

How to Write Chapter Five, Discussion

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Say not, "I have found the truth," but rather, "I have found a truth."

—Kahlil Gibran

If you have completed Chapter Four and are ready to write Chapter Five, this means that you have finished reporting all your results and findings—fantastic! Conducting research and writing the master's thesis has been like running a marathon. You now realize how much work is involved in conducting research and how tedious it can be at times. In addition, you have learned about the ethics involved throughout the research process. Chapter Five is the last chapter of the thesis. Like the last 6.2 miles of a marathon, it may be the most difficult chapter to write. Chapter Five requires you to think differently about your study than in previous chapters. You are called on to use all of your research skills, and in addition, you need to use the skills of reflection and interpretation. Sometimes readers will read Chapter One and then skip to Chapter Five for a quick check on the conclusions. Thus, you will need to demonstrate what you have learned as a researcher as well as what you learned in your research.

This chapter will focus on how to write the Discussion chapter of the thesis. Chapter Five is a vital component of the master's thesis. This is where you will make the final interpretation of the results that were reported in the previous chapter. However, this is more complex than writing a summary. This chapter needs to be written so that the results are interpreted in a meaningful way, and the implications are made clear to the reader. As you prepare to write Chapter Five, ask yourself, "So what? What do these findings really mean, and how do they help me understand the research problem?" Remember that in conducting your research, the end goal was not to collect data and report the results. Rather, the goal was to identify a research problem (reflecting personal and professional interests) and explore solutions and in the process to increase understanding of a particular phenomenon. Keep in mind that your readers share your interest in the research questions.

Preparation and Organization

There are several tasks that need to be completed before you begin to write. First, make sure that all the results have been edited and clearly reported in Chapter Four. This will make the writing process go much faster since you will be following the organizational structure of Chapter Four. Once all

the results are in final form, make an appointment with your chairperson. Although you have already discussed the findings, you will need another meeting to help you with the interpretation and conclusions of the findings. Aside from yourself (and some unsuspecting friend or partner), your chairperson is the person most familiar with your research study. With this knowledge, she will be able to ask you guiding questions to "draw out" the interpretations and conclusions related to the results. Think of it as a friendly Vulcan "mind-meld." However, before meeting with your chairperson, review Chapter Four and frame in your mind what you believe to be the key findings.

Chapter Five Sections

Once you have met with your chairperson and discussed the final interpretations, you can start to write Chapter Five. Chapter Five starts on a new page in the thesis. Chapter Five is divided into five main sections: (a) *Introduction*, (b) *Discussion*, (c) *Limitations*, (d) *Recommendations for Future Research*, and (e) *Conclusions*. Check with your chairperson before you start writing for how he wants you to organize the sections in Chapter Five. If you remember the research synthesis structure from the literature review, the sections in Chapter Five are very similar to the discussion section of a research article. Although they are written and discussed separately, the sections may be intertwined. Collectively, they form the discussion of the study. If writing a master's thesis is like telling the "story" of your research study, this is the resolution or conclusion of the story. As most narrative stories go, there are usually "lessons learned" embedded in the conclusions. To guide you in writing Chapter Five, I will first discuss how to write each section in general. Then I will provide examples of written work adapted from former students' completed master's theses.

Introduction

Like every chapter of the thesis, this one begins with an introduction (this section usually does not have a level heading). In the *Introduction*, remember to use purposeful redundancy to connect this chapter seamlessly to the previous ones. The *Introduction* should include a broad statement of the general problem. This is similar to a recap of the issues raised in Chapter One of the thesis. Then include a reminder of the purpose and design of the study. The *Introduction* should be concise and can be short.

Here is an example *Introduction* section adapted from a former student's master's thesis (Gomes, 2008):

Students with Asperger Syndrome (AS) typically have challenges that primarily affect reading comprehension. Children with AS tend to exhibit high vocabulary and decoding skills but have low reading comprehension (Gillberg, 1991). This challenge, coupled with an increased emphasis on standardized testing, has put pressure on educators to identify strategies to aid in the development of reading comprehension for students with AS.

Various studies have sought to identify the causes behind this reading comprehension deficit. One theory is that children with AS have difficulty creating gestalt imagery when they are reading (Bell, 1991). Research has also shown that a correlation may exist between reading comprehension and one's motivation to read. Since children with AS tend to have circumscribed interests surrounding one or two topics, they are less likely to be motivated to read outside of their limited interests. This could also possibly contribute to their lower reading comprehension skills.

The purpose of this quantitative study was to increase the reading comprehension of students with AS by using graphic novels that incorporates both words and images. The researcher also sought to determine whether the students' motivation to read was influenced by reading the graphic novels.

Discussion

The second section in Chapter Five is the *Discussion* (this section usually does not have a level heading). One way to organize this section is to use the three parallel ladders strategy. Write the discussion of the results or findings in the *same* order they were reported in Chapter Four. For example, if you reported quantitative data for various measurement instruments in Chapter Four, then the discussion for each measurement instrument would be written as a subsection in Chapter Five (see Figure 9.1 for the three parallel ladders strategy for Chapters Four and Five). Similarly, if you reported qualitative data by major themes or patterns, then the discussion for each major theme or pattern would be a subsection in Chapter Five. Finally, if you reported qualitative data by research questions, then the discussion for each research question would be a subsection in Chapter Five.

In the discussion for each subsection, include a summary of the major findings and a brief interpretation of the findings. This section is usually difficult for students because for the last four chapters, you were asked to minimize your personal interpretations of the findings. I usually receive first drafts of this section that look exactly like what was reported in Chapter Four because students do not feel like they have anything "new" to add or permission to discuss their interpretation of the results. Remember, you have already reported the results in Chapter Four, so you do not need to repeat that information here. Instead, report a summary or synthesis of the

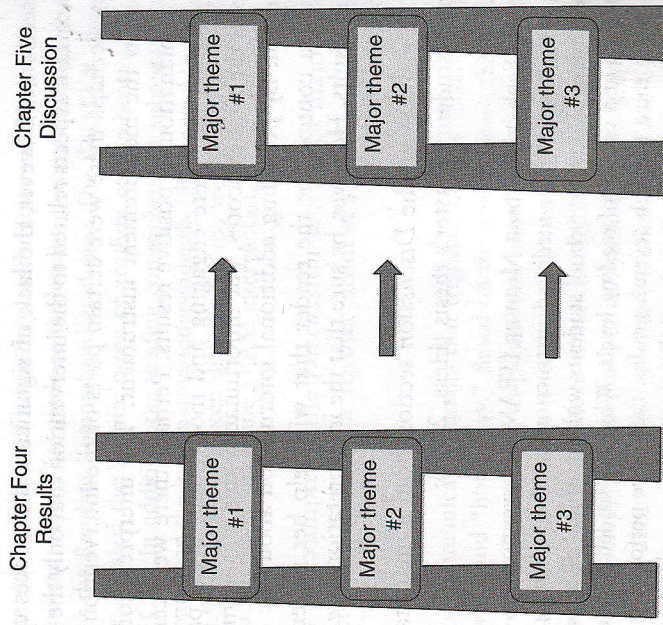


Figure 9.1. The three parallel ladders strategy for Chapters Four and Five.

major results. The summary should help to answer the research questions. If appropriate, you can include the research questions here as a reminder for yourself and the reader.

After the summary of the major results, provide a brief interpretation of the results. For this process, ask yourself, "What factors from the study could have contributed or influenced these results?" This is where the "interpretation" part comes in except that the "interpretation" is not based on pure conjecture. Instead, it is based on your knowledge of what occurred during the research study. As the primary researcher, you have more information about the study than anyone else because you have spent a considerable amount of time and energy at the research site interacting with or observing the participants. Therefore, your interpretations should help to explain, increase understanding, or add a different perspective to the results. However, since they are still considered personal interpretations of the results, be careful not to use strong or definitive language such as "A was a direct cause of B"; instead, use softer forms such as "A may have been related to B" or "A could have been a result of B." In addition, provide "evidence" from the study to support your interpretation of the results.

For example, in a study with a quantitative math intervention, the results indicated that there was no significant difference between the pretest and posttest mean scores (this would be a major result to include in the

discussion section). However, the lack of significant differences could have been due to certain aspects related to the intervention that only the researcher knew about. Perhaps there were certain parts of the intervention that were not sensitive to the measurement instrument. The interpretation can also provide an explanation of positive results. Perhaps there were certain parts of the intervention that were engaging and motivating to the participants that increased their math scores, but unfortunately this was a small part of the intervention. By providing additional information about the study, you are providing a context for the reader that will help her understand and interpret the results. However, be sure that the interpretations are supported by data from the study.

Here is an example of the *Discussion* section from a quantitative study from a former student's master's thesis (Hess, 2008):

The Teaching Each other About Meaning (TEAM) intervention was designed to assess the effects of peer-mediated instruction on the inferential reading comprehension of elementary school students with emotional disturbance who are performing at a variety of reading levels. While the students were chronologically in the third through seventh grades, they were performing approximately at the first- and second-grade reading levels. After working together in their peer-mediated-instruction teams, students demonstrated some improvements in the areas of Basic Skills (decoding) and Reading Comprehension skills on the Woodcock Reading Mastery Tests-Revised (WRMT-R).

Mean gains in grade equivalency and percentile rank were statistically significant from pretest to posttest. The mean gain in standard scores was not statistically significant. Through the TEAM intervention, students were exposed to interesting and varied grade-level passages, articles, and stories that were read aloud by the researcher. Students then had to refer back to the text to extract information for the various skills taught to them during Collaborative Strategic Reading (CSR). Documenting this information on the CSR learning logs may have helped them to learn and remember new words. However, as the intervention took about three months to complete (and was not focused on decoding), it is difficult to determine whether the gain on the Basic Skills subtest was due to the intervention or to the increased language arts instruction that was conducted over the intervention period.

On the Reading Comprehension subtest, four of seven students made gains in grade equivalency, percentile rank, and standard scores for reading comprehension. This may have been related to the CSR tasks. The Preview task not only helped the students generate interest in the text but also allowed them to connect to their previous knowledge about the subject matter. The Click and Clunk task helped the students break down and interpret the meaning of unfamiliar words they encountered. The Get the Gist task helped the students

determine the main idea of what they read. However, there were no statistically significant results for grade equivalencies, percentile ranks, and standard scores for the Reading Comprehension cluster. The WRMT-R questions may not have assessed the specific types of reading comprehension skills taught through CSR. In addition, the reading comprehension subtests required that the students read the information independently (as opposed to having it read to them). They may have been difficult for the students since the items were read aloud to them during the TEAM intervention.

Here is an example of the *Discussion* section of major themes from a qualitative study from a former student's master's thesis (Kendall, 2006):

The major communicative factors that triggered negative behaviors were peer "put downs" and "horse play." Based on the observations, the "put downs" and "horse play" started off as playful and friendly. However, they may have been the antecedent behavior to verbal and physical altercations between students. For example, two African American male students, both in the ninth grade, were observed using verbal put downs and laughing until one student said something about the other student's mother. That was when one of the students stood up and began posturing at the other, threatening the student with bodily harm. In another instance, two African American male students, one in the ninth grade and the other in the 11th, were observed "horse playing." Another student who was observing (a female African American student in the 12th grade) began laughing and said to the 11th grade student, "He just dipped you!" The 11th-grade student then began to get rough with the ninth-grade student, and as the situation escalated, the two students needed to be separated from each other.

The communicative factors that promoted positive behavior and effective communication were using clear language, helping students with their work, and one-on-one interaction. This could possibly be due to an increase in clarity of expectations. Clear communication and direct instruction may have been more successful in promoting positive behavior than ambiguous or negatively affective language because students were observed engaging in more positive behaviors during structured/supervised times. For example, the psychologist never reported having behavior problems when conducting assessments with students in a one-on-one situation. Furthermore, negative behaviors were not observed when the students were given clear instructions during the one-on-one interviews for the data collection of this study. Conversely, when the class was observed returning from lunch, only two out of five students were given an assignment. The three students who did not receive an assignment began to engage in verbal put downs, and the two students who did receive assignments stopped working after five minutes and began to observe the other three students.

Limitations

The third section is *Limitations* (this section typically has a level heading). In this section, you will discuss the limitations and weaknesses of the study. In Chapter One, there was a section on limitations; however, those were the limitations based on the design of the study. Now that you have completed the study, you are aware of additional limitations that occurred during the study. Remember that all research studies have limitations or weaknesses; as you become a more experienced researcher, you will find ways to reduce the limitations, but you can never get rid of them altogether. Thus, having limitations or weaknesses does not mean that you did a “bad job” on your study. This just means that in research you are rarely able to control all the variables or situations. What you are unable to control becomes the focus of your limitations. The best way to handle limitations and weaknesses in a study are to be honest and up-front about them. Concealing, falsely reporting or not reporting the limitations would be considered unethical.

There are several benefits to discussing the limitations of the study. First, you can learn from your mistakes. One way to prepare for this section is to ask, “If I had to do the study again, what would I do differently?” This could be a variety of things including changing the sampling plan, adapting the measurement instruments, using different materials, changing the timeline, taking more detailed notes, having more or fewer research sites, asking different questions, and so on. By reflecting on the things that you would do differently, this helps you grow as a researcher and ensures you will not make the same mistakes on your next study! This also helps you to become a “critical consumer” of the research literature as you begin to identify similar limitations/weaknesses in other studies.

Another benefit of the limitations section is that other researchers will learn from your mistakes. By sharing the “do’s and don’ts,” this will allow the next researcher to modify his study before it is conducted to correct for these limitations. For example, perhaps for a quantitative study, the next researcher should plan for a longer intervention period. Perhaps for a qualitative study, the next researcher should allow for more time and fewer interview questions to obtain more in-depth responses from the participants.

In addition, the limitations may also help to provide possible explanations for disappointing or unexpected results. For example, perhaps many students were unexpectedly absent or pulled out of class during an intervention, or there were substantial behavioral problems that interfered with the teaching. Perhaps there were an inordinate amount of weather-related issues that interfered with data collection (this has actually happened to me!). These would be limitations that could affect the study’s results. However, do not use the limitations section as a justification or excuse for

conducting unethical or low-quality research. There is no tolerance for “blaming” participants or “covering up” unwanted results.

Finally, when describing the limitations of the study, it is not sufficient to list them. The purpose of the limitations section is to allow the reader to make a judgment on how the limitations impacted the research. Thus, you need to explain what the limitation was and *why* it was a limitation. In other words, how did the limitations affect the validity of the results? Remember that there are many different kinds of validity; there is the validity or trustworthiness of the results for qualitative studies and internal validity (variables within the study) and external validity (applicability outside the study) for quantitative studies. Consider limitations as little caution signs for the reader when extrapolating from the results.

Here is an example from the *Limitations* section of a former student’s master’s thesis (Hess, 2008):

Although the TEAM intervention helped the students improve their inferential reading comprehension skills and their social skills, there were several limitations to the study. The first limitation was related to the sample and sample size. The sample size was very small—the self-contained classroom in the nonpublic school consisted of 10 students at the beginning of the intervention. During the study, three students were discharged from the school due to extreme behaviors. A second limitation was that the students were generally placed at this school because they were unsuccessful in public school. The students were all diagnosed with emotional disturbance (ED), but some had dual diagnoses of learning disability or mild mental retardation, while others had minimal issues with learning. Therefore, both of these limitations have an impact on external validity and make the results difficult to generalize to other students with disabilities in special education settings.

Other limitations were related to the implementation of the intervention. First, there were problems with the scheduling. There were typically only two sessions per week; therefore, there was a lot of time between lessons, and the students may not have been able to retain information during the gaps in lessons. Furthermore some of the students with ED displayed extreme behaviors such as disruptions, tantrums, and crises during several of the lessons, which caused some students to be removed from the classroom by staff escort. This also meant less staff was present in the classroom to monitor and assist the peer tutoring teams. In addition, due to behavioral issues such as extreme tantrums, pullouts due to therapy sessions, or classroom disruptions, the researcher was not able to maintain the same student teams throughout the program. Therefore, partners were reassigned on a regular basis. The above limitations affect the internal validity of the results—with a greater number of sessions in a more condensed time frame, consistency of partners within a team, and the appropriate number of staff present, the results may have more accurately reflected the impact of the intervention.

Recommendations for Future Research

The fourth section is the *Recommendations for Future Research* (this section typically has a level heading). There are several methods that you can use to write this section. First, you can tie the recommendations for future research to the issues that were identified in the limitations section. In other words, which procedures should be changed by the next researcher? With this method, the recommendations are based on the weaknesses from your study. For example, perhaps you would recommend adding another measurement instrument such as an observation protocol for data triangulation. This will help the next researcher modify her study to strengthen it. Another method to consider is to suggest recommendations on how your study could be continued or expanded. In other words, what are the next steps to extend the findings that were produced in the study? This will help the next researcher identify gaps that still exist in the literature. For example, perhaps you would recommend implementing the intervention with a different sample group such as adults or a more diverse sample. By including these two types of recommendations, you are making a major contribution to your field in terms of moving the research base forward and launching the next line of studies.

Here is an example of *Recommendations for Future Research* section from a former student's master's thesis (Rau, 2006):

Based on the results of the study, there are several recommendations for future research. First, some of the limitations outlined in this study may be minimized or eliminated in a revised implementation of the Student Choice treatment. To improve or verify the accuracy of the data collection, interrater reliability could be used to cross check the number of off-task behaviors exhibited and verify the portion of the instruction in which they occurred. Second, to identify which of the components of the Student Choice treatment had the largest impact on the decrease or increase of off-task behaviors, each of the components could be introduced separately. In addition, to determine whether the number of exhibited off-task behaviors remains consistent for longer than three weeks, the treatment phase should be extended. Third, this study did not measure student satisfaction and perceptions toward the increase in choices and decision-making opportunities. Future studies should employ a student survey or interviewing procedure to measure student perceptions toward the Student Choice treatment. Finally, this study only measured the impact of the Student Choice treatment on the off-task behavior of students with learning disabilities. Future studies could implement the treatment and measure the impact on students with other disabilities such as emotional/behavioral disorders or attention deficit disorders.

Conclusion

The last section of the chapter is the *Conclusion* (this section typically has a level heading). In this section, you will identify at least three critical conclusions based on the results of the study. One way to think about this is to ask, "What are the three main lessons learned from the study?" Your conclusions are like a synthesis of the major findings. For example, perhaps one of the major conclusions from a survey study on marital satisfaction was that the participants' level of marital happiness was related more to time spent with his spouse than the spouse's level of income. The conclusions may also include unintended but significant discoveries that were made as a result of the study. However, base the conclusions on the findings of the study, and avoid overstating or overgeneralizing the findings (i.e., do not claim that you discovered the fountain of youth). If appropriate, you may also reference previous research that either substantiates or contradicts your conclusions.

After you have identified each major conclusion, discuss the implications of the conclusion. The implications are recommendations for how to bridge the "research to practice" and can be in the form of actions, policies, or procedures. For example, one implication from the study above would be for individuals to set aside a period of "sacred" time during the week to spend with her spouse even if it means not bringing work home or refusing to work overtime. These implications are critical because the reader has some guidance for how to actualize and benefit from the conclusions.

Here are four different examples of *Conclusion* sections from various students' master's theses. For each example, there is an advance organizer, which states the major conclusions, and then a discussion around one of the conclusions with implications.

1. Three major conclusions can be made from this study [Gomes, 2008]. The first conclusion is that using the graphic novels may have improved the reading comprehension of some students with Asperger's (AS) because they provided the students with visual images. The second conclusion is that using graphic novels may not be effective for students who have very low levels of reading comprehension. The third conclusion is that the students' motivation and amount of time spent reading was increased after reading the graphic novels, possibly translating to increased reading comprehension.

The first conclusion is that reading graphic novels improved the reading comprehension of some students who had low reading comprehension and high decoding skills. Other studies have noted the correlation between reading comprehension and decoding, but have not yet identified the root cause of poor reading comprehension skills for students who have high decoding skills. In schools with students with AS and other autism spectrum disorders,

using graphic novels may help bridge the gap between high decoding and low reading comprehension, allowing these students to be successful in an academic environment. On a broader scale, similar results may be found for students exhibiting like characteristics in a general education setting.

If this gap exists because these students are not creating visual images when reading, graphic novels may provide students with the visualizations needed to comprehend the text. Though this may not be universally effective for all students with AS, using graphic novels in a Language Arts class could be a strategy that teachers can use to help some students with AS. Teachers may also want to consider incorporating visual images into other aspects of teaching outside of Language Arts. Using visual images to correspond with written directions may help with a student's comprehension of the directions. Additionally, visual images could be used to illustrate historical events or to explain a scientific process rather than just relying on text.

2. The results of this intervention led to four major conclusions [Irey, 2008]. The first conclusion is repeated reading was an effective strategy in terms of improving reading pace although not for decreasing errors for students with learning disabilities (LD) or who are English learners (EL). Error correction with corrective feedback was effective in decreasing errors although its effect on reading pace was minimal, and prosody instruction appears to have had a minimal effect on rate and a moderate effect on decreasing errors. The second conclusion is that the intervention was successful in increasing the student's reading comprehension. The third conclusion is that the students' prosody skill levels improved through fluency instruction. The fourth conclusion is that students' attitudes toward reading improved after the intervention.

Several fluency strategies were used in this study. Each appears to have strengths and weaknesses in terms of student achievement. Repeated readings were found to have a significant effect on reading rate but not for error correction. However, error correction and corrective feedback can be added to repeated readings to strengthen the intervention. The addition of prosodic instruction did not greatly affect reading rate, but it did serve to decrease the number of errors made.

Students will be well served by teachers who select the most appropriate strategy for the needs of each student. The time and effort required by implementing error correction and corrective feedback would not serve the needs of a student who makes minimal errors but needs to increase his rate of reading. Conversely, a student who reads at an appropriate pace but makes multiple errors would not benefit from an intervention of only repeated reading. By determining the appropriate strategy to address each individual's needs, educators will be able to provide all students the opportunity to reach his or her full academic potential.

3. Several conclusions can be made based on the results of this study [Hess, 2008]. One of the conclusions is that students with emotional disturbance (ED) benefit from direct instruction in social skills. Another conclusion is that

peer-mediated instruction is an engaging and effective method for delivering reading comprehension instruction. A third conclusion is that students with ED appeared to perform better in the program when staff was facilitating the team's activities.

The results of this study indicated that students with ED benefited from explicit instruction and modeling of social skills. When a new social skill was introduced through the TEAM intervention, the students listened to an explanation of the skill and how to use it, discussed the skill and how it was relevant to them, watched and participated in teacher modeling of examples (and non-examples) of the skill, practiced with a peer, and then implemented the skill in the program. Many programs designed to incorporate cooperative learning relating to reading skills do not have a sufficient emphasis on the social skills involved in working together as a team. As students with ED often have difficulty with peer interactions, they need explicit instruction in how to teach, learn from, and cooperate with their peers. The results of this study indicated that student behaviors did improve as a result of the TEAM intervention. Therefore, students with ED would benefit from direct instruction in social skills prior to (and during) peer-mediated instruction or cooperative grouping. Explicit social skills instruction in the classroom could help educators minimize disruptive behaviors and foster more positive communication between peers.

4. The present study illuminated some salient findings within the area of effective communication in classrooms serving students with emotional disturbance (ED) and learning disabilities (LD) [Kendall, 2006]. First, the power of verbal and nonverbal communication in a classroom setting to influence behavior either positively or negatively by specific means was revealed. The greater implication of this finding is that classrooms serving students with ED/LD often places the fault and blame of students' negative behaviors on the student rather than considering factors such as tone of voice, levels of ambiguity, body tension, and other forms of communicative intent of the educators. On the other hand, the root of all conflicts cannot rightfully be placed on the communication styles of the educator. A deeper awareness of the way educators come across within a cultural framework of the population they serve could only benefit in preventing the conflicts and misunderstandings between both educators and students that often invariably lead to negative behavior blowouts. Teachers and educators may consider getting additional training in cultural sensitivity to avoid these misunderstandings with the populations that they serve.

Second, it was revealed by the student and staff participants in the study that students with ED and LD wanted more individualized assistance with academic tasks, and furthermore, students' behavior was positively impacted by prolonged, individualized help. Currently, in high school special education classrooms for students with ED, teachers may often focus more on students' behavior than academics. This may not be that irrational being that recurring negative behavior can be a major impediment to student

learning. However, it could be argued that when students do not receive academic instruction at their instructional level combined with individualized help, this could be a causal factor for frustration, acting out, and incomplete assignments. The greater implication for this finding was that behavior needed to be analyzed on a deeper level than prevalence. Understanding the causal factors of negative behaviors may be a more effective tool for analysis than simply recording the occurrence of negative behaviors. Therefore, when students act inappropriately, teachers should be aware of the antecedent events and consider a causal framework for the negative behavior.

After you have completed the conclusion section, it is typical to have one last closing paragraph. You are probably thinking, "She's not seriously expecting me to write one more sentence! What more could I possibly say?" The closing paragraph is typically your final thoughts and reflection on the entire study. As these will be the last sentences in the thesis, they should leave a lasting and profound impression on the reader.

Summary

Chapter Five is perhaps the most significant chapter in the thesis because it provides interpretations and conclusions of the major findings from the study. Chapter Five may also be one of the most difficult chapters to write because it involves synthesizing the results to draw out the "lessons learned." In this chapter, you are also providing the implications or applications of the findings for the reader. In the next chapter, I will discuss the APA editorial style and other formatting issues to help you complete the master's thesis and get it ready for printing and binding. Here is a summary of the most critical points from Chapter 9:

- Chapter Five can be divided into five main sections: (a) *Introduction*, (b) *Discussion*, (c) *Limitations*, (d) *Recommendations for Future Research*, and (e) *Conclusions*.
- One way to organize the discussion section is to use the three parallel ladders strategy and write the discussion of the results in the same order they were reported in Chapter Four.
- The interpretations of the results should help to explain, increase understanding, or add a different perspective to the results.
- All research studies have limitations or weaknesses. As you become a more experienced researcher, you will find ways to reduce the limitations, but you can never get rid of them altogether.
- There are several benefits to discussing the limitations of the study: (a) learn from your mistakes, (b) help other researchers learn from your mistakes, and (c) provide possible explanations for disappointing or unexpected results.

- When describing the limitations of the study, explain what the limitation was and *why* it was a limitation.
- One method to write the recommendations for future research section is to connect the recommendations to the issues that were identified in the limitations section.
- Another method to write the recommendations for future research section is to offer suggestions on how your study could be continued or expanded.
- Base the conclusions on the findings in the study; avoid overstating or overgeneralizing the findings.
- The implications of the conclusions are recommendations for how to bridge the "research to practice" and can be in the form of actions, policies, or procedures.

Resources

Common Obstacles and Practical Solutions

1. A common obstacle that students face in writing Chapter Five is interpreting the findings. Words that come to mind are, "What does this really mean?" The best way to overcome this obstacle is to review your journal notes (I hope you kept those updated!). The notes will remind you of the procedures that were used during the study and perhaps shed light on situations or events that were irregular or unexpected. In addition, definitely meet with your chairperson. You have been so immersed in reporting the minute details that sometimes it is difficult to tie them back to the research questions and purpose of the study. Speaking with your chairperson or someone familiar with your study will help you make these connections.
2. Another common obstacle faced by students is finding the major conclusions from the study. Although you have reported a summary of the major findings and interpretations, sometimes the overall conclusions are not so obvious. Words that come to mind are, "What is the bigger lesson here?" One thing to always keep in mind is the original purpose of the study and the research questions—ultimately, did you find what you were looking for? The major conclusions could be related to one of the research questions or focus of the study. However, sometimes a major conclusion could be something that you found but were not looking for at all. These unanticipated conclusions are sometimes even more beneficial than confirming pre-set hypotheses because they expand your perspective and knowledge about the research topic beyond what was expected or indicated in the research literature.

Reflection/Discussion Questions

When you discuss your study's findings in Chapter Five, it is important to understand the differences in reporting results versus making interpretations about the results. The following reflection/discussion questions will help guide you through the discussion process.

1. What are different kinds of limitations and weaknesses that could exist in a study? Give examples of limitations that may have occurred in your study. Discuss how these limitations affect the internal/external validity or quality of the results.
2. What are the differences among making interpretations, conclusions, and implications about a study's findings? Give one example of each and discuss how they are interrelated.

Try It Exercises

The following exercises are designed to help you write Chapter Five. In Activity One, you will outline the first four major sections of Chapter Five and begin to flesh out the components. In Activity Two, you will write an outline of the conclusions section.

1. Activity One: For this activity, focus on the results or findings that were reported in Chapter Four.
 - Based on your research design, you will create an outline of three major sections in Chapter Five (e.g., discussion, limitations, and recommendations).
 - For each section, write at least three bullet points (they do not have to be complete sentences) of what you will include to answer these questions:
 - A. Summarize the major findings. What interpretations could be made around these findings?
 - B. What were some of the limitations? How do the limitations affect the internal/external validity or quality of the findings?
 - C. What recommendations do you have for future research?
 - Meet with your chairperson to discuss the bullet points before writing each section.
2. Activity Two: For this activity, focus on the synthesis of the major findings.
 - Write one conclusion (one paragraph) based on a synthesis of the major findings.
 - Write one implication of the conclusion (one paragraph).

- Meet with your chairperson to discuss the conclusion and implication before moving on to the next two conclusions.

Suggested Readings

- American Educational Research Association. (n.d.). *Standards for reporting empirical social science research in AERA publications*. Available online: http://www.sagepub.com/upm-data/13127_Standards_from_AERA.pdf
- Guttmacher Institute. (2006). *Interpreting research studies*. Available online: http://www.guttmacher.org/pubs/2006/07/27/IB_Interpreting.pdf
- Richardson, L., & Adams St. Pierre, E. (2005). Writing: A method of inquiry. In N. K. Denzin & Y. S. Lincoln (Eds.), *The SAGE handbook of qualitative research* (3rd ed., pp. 959–978). Thousand Oaks, CA: Sage.

Web Links

- Academic Grammar for Students of the Arts and Social Sciences <http://ec.hku.hk/acadgrammar/>
- Free Management Library: Analyzing, Interpreting and Reporting Basic Research Results <http://managementhelp.org/businessresearch/analysis.htm>