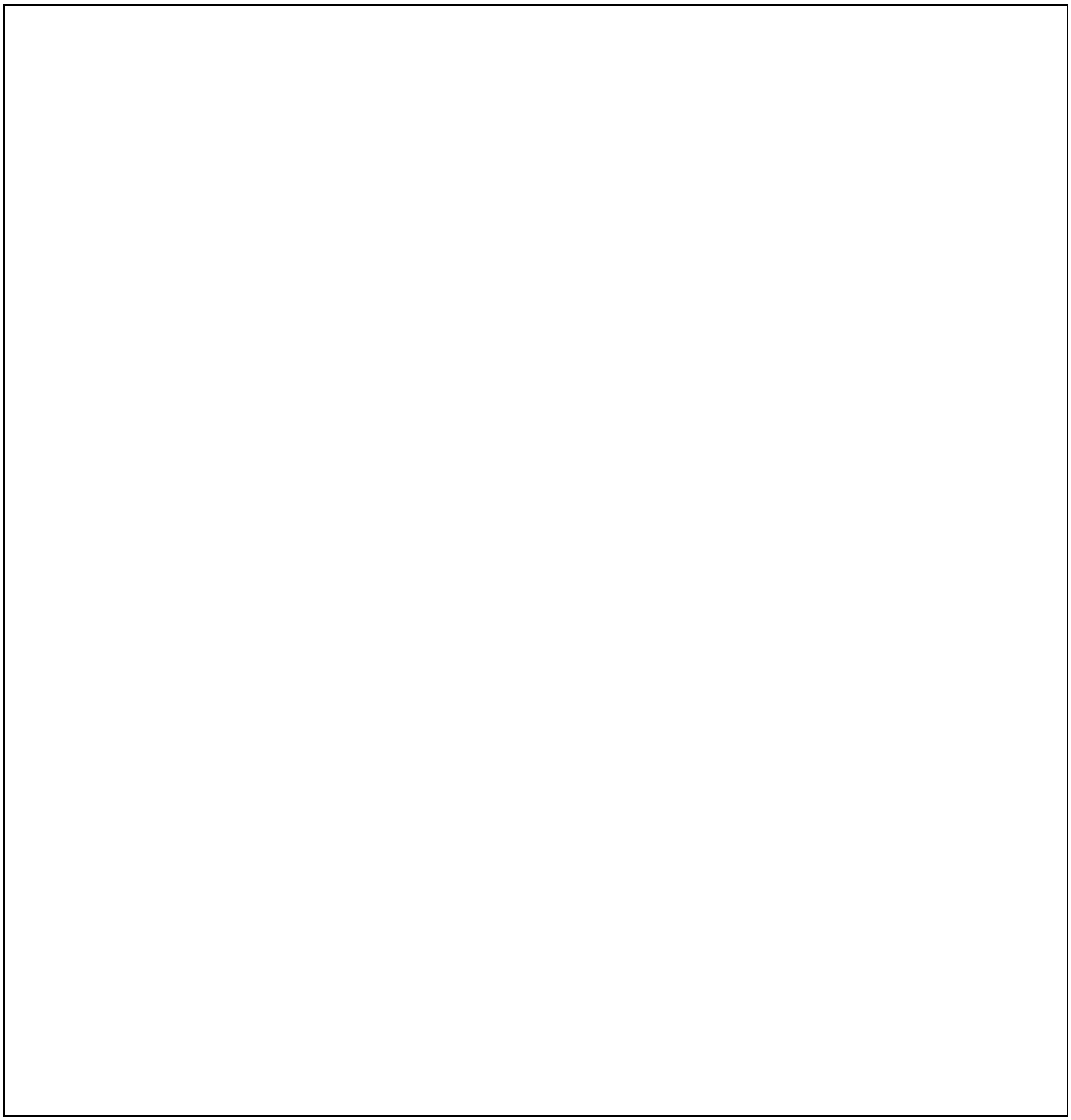
Group Activity Thirty Two - Limitations/Delimitations and Recommendations:

Discuss the significance of the Limitations section.

Discuss the difference between Limitations and Delimitations.

Discuss the information included in the Recommendations for Further Study section.

Discuss possible cautionary steps related to recommendations to investigate issues not supported by the data but relevant to the research problem.



Discuss your findings with the group.

Suppose, for a different example, that she found an interesting and mildly strong correlation between serotonin levels, depression levels, and a third factor that had not been initially identified for investigation, but turned up on the measures. This multivariate correlation did not rise to the level of statistical significance, but was close enough that if it turns out to be real would be of great value to clinicians in the field of

psychology or human services. Although her findings did not support the assertion of the statistical significance of the correlation, its potential clinical value (*clinical significance*) might lead her to recommend further study on that particular assembly of variables.

This is a judgment call. Is the "new" element sufficiently important, based in previous theory or research or in another theoretical frame, to call for its study based on insufficient data in this study? The researcher must weigh all the factors. Probably here is where the novice researcher must tread the most carefully, but also here is where he or she can have the biggest impact. Synthesizing two previously distant lines of thinking by means of such a recommendation is a very satisfying scientific achievement; if your study allows for it, take the opportunity to defend it to your committee.

G. Conclusion

In this section, the writer sums up the dissertation, offers a final description (always concise, sometimes eloquent) of the answers to the research question(s), and provides a closure to the manuscript as a whole. Here the writer may provide a rhetorical suggestion for how the study could be used in furthering our understanding of the problem dealt with. Some researchers, in the conclusion, exhibit a more lyrical and personal tone, but usually this is discouraged in favor of consistency of tone.

Researchers should check with their mentors to learn the mentors' preferences regarding personal statements of the meaning of the project to the researchers. Some permit this, some discourage it. If permitted, such statements of personal growth, reflections on lessons learned as a psychologist-researcher, and descriptions of the impact of the dissertation on one's professional growth can often provide a satisfying and scholarly final cadence to the dissertation. Again, however, maintain the scholarly tone (third-person writing) and attitude that prevails throughout the dissertation.

Reference

Capella University (2006). *Dissertation Manual.* Retrieved from https://www.capella.edu/Portal/Faculty/scontent/resources/dissertation_psych.aspx. (Available to Capella University faculty, staff, and learners only.)