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Organizing the Thesis
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There are many guides to writing the thesis. This one is based on my own experience. It focuses on organizing the thesis and highlights the problems that my students have encountered over the years. You should consult closely with your supervisory committee before you start your thesis work. They have the final say. However, I think you may find these suggestions helpful. I give some suggested page lengths for the different chapters in the thesis. ***These are rough approximations, based on a 100-page thesis.*** These numbers are designed to give you an idea of the ***proportion*** of your thesis that each chapter normally comprises. Your own thesis may vary. For example, if your methodology is complicated it may require more space and/or a greater proportion of the thesis than I suggest here.

The Research Proposal

Chapters I, II and III of the thesis comprise the research proposal. I prefer that my students actually complete these chapters prior to conducting the research. Many faculty members do not feel this way and often a 10 to 15 page proposal is sufficient. That is, the proposal may consist of a shortened or abbreviated version of Chapters I, II and III. You can reduce the introduction in the proposal. It must, however, contain a justification and a clear statement of the research question. You can shorten the literature review by focusing on the research literature that played a pivotal role in the development of your hypotheses. Notice, however, that you still have to ***read*** all of the relevant literature before you prepare the proposal. Otherwise, how will you define your research question and hypotheses? Later, in the thesis, you will need to expand the literature review if you decide to prepare a shortened proposal. There is no room for shortening the methodology chapter. This is your “recipe” for conducting the research and failure to explicitly state what you are going to do will almost undoubtedly result in problems in completing the research in a timely and satisfactory fashion.

Chapter I. Introduction

The introduction to the thesis justifies your research. It explains why the research is important and valuable. The introduction puts your research in context. A normal length would be about five to ten pages. You should include four key elements in the introduction.

1. ***Identify the general or over-arching problem that you address in your research.*** First and foremost, select a problem that interests you. You will live with it for months. Document the importance of the problem. The documentation should include quantitative or qualitative evidence that the problem is important, such as the number of people affected, the severity of the problem for those who are affected, or the economic or social impacts caused by the problem. Government reports and data bases like the census are excellent sources of documentation of the importance and implications of the problem.

Examples of problems

- Inadequacy of elders as surrogate parents for children in single-parent households
- Decreasing involvement in governance by the population in rapidly growing communities

Examples of evidence

- Number of single-parent households over the past 30 years in US and/or Florida communities; number of single-parent households where elders play a major role in parenting

- Voter turnout; number of volunteer hours per thousand of the population; number of local civic organizations supported by volunteers

2. ***Narrow the focus of the research and explicitly state your research question.*** Rarely will your research directly address the entirety of the broad, over-arching problem you have identified. Narrow the focus to something manageable. Provide a succinct statement of your specific research question. Explain how the question that you want to answer fits into or relates to the larger problem that you have identified. Explain how your research will contribute to solving the problem you have identified. The research question should be posed in terms of the totality of the problem you have identified, but normally will focus on one specific aspect of the problem.

Examples of narrowing the focus

- Adequacy of parenting by male elders in single-parent households headed by females raising male children
- Citizen participation in community based civic organizations

Examples of relationship to the larger problem

- Percentage of all single-parent households that are headed by women raising male children; evidence that male children in these households are more apt to commit violent acts, take drugs, acquire AIDS, be arrested, etc.; discussion of reasons why male elders may not provide adequate parenting for male children in these households
- Historical data showing declining rates of participation in local civic organizations; data showing the relationship between participation in civic organizations and savings in public expenditures, improved quality of life in the community, etc.

Examples of research questions

- Examine the degree to which male elders have the knowledge, experience, and parenting skills needed to help prevent male children between the ages of 15 and 19 in female headed single-parent households from experimenting with drug use
- Evaluate the relative importance of six selected factors in reducing the participation of recent immigrants in civic organizations

Examples of contribution to solving the problem

- Provide suggestions for improving the ability of male elders to reduce risk-taking and anti-social behavior by teenage males in female-headed single-parent households
- Suggest mechanisms for increasing the participation of recent immigrants to Florida in community governance

3. ***Define any terms that you use that do not have well established definitions and/or delimit the terms you use.*** Some terms have very clear, universally accepted definitions. Many do not. If you use any terms that do not have a generally accepted definition, it is your responsibility to explain exactly what you mean. In many cases, you will want to ***delimit*** a term – set explicit limits on how you will use the term that are at variance with a more normally accepted definition.

Examples of definitions

- Male elder – this could mean a grandfather, a great-grandfather, an uncle, etc; you might want to limit this to a male grandparent for the purposes of your study
- Participation in civic organization – this could mean anything from occasionally coming to a public event to holding elected office; you might define this as attending at least 50% of the meetings and

activities organized by civic organizations during a specific period of time

Chapter II. Literature Review

The literature review goes hand in hand with developing the research question and with formulating your hypotheses. Your research question should serve as the basis for selecting literature for review. At the same time, reviewing the literature should help you focus and sharpen your research question. A literature review normally comprises about 20 pages in a 100-page thesis.

1. **Provide a comprehensive review and analysis of the relevant research literature.** The word “review” is misleading. Your job is to analyze the relevant literature – not just report what it says or paraphrase the researcher’s ideas or concepts. Analyzing means (1) understanding the contribution of each specific researcher to the problem you have identified, (2) identifying the weaknesses and strengths of each piece of research, and (3) being able to identify and explain the gaps in knowledge that remain – the questions that were not answered by the research that others have completed. Note the term “research literature.” While you may want to include review articles as references in your literature review, your job is to actually read, think about and analyze the original research publications of the scientists who have conducted research that is relevant to your question. A review of the reviews is not adequate. Your literature review should be based primarily on first tier journals. These are peer-reviewed journals that are recognized nationally and often internationally by researchers in the field. They are journals with the highest scholarly standards that report cutting-edge research. You will sometimes find literature of value in second tier journals as well, but this is less common. Second tier journals typically have lower scholarly standards and their audience is often practitioners in the field rather than researchers. Also note the word comprehensive. You must include *all* of the relevant research literature – not just authors or articles that support your own perspective, approach or viewpoint. Where the literature is voluminous, you may have to restrict your literature review to the key or most important research in the field. When you do this, you need to justify your selection of literature for inclusion in the literature review.

2. **Organize the review.** A literature review is not simply a list of who did and said what. You need to organize your review and analysis in a way that makes it easy for anyone who reads your thesis to understand. One common, but often not very useful, approach is a chronological organization. If you use this approach, identify the key turning points or major milestones in research in the area of interest. Another approach is to group or classify the research by theme or perspective. Your research question may include sub-questions, for example, and you may want to organize your literature review according to these sub-questions. Alternatively, there may be two, three or even more different approaches to research about the problem or issue and you may want to organize your review and analysis by approach. In other cases, there are competing explanations and this may provide an organizing principle for the review. Whatever you do, a series of paragraphs, each explaining what a different researcher did and said is not a good approach.

3. **Provide a theoretical framework or model for your research.** Remember that the ultimate purpose of your research is to add to our knowledge of how the world works. The purpose is *not* simply to describe something, compare two cases or examples of something, or repeat what someone else has done. Your thesis will be judged by your supervisory committee on the basis of whether you contributed to the total body of knowledge and understanding in our discipline. Did you explain why something happens? Did you build on and extend our models of how the world works? In short, did you contribute to the theoretical basis that we use to explain social phenomena? The only way to do this is to understand the existing theoretical framework and models that we already use, identify gaps in our understanding and fill those gaps. Your literature review sets the stage for your hypotheses.

Examples of gaps in knowledge (In actuality I know little to nothing about parenting. The ideas I suggest below may be ridiculous. The point is that this is the **process** involved in identifying an appropriate topic for an original research project.)

- Your analysis of the research literature reveals that little research has been done that specifically addresses the ability of elder males to serve as “surrogate parents.” Most research has focused on parenting by elder females. Most research has not been gender-specific with regard to the youth involved. This is excellent. You have identified gaps in knowledge.
- Your analysis also reveals that different researchers focus on different aspects of why elders do or do not provide “good” parenting for today’s youth. Some focus on the lack of knowledge by elders about the problems and issues that young people face today. Others focus on the fact that elders have few life experiences that are relevant to today’s youth. Yet others focus on the poorly developed parenting skills of elders. Again, this is excellent. You can see where all three factors may play an important role in how well elders serve as parent surrogates.
- Using the information you have gleaned from your analysis, you decide to focus on some specifics. First, you will limit your study to male youths between the ages of 15 and 19 because you know from the data available that they are particularly prone to experimenting with drug use, a behavior that we want to avoid. Second, you decide to further limit your study to male youths in female-headed households where an elder – a grandfather you decide – is playing the dominant role in male parenting. You know not much work has been done on male parenting by elders and you know from the literature that the male parent plays a particularly important role in determining the risk-taking behavior of young males. Now you develop a model where you propose that knowledge of the issues facing young men, relevant life experiences and parenting skills will all play an equally important role in determining how well the elder male succeeds in helping prevent the young male(s) that he parents avoid experimentation with drug use. This is great. Unlike the previous studies where these factors were studied in isolation, you are going to look at the relative importance of all three at once and try to understand how they interact. You are home free. Your research will contribute to our theoretical framework, you will explain something, and you will add to our knowledge about how the world works! In short, you have successfully identified a theoretical framework for your research.

4. **State your hypotheses.** The best and easiest approach (whether your data will be quantitative or qualitative) is to state your hypothesis as a prediction (that’s what hypotheses really are). It does not matter whether you will test your prediction with quantitative or qualitative data. Explicitly stating what you expect to be true clarifies your thinking and helps you develop your research design, methodology and analysis. I personally am opposed to stating the null hypothesis. I find it confusing and it does not seem to me that it is usually helpful in organizing the research. (Statistical analyses do test “for” the null hypothesis. That is, an analysis of variance is based on “disproving” the null hypothesis – showing that the differences between two or more means are **not** a result of chance. That is where the idea of stating a null hypothesis originates.)

A Word about Hypotheses. If you do not know about the characteristics of “good” (well formulated) hypotheses, you need to dig into the literature or take a research design (not research methods) course. In very shorthand form: They must derive from the theoretical framework or model, they must not be trivial (obvious), they must be testable and they must, in your honest opinion, have some “decent” chance of being disproved. In other words, I could hypothesize (predict) that the sun will rise in the East for the next 365 days. This is a trivial hypothesis. I could hypothesize that more men than women in Gainesville have blue eyes. This might be true, but so what. It has no theoretical basis. I could hypothesize that Thomas Jefferson suffered from attention deficit disorder, but there’s no way that I know about to test that. I could hypothesize that women at UF will have wider hips than men at UF, but I cannot honestly say that I think there is any chance that this hypothesis could be disproved. Women in general have wider hips than men and I have absolutely no basis for thinking UF’s women and men are any different from other women and

men. In short, you have to develop a theory based, testable hypothesis that you believe (based on other research and the literature) could really be *wrong*. One-tailed hypotheses (ones that predict a direction of change or that specify the relationship such as “positively correlated with”) are superior to two-tailed hypotheses (hypotheses that just say there will be a difference without specifying greater, positive, negative, etc.). The best hypotheses, if disproved, will strike a serious blow at the theory on which they are based. Einstein once predicted that light rays would “bend” when they passed near the sun – something totally outrageous, never heard of, etc. He was very honest. This was a logical, inevitable prediction that flowed from his theory of relativity. So, no matter how ridiculous it seemed, it was a good test of the theory. Had the hypothesis been disproved, Einstein’s “famous” theory of relativity would be Einstein’s “never heard of again” theory of relativity because it would have been bashed! That was a good hypothesis.

Examples of hypotheses

- The relationship between knowledge about the kinds of drugs commonly offered to youth, prevalence of their use by youth, and risks associated with their use and an elder male’s ability to help young men he parents avoid drug use will be positive (e.g., more knowledge about the problem – drugs – equals better success avoiding drug use).
- The relationship between life experiences with drug use and an elder male’s ability to help young men he parents avoid drug use will be positive (e.g., direct experience with drug use by the elder equals better success at avoiding drug use)
- The relationship between parenting skill and an elder male’s ability to help young men he parents avoid drug use will be positive (e.g., greater parenting skills equals better success at avoiding drug use).
- Each of these three components (knowledge about drugs, experience with drug use and parenting skills) will contribute equally to success in helping young men avoid experimenting with drug use.

Chapter III. Methodology

The overall purpose of the methodology chapter is to provide enough information for another researcher to repeat your study. It is really that simple. You can normally do this in about 10 pages in a 100-page thesis. There are several key questions and issues.

1. ***Describe the research design.*** There are three broad groups of research designs: (1) experimental and quasi-experimental, (2) inferential and (3) case studies. There are requisites for each. If you do not understand the difference between these, you need to take a research design course (we offer one) or read about the three types of designs. They are all equally valid and useful. None is “better” or “stronger” than the other. The nature of your research question determines which type of design you will use. If you will manipulate your test subjects you will use an experimental design. If they have already experienced something that you think may differentiate them (exposure to parenting training, for example) you will probably use a quasi-experimental design. If you want to reach conclusions about one or more populations as a whole (newcomers to Florida versus people born here) you will probably use an inferential design. If you want to explore many aspects of a phenomena – many characteristics of a group of people and how those characteristics interact – you will probably use a case study. At any rate, you need to decide and state which type of design you will use. Then you need to be specific. How will you define the population? What specific experimental design (such as two group, no control), will you use? If you are conducting a case study you will need to explain how you selected the case (because it was easy is not the answer) and describe the case (a group, an organization, a community) in terms of its salient features.

2. ***Explain how you will collect your data.*** This usually includes three components.

Sample selection. In the social (and biological) sciences, we almost always have to select a sample. The sample must be representative of the group (or population) as a whole for experimental and quasi-experi-

mental and inferential designs. The sample does not have to be representative for case studies, but in many situations even in case studies you will need to select a representative sample. You need to explain how you will select your sample. This involves two separate steps. First, define the sampling frame. Usually we do not really have access to the entire population that we want to study – there is no list of the homeless in Florida, for example. So what will you use – people who eat at soup kitchens, people who sleep at homeless shelters? Second, once you have your equivalent of a list – the sampling frame – how will you select the individual sampling units – people, families, communities, groups or whatever?

Instrumentation. The second component is your instrumentation. In the social sciences this is often a survey instrument, some sort of test of knowledge or attitude or some sort of outcome test. You must describe the instruments you will use. If you are using an instrument that has already been described in the literature, give the citation and move on. The next researcher can consult the original author. If you are altering a standard instrument, explain the changes you are making and why. If you are developing your own instrument, explain in detail how you arrived at each component. If there are several instruments available (say different measures of leadership), you must indicate which one you will use and justify your selection. Somewhere, usually the appendix, you need to provide a copy of the instruments themselves.

Procedure. Finally, you will usually have to explain the data collection procedure. Will you conduct personal interviews or use a mail-out or telephone contact? When will you conduct the interviews?

3. ***Explain how you will analyze the data.*** This is straightforward. Simply explain each analytic procedure that you will use, statistical or other. Define the independent and dependent variables.

Remember that the objective here is to provide enough detail for another researcher to replicate your work. Do not provide unneeded detail. On the other hand, make sure that someone else really could replicate your work – that they would not have to guess about anything you did. Use citations and references. Often, M.S. these appear with almost no references in the methodology section. This is not acceptable in most cases. You can, for example, say something like: “I will use a two-group, no control design (Leedy and Ormrod 1998). Group one will include people who have lived in Florida five or fewer years. Group two will include people who have lived in Florida for twenty or more years.” Notice that by citing Leedy and Ormrod you do not have to explain what “two group, no control design” means. You could also say: “I will use the Likert-like scale of personal esteem developed by Watson (1994) as modified by Jansen and others (1996). I selected the modified version because previous researchers (Jansen et al. 1996; Robbins 1998, Welch 2000) found that the internal reliability of the modified version is greater than that of the original version used by Watson (1994). I have included a copy of this instrument in Appendix B.” You have provided the references and justified your selection.

4. ***Explain any limitations in your study and problems that you encountered.*** Limitations include everything from very mundane occurrences to major problems. For example, let’s say that you decided to use the tax rolls in County X as your sampling frame for landowners. You conducted personal interviews. The tax rolls included several absentee land owners. Obviously, you could not go to New York, Boston, etc. to interview these people. In this case you would have to state a limitation in your thesis something like the following. “I could not interview the absentee landowners listed on the tax rolls. My sample is not representative of this portion of the population. My findings about the attitudes of taxpayers about the quality of life in X County may or may not apply to absentee landowners.” Your proposal should contain a limitations section in the methodology, too. This is where you list ***foreseeable*** limitations – such as the tax roll example. Almost every researcher also encounters unforeseen problems. For example, perhaps you had a high non-respondent rate – people who would not let you interview them. You should indicate that this occurred. It does not mean that your data is worthless, your effort wasted, or any other disaster. However, you are being less than honest if you do not explain the problem. (During my doctoral research

the same pig ate my corn plants on one farm three times! Needless to say, given that there is an optimal date for planing corn, the corn plants on this farm never did produce much corn.) You should offer explanations for the problem (I could not guard the field 24 hours a day), explain what you did about it (tried to buy the pig), explain the implications for your results (unrepresentative corn yields in all treatments on that farm which probably reduced the difference between treatments), and offer suggestions about how other researchers could avoid the problem (stay away from farms with pigs whose owners commonly spend all weekend in the local cantina, thereby guaranteeing that the pig is looking for food).

4. **Organization.** There are many ways to organize the methodology chapter. If your methodology is easy to explain, you may present it as one discussion. In many cases you will have multiple hypotheses. In this case you may want to explain the instrumentation and analyses for each hypothesis. I prefer this approach. At any rate, you must clearly indicate how you will use each piece of data that you collect and what data you will use to test each hypothesis – quantitative or qualitative. I prefer the simple approach. First, explain the independent variables.

“My independent variables include demographic data. These data include age, race, place of residence, annual income by category, I used logistic regression analysis (Evans, 1992) to determine the degree to which these demographic characteristics explain differences in success in parenting.”

“My first hypothesis is that knowledge about drugs contributes to successful parenting by the male elder. I developed a test instrument to evaluate the subject’s knowledge about drugs, which I treated as an independent variable used to predict successful parenting. The instrument measured knowledge in three areas: (1) the kinds of drugs commonly offered to youth by drug dealers or friends, (2) the prevalence of usage of four drugs among youth in Florida, and (3) the health risks associated with the use of these four drugs.”

“To test knowledge about the kinds of drugs that young people encounter, I asked each respondent elder to name the four drugs that he thought were most likely to be offered to a young person attending the local high school. I scored the individual’s response by comparing the list he provided with a list of the four drugs that are most prevalent in high schools in Florida. These are alcohol, marijuana, Ecstasy and amphetamines or speed. I awarded one point for each of the four drugs that the respondent correctly identified. No points were subtracted for incorrect responses.”

“I also asked each respondent to pick the four drugs that he believes are the most commonly used by Florida high school students from a list of ten drugs. The list included the four drugs mentioned previously plus barbiturates, cocaine, crack cocaine, heroin, opium and laughing gas. The four correct answers were distributed throughout the list. I awarded one point for each of the four drugs that the respondent identified correctly. No points were subtracted for incorrect responses.”

“Finally, I asked the respondent to select the health risks associated with the use of each of the four drugs most commonly used by Florida high school students. I provided a list of six possible health risks for each drug. The lists are provided in Appendix A in the complete instrument. In each case, I included some correct and some incorrect risks. I varied the number of correct answers to prevent respondents from identifying a pattern of correct number of responses. I awarded one point for each correctly identified risk and did not deduct points for incorrect answers. The correct responses are indicated by an asterisk in the example in the Appendix.”

“I used Worthen’s (2000) instruments as a model for my own instruments. Worthen developed and tested his instruments in a study of the contribution of knowledge, experience and skills in successful outcomes in drug counseling. My instruments are based on those he used to evaluate the knowledge,

experience and skills of the counselors in the study. Worthen's study showed a positive relationship between scores on his instruments and success as a counselor ($r^2 = 0.83$, $p = 0.02$). I tested my modified instruments with ten subjects prior to starting the study. The test showed that one of my questions was confusing to respondents. When I observed hesitation in answering the question I probed for an additional response by rewording the question. Since the respondents' answers improved with rewording, I changed the wording of the question and retested that question alone with five more respondents, who did not find the question confusing. I believe that this was a sufficient pre-test because I modeled my questions closely after Worthen's instrument."

This is the kind of detail that you need to provide. In this example, I would next describe the instruments used to evaluate the respondent's previous personal experience with drug use and then the instrument used to measure his parenting skills. Finally, I would describe the instrument used to measure "success" in the elder's parenting in regard to helping young males avoid drug experimentation (don't ask me how!). This is the dependent variable in this example. Then I would have to explain how I analyzed the data.

Chapter IV. Results

You will see some departments and some supervisory committees that say that you can have a chapter called "Results and Discussion." I personally do not permit this and I do not recommend the combined chapter format, especially for M.S. students. There is a clear difference between results (what do the data show) and the discussion (how do you interpret the data). I find that students who try to combine the two typically fail to adequately discuss the results, which leads to an unacceptable thesis. The results chapter is just what it says – the results or findings. It is by far the easiest chapter to write. The text for this chapter is often not long, perhaps ten pages of a 100-page thesis. However, you may consume many more pages with graphs and tables.

1. **Statistics about the sample.** If you used a sample in your study, your results cannot be any better than the sample. How does the person who reads your thesis know whether your sample was adequate or not? You provide this information. Report the mean, the variance and the standard error for all variables, independent and dependent. If you had to make some adjustment to your data (for skewness or kurtosis, for example), explain what you did.

2. **Organization and presentation.** Present any background data first – such as demographic data and descriptive statistics such as mean age, median income, etc. Then present the data for each hypothesis in the same order in which you presented they hypotheses in the literature review. Use tables and graphs when possible to present quantitative data. Report the values for all statistical tests that you conducted. Do not repeat everything in the tables and graphs in the text, but rather call the attention of the reader to the most salient or important information in the graphics. For example: "Table 1 shows the results of the student t- test for variables X, Y and Z. Group 1 differs from Group 2 for variable X ($t = 2.63$, $p = 0.02$), The two groups do not differ with respect to variables Y and Z." If you are one of my students, do **not** use the term "statistically significant." Simply report the appropriate statistics (p value, alpha values, r-squared values, etc.) and let the reader decide if it the result is significant or not. If you have qualitative data, summarize the data. For example, if you have an open question in your survey instrument, summarize your findings. Find ways to give the reader a "feel" for the data.

"I also asked respondents what they thought was the most dangerous of the four most commonly used drugs in terms of its potential for "ruining the life" of young people. I asked them to explain their answer. Over half of all respondents were unwilling to name a single drug. They replied that they thought that any drug posed a high risk of ruining the life of young people. The most common rationale was that taking one drug leads to taking other drugs. As one respondent stated, 'First it's just a

little bit of marijuana. Then the next thing is to try something with more kick. So they move on to crack and heroin. It just doesn't stop with one drug.' Several respondents also stated that they feel that all drugs are the devil's work and that they all lead to moral collapse and calamity.....

"Of those who were willing to name a single drug as the most dangerous, the most commonly named drug was alcohol. Almost all of these responses pointed to the legality of the drug as the reason for naming it the most dangerous. Again, one man's response typifies these answers: 'It's that booze. The problem is it's legal. Once you start on it young, you always want it and you can always get it. That's why it'll ruin your life so easy.'

You could also use a table to help summarize these qualitative data. You could list the drugs in the order in which they were named "most apt to ruin young people's lives," for example, and provide a list of the reasons offered by more than three respondents.

Chapter V. Discussion

The discussion is your *interpretation and explanation* of the results. This is the heart of the thesis. It is what science and your research are all about – explaining things, explaining how the world works! Rarely can you do this justice in a few pages. Most good theses devote about 30% of the total text to the discussion. The most common error in M.S. theses (in my experience) is a poor discussion of the results. Students tend to report the findings – the results – and then quit. They fail to explain what the findings mean. Research is not about getting some data and analyzing them. It is about using data to explain things. If you have not explained and interpreted your data, your research is not completed. Too often, students quit before they are done! Spend a lot of time thinking about your results and then tell us what you think. Your discussion should be exhaustive. Leave no stone unturned, no result unexplained, no explanation untried. "Positive" or "negative," tell us everything you can about **why** you got the answers you did. There is no formula – alas – for how to write a good discussion. Here are some pointers, but every thesis will be different.

1. **Go back to the hypotheses.** Explain what your results imply for your hypotheses. Remember that you can never "prove" an hypothesis. You can disprove it, but not prove it. Do your results corroborate (support) your hypothesis or not? Why or why not? If your results corroborate your hypotheses, get into the detail. Explain your reasoning in depth. Tell us all about what you think is going on. Look at the differences. Let's say, for example, that it turns out that experience is the single strongest predictor of an elder's ability to guide young males away from experimentation with drugs. That's an interesting finding. Why do you think this is true? Why would experience with drugs be such a good predictor of outcome? Why are the other predictors weaker? Perhaps it turns out that knowledge about the drugs is a very weak predictor. Why would that be true?

2. **Compare your findings and interpretation of them to other research.** You built your entire research project based on previous research. Compare your results **and** your interpretation of them to the published literature. This part of your discussion should draw heavily on the literature that you analyzed in your literature review. Does your research support one school of thought, theoretical approach or model over others? Does it indicate a more fruitful line of research? Does it throw previous research findings into question? Does it indicate that previous research done with other groups applies to the group you studied, too (e.g., female elders versus male elders)? Or does it imply that the models developed for other groups or phenomena do not apply to what you studied? Provide detail. Put your research into context. Explain where your findings "fit" in what we know and what we do not know. Explain any gaps in knowledge that you filled with your research. Identify the gaps that remain and indicate the questions that your research **raises**.

3. **The case of “insignificant” results.** First, if your results do not corroborate your hypotheses, think hard about your methodology. Could something you did have caused the result? Can you identify any weakness in your instruments? In your sample selection? Hopefully, the answers to these questions will be “no” because then you have a very exciting situation.

The most exciting theses are those where your data (assuming you did a good job on methodology and analysis), do **not** corroborate your hypothesis. This is exciting because it implies that something is going on that we, as a community of researchers, have not thought about. Let’s go back to our elder parenting and drug use example. You have built a good strong, logical, well-based argument for why the elder’s knowledge, experience and parenting skills should have a strong outcome on experimentation with drugs. But .. your results end up negative! There’s just no relationship there. Now that has some strong implications. What in the world is going on here? If these are not the predictors – what are they? What have we missed? What is wrong with all of this knowledge that we have accumulated? After all, you have a pile of research results that you covered in your literature review that show that these things **ought to** predict success. But remember, everyone else looked at either just one of these predictors or they did not look at male elder mentors for male youth in female single-parent families. Aha! Is there something different about the elder male to young male relationship that is important? Or are we looking at the wrong predictors? Or should we develop a new model that incorporates more factors into explaining success as we have defined it? Negative results are **not** insignificant. They are exciting. If you did a good job on the research and had good hypotheses (well based in the current knowledge, cutting edge), you are opening up whole new arenas of research. Tell us about them.

Chapter VI. Conclusions

This is a short chapter. Often ten pages is enough. It is also a fun chapter. **The conclusion is not a summary of the results and discussion.** This is a very common mistake. Do not, repeat **not** repeat what we already know.

1. **Go back to the big problem you identified in the introduction.** First, tell us what your findings and your interpretation of them (the discussion) mean for the problem you were trying to solve in the first place. What are the implications of your research for the “real world.” Should we be giving elders parenting training? Should we have elders out there experimenting with drugs just so they’ll know what it’s all about (well, okay, maybe not)? Should we provide young males in female-headed households with “drug counselor” types – men nearer their own age who have more knowledge and experience with drug abuse? Go back to that problem and explain what your research suggests we should do about it.

2. **Future directions for research.** You answered some questions and filled some of the gaps in our knowledge. What questions should the next researcher address? Why? How should they go about it? Did you uncover any new questions or mysteries? What are they? How could other researchers attack those questions?

3. **Go ahead – get wild.** Up until now you have had to stick with published research findings and your data — no going out on a limb, no speculation, no dreaming about what this all possibly, just maybe could mean. This is where you get to do all that. No dream is too big for the conclusions chapter. You do not have to stick with carefully constructed, totally reasoning, well-founded in my findings ideas here. You can speculate. Go ahead – give us the really big picture. Hypothesize some more. Your research probably gave you some “inklings” of questions that should be asked, research that should be done. Maybe your results do not say enough for you to be willing to call it a “conclusion” or a “recommendation” or even a “next step in the research.” But you probably do have some idea now of a much bigger picture, maybe a whole radical new approach to tackling this problem, a very “wild” set of questions that should be asked.

Well, go ahead. Do it here. End with a bang, not a whimper.

Albert Einstein is one of my favorite role models. He had the audacity (as a 28-year old patent clerk who could not get a university job, no less) to propose that, contrary to common experience with everything else in the world, the speed of light is constant and that nothing ever, not ever, can exceed or even equal the speed of light. Hey – what a wild and crazy idea! Name one other thing in the whole universe, one thing that you have ever seen, that has a constant speed; one thing that you couldn't catch if you just go fast enough. Couldn't be right – crazy man. Well, of course, he was right and he (more or less) proved it. So fear not in the conclusions. Propose those ideas that seem “just maybe, just barely” possible.