Chapters 4 and 5

The Sequel and the Conclusion

By Dr. Marilyn K. Simon with input from
Drs. Jim Goes, Frank Morelli Carolyn Salerno, Kim Blum, and Rita Edwards – the best of the best!
Introduction

- Chapter 4 presents, in sufficient detail, the research findings and data analyses, and describes the systematic and careful application of the research methods.

- Chapter 5 discusses the findings and expounds on their importance, meaning, and significance.
Introduction

☐ All statements made in chapter 4 should be directly supported by the results of the data analysis. Do not *editorialize* here (i.e. present an opinion in the guise of objective reporting)

☐ Conclusions made in chapter 5 should relate directly to your study. Here is your chance to tell what you found, and “unravel” the power and importance of your research. *What does it all mean? What’s it all about, Alfie?*
Scholarly Writing

- The entire dissertation is written in scholarly language (accurate, balanced, objective, tentative).
- The writing is clear, precise, and avoids redundancy and hyperbole; In essence both over and under statement should be avoided.
- Statements are specific and topical sentences are established for paragraphs. The flow of words is smooth and comprehensible. Bridges are established between ideas.
Chapter 4 begins with an introductory paragraph stating, briefly, the problem under investigation, the purpose of the study, chapter, the purpose of the chapter (data analysis), and the organization of the chapter.

There is no single way to analyze data, therefore, the organization of Chapter 4 and analysis procedures will relate to the research design and research methods. However, there are general guidelines to follow, and components to include.

Each chapter is somewhat self sufficient.
Demographic Data - descriptive statistics – human participants

- A summary of the statistical characteristics of the human participants in the study broken down by age, sex, occupation, experience, or any other relevant information. It is important to know the scope of the study.

- Usually includes means, standard deviations, ranges, minimum and maximum values, etc.

- Charts and tables can be helpful for most designs, but not essential.
68/95/99.7 Rule

\[ \mu = 0.0 \]
\[ \sigma = 1.0 \]
Chapter 4 – QuaLitative Studies
≈ 20-40 pages

- Data could be organized around the unit of analysis, themes, constructs, patterns, models, meanings, systems, codes, and time frames.

- Organization begins with analysis (breaking down into component parts) by categorizing, coding, and then synthesizing (building back) relative constructs, then interpretation. Programs like NVivo help manage data!
QuaLitative Studies

- Data ARE usually collected through sustained contact with people in the settings where they normally spend their time.

- Participant observations and in-depth interviewing are the two most common ways to collect data.
QuaLititative Studies

- “The researcher enters the world of the people he or she plans to study, gets to know, be known, and trusted by them, and systematically keeps a detailed written record of what is heard and observed. This material is supplemented (triangulated) by other data such as [artifacts], observations, memos, records, newspaper articles, and photographs" (Bogdan & Biklen, 1992).

- Rather than test theories, qualitative researchers often inductively analyze their data and develop theories.
QuaLitative Studies

- Qualitative researchers use **rich-thick descriptions** when they write their research reports.

- Unlike quantitative research where the researcher wished to generalize his or her findings beyond the sample from whom the data was drawn, qualitative researcher provide **rich-thick descriptions** for their readers and let their readers determine if the situation described in the qualitative study applies to the reader's situation.
Qualitative Studies

- Qualitative researchers do not use the terms validity and reliability. Instead they are concerned about the **trustworthiness of their research**.

- Qualitative researchers continue to collect data until they reach a point of **data saturation**. Data saturation occurs when the researcher is no longer hearing or seeing new information. Unlike quantitative researchers who wait until the end of the study to analyze their data, qualitative researchers analyze their data throughout their study.
Sample Size: Qualitative Studies

- **Case Study:** Creswell (2002) recommends that 3-5 participants be used for case study research – Other data will be collected as well.

- **Phenomenological studies:** sample size recommendations range from 6 (Morse, 1994) to 10 (Creswell, 1998).

- **Grounded theory research:** sample size guidelines have ranged from 15-20 participants (Creswell, 2002) to 20-30 participants (Creswell, 1998).
Sample Size: Qualitative Studies

- Ethnographic: Morse (1994) has recommended that 30-50 interviews be conducted.
- Focus groups: 6-9 participants (Krueger, 2000); 6-10 participants (Langford, Schoenfeld, & Izzo, 2002; Morgan, 1997); 6-12 participants (Johnson & Christensen, 2004); 6-12 participants (Bernard, 1995); 8-12 participants (Baumgartner, Strong, & Hensley, 2002).
- Goldilocks affect: In general, as noted by Sandelowski (1995), sample sizes in qualitative research should not be too small that it is difficult to achieve data saturation, theoretical saturation, or informational redundancy. At the same time, the sample should not be too large that it is difficult to undertake a deep, case-oriented analysis.
Unit of Analysis

- The unit of analysis is the major entity that you are analyzing in your study. For instance, any of the following could be a unit of analysis in a study:
  - individuals or groups
  - artifacts (books, photos, newspapers)
  - geographical units (town, census tract, state)
  - social interactions (dyadic relations, divorces, arrests)
  - programs
Unit of Analysis

- *It is the analysis you do in your study that determines what the unit is.*

- E.g. if you are comparing the children in two classrooms on achievement test scores, the unit is the individual child because you have a score for each child.

- If you are comparing the two classes on classroom climate, your unit of analysis is the group, in this case the classroom, because you only have a classroom climate score for the class as a whole and not for each individual student.

- If you are studying a new program for ELL the program is the unit of analysis.

- For different analyses in the same study you may have different units of analysis. If you decide to base an analysis on employee satisfaction scores, the individual is the unit.

- If you decide to base an analysis on student scores, the individual is the unit.
Unit of Analysis

- You might decide to compare average classroom performance. In this case, since the data that goes into the analysis is the average itself (and not the individuals' scores) the unit of analysis is actually the group.
- Even though you had data at the student level, you might be using aggregates in the analysis.
- In many areas of social research these hierarchies of analysis units have become particularly important and have spawned a whole area of statistical analysis sometimes referred to as *hierarchical modeling*. This is true in education, for instance, where we often compare classroom performance but collected achievement data at the individual student level.
The Qualitative Paradigm

☐ Qualitative researchers use **rich-thick descriptions**

☐ Unlike quantitative research where the researcher wished to generalize his or her findings beyond the sample from whom the data were drawn, qualitative researcher provide rich-thick descriptions for their readers and lets them determine if the situation described in the qualitative study applies to the reader's situation.

☐ Qualitative researchers do not use the terms validity and reliability. Instead they are concerned about the **trustworthiness** of their research.
QuaLitative Analysis

- Bogdan and Biklen (1982) define qualitative data analysis as "working with data, organizing it, breaking it into manageable units, synthesizing it, searching for patterns, discovering what is important and what is to be learned, and deciding what you will tell others" (1982, p. 145).

- Qualitative researchers tend to use inductive analysis of data, meaning that the critical themes emerge out of the data (Patton, 1990). Qualitative analysis requires some creativity, for the challenge is to place the raw data into logical, meaningful categories; to examine them in a holistic fashion; and to find a way to communicate this interpretation to others.
Chapter 4 – Qualitative Studies

- The data which were painfully collected, should "be the star" or the main focus in all its richness, breadth, and depth. However, too many quotations can kill a study.
- The "quality" in a qualitative research project is based upon how well you have collected quality data, and how well you discern it.
- Make every effort to feature the data in your presentations.
- Consult the “gurus” for the type of research you chose: Yin, Merriam, Stake, Glaser, Straus, Moustakas, Cooperrider (AI), Geertz.
Qualitative Studies

<table>
<thead>
<tr>
<th>The process by which data were generated, gathered, and recorded is clearly described.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The systems used for keeping track of data and emerging understandings (research logs, reflective journals, cataloging systems) are clearly described.</td>
</tr>
<tr>
<td>The findings</td>
</tr>
<tr>
<td>a. build logically from the problem and the research design, and</td>
</tr>
<tr>
<td>b. are presented in a manner that addresses the research questions.</td>
</tr>
<tr>
<td>Discrepant cases and nonconfirming data are included in the findings.</td>
</tr>
<tr>
<td>Patterns, relationships, and themes described as findings are supported by the data. All salient data are accounted for in the findings.</td>
</tr>
<tr>
<td>A discussion on Evidence of Quality shows how this study, followed procedures to assure accuracy of the data (e.g., trustworthiness, member checks, triangulation, etc.). Appropriate evidence occurs in the appendices (sample transcripts, researcher logs, field notes, etc.) (May appear in chapter 5)</td>
</tr>
</tbody>
</table>
Qualitative Analysis

- **Data Reduction** is essential. Some techniques include:
  - Quantitative techniques like structuring your data into central tendencies and ranges, or frequency guided shapes.
  - Limiting the number of examples you present per category.
  - Employ "summarizing talk" in which you talk about some of your data or above your data instead of presenting all the data in the juxtaposing style described below.
QuaLititative Analysis Approach

- **Thematic model approach**: major themes that emerge from the data are discussed.
  - Data related to the already classified patterns are presented.
  - Related patterns are combined and catalogued into sub-themes.
  - New themes that emerge from the participants' stories are pieced together to form a comprehensive picture of their collective experience.
Qualitative Analysis Approach

- **Descriptive Narrative model**, presents a detailed description of events, people, phenomena, and/or places related to the study.

- A way of organizing episodes, actions, and accounts of actions. It brings together mundane facts and fantastic creations; time and place are incorporated.

- Allows for the inclusion of actors’ reasons for their acts, as well as the causes of happening" (Sarbin, 1986, p. 9).

- In phenomenology this could be *diachronic* (deals with the phenomenon as it changes over time).
QuaLitative Analysis Approach

A theoretical model, when the study is grounded in theory, or is evaluative case study oriented. Sometimes a model, even a preliminary one, could help your work decisively, on the condition that you can handle it with a suitable method of analysis.

http://www2.uiah.fi/projects/metodi/170.htm
Chapter 4 – Qualitative Studies

- Data in qualitative designs should be narrated in tables and figures with an Appendix created for large tables or raw data.
- Counts and modes should be included in Chapter 4 for each pattern found.
- Quotes from participants or sources to back up the patterns should be included as key points (i.e. vital and crucial element).
Chapter 4 – ✓Qualitative Studies

✓ The process by which the data were generated, gathered, reduced, and recorded is clearly described.

✓ The systems used for keeping track of data and emerging understandings (research logs, reflective journals, cataloging systems) are clearly described.

✓ The findings build logically from the problem and the research design, and are presented in a manner that addresses the research questions. ✓Discrepant cases and nonconfirming (contradicting) data are included in the findings.

✓ Patterns, relationships, and themes described as findings are supported by the data. All salient data are accounted for in the findings.
Chapter 4 ✓ Qualitative

- ✓ A discussion on Evidence of Quality shows how this study, followed procedures to assure accuracy of the data (e.g., trustworthiness, member checks, triangulation, etc.). Appropriate evidence occurs in the appendixes (sample transcripts, researcher logs, field notes, etc.)

- ✓ an account of the number of documents, interviews, and sources analyzed, and explain the parameters, and the units of measurement.

- ✓ The review continues until theoretical saturation is achieved, that is, when no new themes or issues arise regarding a category of data and when the categories are well established and validated.

Some of this may also appear in chapter 5 to support conclusions.
Chapter 4 QuaNtitative

- Begin with an introductory paragraph stating the problem addressed, the purpose of the study, the purpose of the chapter, and the organization of the chapter.

- Discuss the data collection procedures can include (a) the preparation of getting access into the organization, (b) the invitation to the participants to volunteer, (c) the development of the intervention, (d) the surveys, and (e) how and what archival data were obtained through data bases.
Quantitative Designs/Tools

- **Experimental Study**: Discuss Control/Experimental Group differences, and the treatment.
- **Correlational Study**: Discuss how variables were measured/compared.
- **Tools** -- SPSS provides a broad range of capabilities for the entire analytical process
  - generates decision-making information, helps you understand and effectively present your results with high-quality tabular and graphical output, and share your results with others using a variety of reporting methods.
Chapter 4 QuaNtitative

- Discuss the pilot procedures, the process of gathering the data i.e. how data were collected -- electronic survey, a conference, f2f, postal mail.

- Discuss the missing data that might be a result of a lower than expected number of participants, incomplete surveys, or incomplete information,

- Review the data analysis procedures and tools. Present the results of data collection around the research questions and hypotheses.
Chapter 4 – Quantitative Studies

- ✓ Structured around answering research questions and testing the hypotheses.
- ✓ Research tools – Assurance that data collection instruments and procedures were used correctly.
- ✓ Explain the assumptions to use a test and how they were met.
- ✓ For inferential statistics, report the test value and p-value.
# P-Values

<table>
<thead>
<tr>
<th>P-value</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>$P &lt; 0.01$</td>
<td>very strong evidence against H0</td>
</tr>
<tr>
<td>$P &lt; 0.05$</td>
<td>moderate evidence against H0</td>
</tr>
<tr>
<td>$P &lt; 0.10$</td>
<td>suggestive evidence against H0</td>
</tr>
<tr>
<td>$P &gt; 0.10$</td>
<td>little or no real evidence against H0</td>
</tr>
</tbody>
</table>
Chapter 4 – Quantitative Studies

☐ ✓ Measures obtained for each variable are reported clearly, following standard procedures.

☐ ✓ Adjustments or revisions to the use of standardized research instruments are justified, and any effects on the interpretation of findings are clearly described.

☐ Data analysis (presentation, interpretation, explanation) is consistent with the research questions or hypotheses, and underlying theoretical and conceptual framework of the study.
Chapter 4 Quantitative

☑️ Data analyses: logically and sequentially addresses all research questions or hypotheses.

☑️ Where appropriate, outcomes of hypothesis-testing procedures are clearly reported (e.g., findings support or fail to support....) and,

☑️ Does not contain any evident statistical errors.
Chapter 4 Quantitative

- ✓ Tables and Figures are as self-descriptive as possible, informative, and conform to standard dissertation format,
- ✓ are directly related to and referred to within the narrative text included in the chapter,
- ✓ have immediately adjacent comments,
- ✓ are properly identified (titled or captioned),

- show copyright permission if not in the public domain. ✓
Table 7
*Company A: Training Conditions and Self-Efficacy*

<table>
<thead>
<tr>
<th>Training condition</th>
<th>n</th>
<th>Mean change in self-efficacy</th>
<th>Confidence interval 95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal training</td>
<td>8</td>
<td>1.13</td>
<td>-1.82 / 4.07</td>
</tr>
<tr>
<td>Team learning training</td>
<td>8</td>
<td>1.75</td>
<td>1.53 / 5.03</td>
</tr>
<tr>
<td>No-training control</td>
<td>8</td>
<td>-2.75</td>
<td>-6.40 / 0.90</td>
</tr>
</tbody>
</table>

Note. Reprinted with permission of the author.
Table 8
HCMAQ Item 9: Only Physicians Can Correctly Determine the Cause of a Medical Error

<table>
<thead>
<tr>
<th></th>
<th>Pretest</th>
<th></th>
<th>Posttest</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>9</td>
<td>50</td>
<td>13</td>
<td>72.2</td>
</tr>
<tr>
<td>Disagree</td>
<td>7</td>
<td>38.9</td>
<td>5</td>
<td>27.8</td>
</tr>
<tr>
<td>Neutral</td>
<td>1</td>
<td>5.6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Agree</td>
<td>1</td>
<td>5.6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Chapter 4 Quantitative

- Validity and Reliability are discussed in chapter 3 and if any issues remain, discussed in chapter 4.

Chapter 4 Summary

- In the concluding section of Chapter 4, outcomes are logically and systematically summarized and interpreted in relation to their importance to the research questions and/or hypotheses.

- The comments on findings address observed consistencies and inconsistencies and discuss possible alternate interpretations.

- The analyses are reported in lay terms.
Gray Area

- Often times when conducting research there are gray areas that do not fit well into categories or fit into a neat pattern.
- In Quantitative studies these are outliers that will distort the data.
- It is your responsibility to let readers know how such instances were treated and why they were treated that way.
Make sure...

- All literature and theories presented in Chapter 4 are analyzed in Chapter 2. New patterns or results not in literature are very clearly highlighted in a separate section; this is the meat of the dissertation, the findings that are significant. Summary section summarizing what was presented (highlights of findings) and lead into Chapter 5.
Some References

Chapter 5
YOUR VOICE

- Title: (a) Conclusions and Recommendations
- or (b) Conclusions, Implications, and Recommendations.
Chapter 5

- Chapter 5 can be organized into four discussion sections, depending on the research design: (a) the research study questions and the hypotheses, (b) the conclusions, (c) the implications of the findings, and (d) the future recommendations. Reflecting on each analysis and result concluded in chapter 4.

- A strong take home message is needed.
Chapter 5

10 – 25 pages

- Begin with a brief Overview of why and how the study was done, reviewing the questions or issues being addressed, and a brief summary of the findings.

- The Interpretation of Findings
  - includes conclusions that address all of the research questions,
  - contains references to outcomes in chapter 4,
  - covers all the data,
  - is bounded by the evidence collected, and
  - relates the findings to a larger body of literature on the topic, including the conceptual/theoretical framework.
Introductory Paragraph

- Begin with a paragraph that summarizes:
  (a) research problem, (b) purpose of research,
  (c) research methods, (d) limitations of the study (bring the limitations presented in Chapter 1 to Chapter 5), and (e) the organization of Chapter 5.

- **APA note:** *This introductory paragraph does not require a separate heading*
The Interpretation of Findings

- √ includes conclusions that address all of the research questions,
- √ contains references to outcomes in chapter 4, covers all the data,
- √ is bounded by the evidence collected, and
- √ relates the findings to a larger body of literature on the topic, including the conceptual/theoretical framework
- √ Confirming and Contradicting data are thoroughly discussed.
Interpretation of Data

- Interpretations and discussions highlight the importance, significance, and meaning of the inquiry to various constituents such as managers, leaders, employers, employees, researchers, professional organizations, communities, government agencies, business leaders, communities, and others.

- The broader social significance of the research should be addressed.
Quantitative Studies

- Data analyses: logically and sequentially address all research questions or hypotheses, and where appropriate, outcomes of hypothesis-testing procedures are clearly reported (e.g., findings support or fail to support....) and, do not contain any evident statistical errors. Predictions made to a population.

- If a clear picture did not emerge,. Could the results indicate that the item was possibly poorly phrased or conceived? Did the limitations of the study impact the findings?
Quantitative Studies

□ Tables and Figures

- are as self-descriptive as possible, informative, and conform to standard dissertation format,
- are directly related to and referred to within the narrative text included in the chapter, have immediately adjacent comments, are properly identified (titled or captioned), and copyright permission is shown, if not in the public domain.
Quantitative Studies

- The comments on findings address observed consistencies and inconsistencies and discuss possible alternate interpretations.
- Outcomes are logically and systematically summarized and interpreted in relation to their importance to the research questions and hypotheses.
Chapter 5 - Recommendations for Action

- Should flow logically from the conclusions and contain steps to useful action that “could” be taken.
- State who needs to pay attention to the results, and indicate how the results might be disseminated.
- Ground each recommendation to the study’s central problem, data collected, and specific findings.
- Recommendations for Further Study point to topics that need closer examination and may generate a new round of questions.
- Recommendations can and should be made for practitioners/managers or executives, and for policy makers.

Organization is the KEY!
Chapter 5 - Qualitative

- Include a reflection on the researcher's experience with the research process in which the researcher discusses possible personal biases or preconceived ideas, values and experiences; the possible effects of the researcher on the participants or the situation, and her or his changes in thinking as a result of the study.

- Where were the “surprises?” What does this tell you about the assumptions, limitations, conceptual or theoretical framework?

- If you were surprised about finding X explain why. E.g. regulation NMO would indicate a contrary finding, therefore....
Contribution to Leadership

- President John F Kennedy once said, "Courage - not complacency - is our need today. Leadership - not salesmanship. And the only valid test of leadership is the ability to lead. Our ends will not be won by rhetoric. We can have faith in the future only if we have faith in ourselves."

- The lessons about what makes a difference to leaders: What really works? What does not work must be explicit, genuine, authentic, real, and responsibly presented in your study.
Contribution to Leadership

- Basic ideas of leadership are about power and its use, about control of resources, and how they are disposed, initiatives in social interpretation, sense-making and shaping of meaning and the place of individuals in the context of social control options like the law.

- What can your study contribute to Leadership? Provide evidence by citing your study.
So What?

Here is Edward Bear, coming downstairs now, bump, bump, bump, on the back of his head, behind Christopher Robin. It is, as far as he knows, the only way of coming downstairs, but sometimes he feels that there really is another way . . . if only he could stop bumping for a moment and think of it! Winnie-the-Pooh A. A. Milne
So What?

- Like Edward Bear, there are several other questions which need to be asked, and topics which need to be further pursued, after reading your dissertation, once leaders stop bumping their heads for a moment and think of them. What are they?
- What can your study do to help Leaders stop coming down the stairs backwards and bumping their heads?
References


References

References


Go Forth and

DISSEETATE!