CTU Doctoral Research and Writing Guide

This guide provides expectations for developing your dissertation, including use of research methods and the writing of the dissertation proposal and final manuscript

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Introduction

A dissertation is a very formal, scholarly, exacting document. The level of written material presented in a dissertation manuscript is expected to represent the highest standards in the academic environment. At Colorado Technical University (CTU), we hold our students to the rigorous traditions that have been in existence for doctorate programs for many years.

This writing and format guide is to be used in preparing your dissertation proposal and final five-chapter manuscript. This guide also is the basis for evaluation of your work throughout the dissertation phase of the CTU program. However, it should also be noted that you are also held to the standards of the American Psychological Association (APA) Publication Manual, 6th edition. In preparing any document related to your research, you must adhere to the APA Publication Manual, the CTU Dissertation Template (and accompanying User Guide), and the CTU Doctoral Research and Writing Guide. The expectation is that all students will familiarize themselves with each of these documents and guides and will utilize them throughout the dissertation phase of the CTU doctoral program.

This guide provides a general discussion of the requirements for developing your research and writing your proposal and final manuscript. It should be clearly understood that you must adhere to the APA Publication Manual, the Dissertation Template, and this guide. The CTU Research and Writing Guide is provided to help you better prepare yourself for developing your dissertation.

Overview of CTU Doctoral Research and Writing

Before proceeding to details involving the process of writing the dissertation, we’ll review what research is and the importance of a doctoral dissertation. Research can be described as an inquiry performed in a systematic manner to understand the world around us. This inquiry at the doctoral level uses academically acceptable research methods or ways to perform research to fill a gap or specific area of the world that has to date not been filled. Research is an investigation that extends the knowledge known on a topic. In addition, the degree work requires evidence of research effort in the form of documentation that is evaluated by the university. A dissertation is the traditional method of providing this confirmation.

In a doctoral degree program, this inquiry is also used to confirm that the student can actually perform the steps necessary to produce research outcomes. The general outcomes you will accomplish and those that a doctoral committee uses as criteria for acceptance of your dissertation work are as follows:

- Demonstrate Show you can identify a gap in the literature and define a topic for study
- Articulate a rationale for studying the gap
- Develop research questions that are researchable
• Demonstrate an ability to review past research in the area of study and report on the relevant knowledge in the field
• Select an appropriate research approach and conduct the research
• Report the findings
• Interpret the results and recommend future research on the topic

The list above is by no means the details of the dissertation study, but a basis for evaluating the dissertation research of a student. Throughout your studies in the CTU doctoral program you will be taught what is required to meet these general outcomes to a research study.

CTU uses a traditional five-chapter dissertation (outlined in a later section) to report on these outcomes. There are some topics that may require an additional chapter, such as cases in Action Research or Design Science Research where you may be required to report on details related to a solution that your research will be using.

In general, the CTU doctoral program uses the APA Publication Manual’s recommendations and requirements with some minor modification. The following are specific changes that CTU has made in the normal APA style:

• A single space should be used between sentences in the text of the document
• Single-space a reference entry in the Reference section. All Reference entries are separated by a carriage return
• Rule lines are restricted in tables used in CTU dissertations
• No Running Head is used in the dissertation document
• Additional modifications may be found in the current CTU Dissertation Template

A final note related to writing your dissertation, as well as all other course work at CTU. The doctoral program requires the use of Microsoft Word. For compatibility of all drafts and the final document, this is the word processing software of choice. Any concerns with the use of Microsoft Word should be addressed to the Lead Faculty team. However, in general, there are no exception to using Microsoft Word.

**Writing and Style Requirements for CTU Dissertations**

The reminder of this guide will highlight the development of your research and the formatting of your written work.

**Research**

**Acceptable Methods:**

CTU has a broad acceptance of methods that are allowed in the research by the student. The following is the list of acceptable research methods:
• Quantitative, including experimental, quasi-experimental, and non-experimental
• Qualitative, including exploratory, case study, and phenomenology. CTU does not approve ethnographic or grounded theory studies (Due to the complexity of the method and length of time to complete)
• Action Research
• Design Science Research
• Mixed Method, with approval of the Lead Faculty team in advance of proposal review

Quantitative Method:

As a traditional research approach, generally, quantitative method has few restrictions in the approach taken. However, there are some important notes related to the method:

• Pre-existent survey instruments should be used wherever possible. These existing instruments should also include reference to validity and reliability testing that was done to the instrument. Generally, pre-existent survey instruments require permission to use in your study. You must obtain written permission from the author of the instrument
• Developing your own survey instrument is discouraged, as few students have not had exposure to a Tests and Measurements course, nor did they understand the psychometrics necessary to develop a valid survey instrument. If it becomes necessary to consider developing a survey instrument, permission must be obtained from the Lead Team prior to proposal submission and all Field Testing and Pilot Study activities must be followed. It is the student’s responsibility to understand the requirements of testing validity and reliability. Strict adherence to procedures for assuring the instrument is valid must be followed
• A survey instrument may not come from the Survey Monkey (or similar services) pool of survey questions. These are not validated survey tools for doctoral research
• All populations to be used in a study must be defined and approximate sizes need to be identified. All sample sizes must show appropriate calculations to provide evidence that the size is acceptable. Selection criteria for inclusion in the sample (drawn from the population) must be identified
• CTU does allow the use of secondary data. Secondary or preexistent data are sets of raw data that have been collected in the past, often by governmental of non-profit bodies, but can also be private datasets. Private datasets must have permission from the owner to use. CTU has prepared a complete guide on the use of secondary data (See Guide to Using Secondary Research in the doctoral library)

Qualitative Method:
Generally, there are few restrictions in using qualitative research. The three main qualitative methods that are usable at CTU are exploratory, case study, and phenomenology. Specific exceptions are noted below:

- Data collection must continue until saturation is achieved
- Interview questions to be used in the qualitative study need to be developed for inclusion in the proposal
- CTU prefers that all participants be interviewed face-to-face, but exceptions are made for virtual interviews using a teleconference software application, such as Skype. NO interviews are allowed to be conducted through a survey (essay format)
- Criteria selection of participants can use demographic questions

Action and Design Science Research:

Action and Design Science Research are additional research methods that can be used at CTU.

General guidance for use of human participants is as follows:

- All dissertations must include a section discussing ethical consideration of humans. Such studies must describe the efforts being made to protect human participants. The document must also address the three attributes of the Belmont Report
- All studies using humans must include the use of an informed consent form. All participants must agree to the informed consent prior to being surveyed or interviewed
- NO human participant can be surveyed or interviewed prior to IRB approval
- Students should be aware of the term protected class of human participants. Use of protected classes can delay the IRB approval process significantly. In addition, students should be aware that, in general, you may not use your own organization for research when using human participants. If you are faculty, you may not use your own students for your study.

**General Comments Concerning Written Work**

Before discussing the various matters of constructing your dissertation, it is important to understand the responsibility you have to provide quality work. First,
producing a dissertation centers on thorough and complete research. It could be said that
the doctoral researcher leaves no stone unturned in studying a topic of interest. Research
involves many hours of library searches and reviewing of perspective journal articles
while gathering literature relevant to your study. The dissertation process is about details,
including grammar, scholarly voice, flow of thought, and completeness of articulation of
your thoughts. Details include full disclosure and honesty in narrative discussion in
written work. A great deal of thought should go into every sentence, paragraph, and
chapter. Drafts of your work should be of the highest quality.

Among the many issues we see related to student work is the lack of commitment
to scholarly work. Scholarly work or voice can be explained as:

- A clear, concise, articulate discussion of your vision for the research
- No uncertainty exists in the accomplishment of your study
- You are consistent in describing your intended research throughout
- All statement of facts or assertions you make are substantiated from
  academically acceptable literature
- Discussions of topic material should provide variation in wording and the
  articulation of thoughts (You do not continually use the same phraseology
  over and over). Variation requires the use of a thesaurus to find synonyms
  that support your work
- The doctoral student should be aware that they are addressing a discourse
  community, defined as a group of mutual interest. The community
  involves others in scholarly pursuit of new knowledge. To influence
  opinion of the discourse community, you should be applying
  grammatically correct practices to your written work. The best method of
devolving scholarly voice that satisfies the discourse community would
be to read other doctoral dissertations in your field and, in particular, your
research focus area

As a part of producing scholarly work, the writer needs to proofread. Before you
submit your work for review, you should assure that you have given the document a
thorough reading for errors. Proofreading is the process of reviewing one’s work through
self-assessment. Here are several suggestions toward proofing a document:

- Separate your review from any other written work you are doing. Set aside
time to carefully and fully read your work without distraction
- Read the document out loud to yourself. Often you miss mistakes as you
  have read the same sentence or paragraph over and over. The error eludes
  you. By reading the document out loud, you may “hear” the mistake that
goes undetected during a visual read
- Make sure error correction functions of your word processor are turned on

Using the CTU Dissertation Template

The university has provided you with a dissertation template that must be used for
all dissertation writing in the program. This template should be used once you begin to
develop your proposal and would be used in completing the final chapters in the manuscript. A User Guide that provides a tutorial on using the template is also available for you. Both the Dissertation Template and User Guide can be found in the Virtual Campus Doctoral Portal in the library.

The template is a boilerplate document that has been setup with all required chapters and sections. This includes special cover pages and sections that precede the chapters. In general, each section provides helpful hints regarding what needs to be included within the section. There is also some embedded style sheet automation at work within the template. It is suggested that you do not change the section headings, as this would disrupt the automatic Table of Contents (TOC). You should refer to the User Guide for additional tutorial support.

Chapter Layout

The CTU doctoral program requires the use of the five-chapter dissertation. In some cases, a study method may require the addition of chapters. Any additional chapters are at the discretion of your research supervisor. The dissertation document process involves:

- Three chapter proposal (Chapters 1 through 3)
- Final five chapter manuscript (Proposal, plus chapters 4 and 5)

The general outline of the dissertation document is as follows:

- Cover, Committee, and Copyright pages
- Abstract
- Dedication and Acknowledgement pages
- Table of Contents, List of Tables, and List of Figures pages
- Chapter 1: Introduction to the study
- Chapter 2: Literature Review
- Chapter 3: Research Method
- Chapter 4: Report of Findings
- Chapter 5: Interpretation and Recommendations
- References
- Appendices

Normal Style – Narrative Text and Paragraphs

All paragraphs begin indented a half inch (first line). The paragraph itself is flush left margin. The Normal style in CTU template is set for double spacing, with the first line of the paragraph automatically indented. All text in the body of a paragraph should be left justified.

All sentences within the paragraph should be separated by a single space. No spaces should be added to the end of the paragraph. There should be a carriage return directly after the period of the last sentence in the paragraph.
The font for all text in the body of paragraphs should be Times New Roman, font size equal to 12 point. No font highlights should be used in the normal flow of the paragraph. The following special cases are allowed:

- Italics for emphasis (APA 4.21), statistical and mathematical symbols (APA 4.45), and titles of written works used in the body of the text (APA 6.15)
- Boldface for statistical and mathematical symbols (APA 4.45)
- Underlining is general not allowed in the body of a paragraph and should be avoided

You are required to use the CTU Dissertation Template heading sections that are embedded in the template. In particular, refrain from changing heading sections in Chapter 1, 3, 4, and 5. Chapter 2 is notably different, as the topic of the study dictates what headings and sections should exist in the Literature Review (Chapter 2). In general, you can add headings and sections with the approval of your research supervisor; however, a new heading or section should provide substantive, unique material that cannot be placed elsewhere.

The required length of each chapter and the sections in the chapters is generally described in the template; however, you need to provide enough detail in the chapters and sections that the reader can fully understand what you are doing, why you are doing it, how you will do it, and what the findings of the research were and how the data should be interpreted.

Reference Section

The reference section of the dissertation provides a standardized list of the external sources of peer-reviewed literature used throughout the body of the dissertation. As a rule of thumb, for every citation used in the paper, there must be a reference entry for that source in the Reference Section. For every reference entry, there must be a corresponding citation (in-text citation) somewhere in the body of the paper. You are not allowed to use any reference not used, that is cited, in the paper, even though you may have found the source during your research.

One of the key factors to remember when building the reference section is that the entry MUST be traceable. That is, anyone reading your dissertation MUST be able to find or retrieve the article, website, or find the book for purchase. In other words, the reference entry MUST be complete and can be found and accessed by anyone reading your dissertation. It is also important that the reference be retrievable at the time of publication. Journal articles, the key source of references, generally are available in perpetuity. In contrast, books can go out of print and website articles can be removed.

Typically, a minimum of 80 references is necessary for your research proposal to be approved. In addition, the sources of your references MUST come from acceptable scholarly journals or other research. Trade publications are not acceptable nor are magazine articles. It is also important to provide referenced articles and research that
have been produced in the past five (5) years. Although seminal research is also necessary to substantiate your research, you should attempt to keep as many articles (cited references) within the five-year window. You are allowed to use some references that extend past five years, but that should be the exception and would need to be approved by your research supervisor.

The Reference section should be placed after the final chapter of the document and before any appendices. The CTU Dissertation Template has already inserted this section in the appropriate place in the document. The normal format for the reference entries is as following:

- All entries should be alphabetized using the first letter(s) of the last name of the first author. If the article uses some other author naming convention, such as a corporate name, the first letter of the corporate name would be used
- Each entry is single spaced. There is a blank line between each reference entry.
- The basic structure of a reference entry is:

**Articles:**

Author Last name, Author initial of first name. (Year of publication). Title of article. *Journal Name, Volume #*(Issue #), page numbers, doi: (if available)

**Book:**

Author Last name, Author initial of first name. (Year of publication). *Title of article*. City of Publication, State/Country: Publisher Name

- The layout of the author names is simple for one or two authors, but becomes more complex with three or more authors
- Year of publication is required, although for some magazines or even journals, a month and day of publication may need to be included
- Use of italics: The title of the book is italicized. The journal name and volume number is italicized
- Page numbers are generally only necessary when you are using an article from a journal or an edited book
- The use of a doi (Digital Object Identifier) should be included whenever the publisher provides this identification scheme
- The city of publication, in the case of a book, has some specific exceptions, but generally, the city of publication comes first, followed by a comma and then the state of publication (if in the U.S.) or country (if outside the U.S.). Follow this with a colon and then the name of the publisher. Some city names can be used without State or Country name, if well-known (i.e. New York)
All entries are started flush left margin. The whole entry must use the Hanging Indent paragraph function in Word. The indent for each subsequent line of an entry should be .5 inch from the left margin.

There are numerous variations to entries in the reference section, based on where the reference came from. You need to become familiar with producing accurate and complete reference entries. The key source for this is Chapter 7, Reference Examples in the APA Publication Manual, 6th edition. It is required that the reference section be complete when submitted for proposal approval.

**Bulleted and Number Lists**

Lists provide a way of organizing information. A list simplifies reporting multiple pieces of information. The APA Publication Manual, 6th edition terms this “seriation”. The APA Manual section for seriation is 3.04. For the purpose of writing in scholarly voice, APA provides the following guidance:

1) Use a numbered list when the elements in the list have a specific order of precedence. An example of this would be a set of procedures that must be followed in order; Step 1, Step 2, Step 3, and so on
2) Use bulleted lists for all other elements, when the listing of the elements has no particular order that is required.

The main concern in using a list is that it be appropriate to the series of elements being reported, as noted above. In addition, the CTU Dissertation Template has a style already created for Bulleted Lists. When you intend to use a bulleted listing, please use the Bulleted List style in the template.

**Tables**

Tables are used to highlight important information visually. The same is true of figures. Do not just add tables or figures to take up space. Their use should be reserved for the most important data. According to APA, “Limit the content of your table to essential materials” (p.128). In addition, tables or figures are never used without narrative that describes the information. Any table or figure must be referred to in the text. You must number all tables and figures. Each table or figure is given a number in sequence. Do not restart numbering at the beginning of the next chapter. Numbering of tables and figures carries through from the beginning of the document to the end. The numbering is shown as:

Tables: Table 1, Table 2, Table 3, and so on

Figures: Figure 1, Figure 2, Figure 3, and so on

When referring to tables or figure, do not describe them as being “above” or “below”. You would only refer to these elements by their type and number. You cannot be sure where the tables or figures are actually going to finally be when the dissertation is typeset by the publisher.
Tables have specific rules for constructing them. The rules can be found in sections 5.07 (p. 128) to 5.19 (p. 150). Of importance when constructing tables:

- Generally, tables should not transverse pages. If possible, you should keep a table all together on one page. If the table is too long, it is probably expressing to much information in a single table and should be broken up into multiple tables. When a table were to start too close to the end of a page, insert a Page Break and start the table on the next page.
- When a table cannot be broken down into smaller tables, you can allow a table to transverse pages, but each continuation of the table on subsequent pages must include a repeat of the column headings, as shown at the beginning of the table.
- Rule lines are only used as follows:
  - One single rule line the default width across the top of the heading row and a single below the heading row
  - A single rule line of default width should be placed across of the bottom of the last row in the table
- The table number and caption of the table should be placed outside the table itself, situated just above the table with the line flush left margin
- In some cases, additional rule line can exist between sections of a table when the differentiation is required to understand the contents. However, do not include column rule lines or lines between rows of the actual data
- See the Table 1 example in the APA Publication Manual (p. 129) to see how tables should be constructed. There are other examples that follow the Table 1 example in the publication manual

Remember that a table “supplements - rather than duplicates - the text” (p. 130). It is best practice to refrain from using tables for simple reported data, such as the number of females or males in a study. The data can be shared in narrative form without needing a table or chart that does nothing to enhance or “supplement” the information.

**Figures**

Figures should follow the guidelines in the APA Publication Manual (6th edition). The section on figures begins in section 5.20 (p. 150) and continues to 5.30 (p.167). Also refer to the beginning of Chapter 5 of the APA Publication Manual for additional details about displaying information, whether table or figures.

The important point to be made here is that ALL figures, whether these be diagrams, drawings, charts, or other figure styles MUST have written permission from the author to use. This written permission must be by letter or Email (that can be supported by you to either your mentor or the university). Verbal permission is not sufficient. You must also use the appropriate caption information to credit the source of the figure. If written permission cannot be obtained, you will need to refrain from using the image. It is not acceptable to reproduce the elements of the diagram, etc. by producing your own image. This would still be considered unacceptable and is
considered plagiarism. If you have questions, you may reach out to the CTU librarian or the Lead Faculty.

Appendix

The appendix of a dissertation document provides supplemental information that a reader may need to know in understanding your research. The appendix may include:

- Supplemental materials of data. You should refrain from lengthy lists of raw data, considered to be inappropriate for use in the manuscript. APA states that appendices information should be “relatively brief” (p.39)
- Interview questions used in a qualitative study or a survey questionnaire in a quantitative study (if not copyrighted; however most are)
- Sets of procedures, a software listing, or other listings that provide detailed information that is not appropriate in the body of the dissertation document

You would not include:

- Informed Consent
- Resumes or CVs
- Letters of permission, etc.
- IRB applications
- Pre-approval documents
- Statements if originality, such as a TurnItIn report

The main concern here is that you do not include anything that contains personally identifiable information (PII). In addition, some documents contain irrelevant data. Remember, the dissertation document is going to be published and will remain in the public domain for years and years.

If adding one section, a single appendix item, the title heading of the section should be “APPENDIX” using the CTU Level 0 style. If you have more than one appendix section, Start the first as “APPENDIX A”, and then increment lettering as needed: APPENDIX A, APPENDIX B. APPENDIX C…and so on. Each new appendix section starts on a new page (Use Page Break at the end of the previous appendices).

All normal APA style formatting applies in the appendices. See the following APA Publication Manual sections for using appendices; however, the main section would be 2.13 (APA 2.06 & 2.13).

References:
