[This template is effective August 1, 2020]

**Ph.D. in Aviation Dissertation Title**

[The title does not exceed 12 words, takes bold title case, and identifies the topic, variables or theoretical issues, and their relationships.]

Student’s Full Name

Dissertation Submitted to the College of Aviation in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy in Aviation

Embry-Riddle Aeronautical University

Daytona Beach, Florida

Month 20##

© 20## Student’s Full Name

All Rights Reserved.

Reporting research that meets the uniform standards for a graduate degree is an arduous process. Using this template will help ensure uniformity and allow you to focus on improving the quality of your communication, not struggling with Microsoft Word® or APA mechanics. It will save you time and effort in completing this culminating step toward achieving your graduate degree. Take time to read all of the guidance (blue colored text) and become familiar with the required format, elements, and styles before you delete all of the blue and dummy (Latin) text, examples, illustrations (i.e., table, figure, equation), and unneeded section headings. Be sure to read the **Instructions for Using This Template** at the end of this document for more Microsoft Word® tips.

The title page of this manuscript does not show the page number. The page numbers in the front matter take lowercase Roman type centered at the bottom of each page. The pagination for the remainder of the document takes Arabic numerals in the upper right-hand corner of each page.

Ph.D. in Aviation Dissertation Title

Student’s Full Name

This dissertation was prepared under the direction of the candidate’s Dissertation Committee Chair, Dr. Axxx A. Axxxxx, and has been approved by the members of the dissertation committee. It was submitted to the College of Aviation and was accepted in partial fulfillment of the requirements for the Degree of

Doctor of Philosophy in Aviation.

|  |
| --- |
| Cxxx C. Cxxxxx, Ph.D. |
| Committee Chair |

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Wxxxxx W. Wxxxxx, Ph.D. |  | Steven Hampton, Ed.D. |
| Committee Member |  | Associate Dean, School of Graduate Studies, College of Aviation |
|  |  |  |
|  |  |  |
|  |  |  |
| Xxxxxx X. Xxxxxx, Ph.D. |  | Alan J. Stolzer, Ph.D. |
| Committee Member |  | Dean, College of Aviation |
|  |  |  |
|  |  |  |
|  |  |  |
| Yxxxxx Y. Yxxxxx, Ph.D.  Committee Member |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
| Zxxxxx Z. Zxxxxx, Ph.D.  Committee Member (External) |  |  |

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date

# Abstract

Researcher: Student’s Full Name

Title: Ph.D. in Aviation Dissertation Title

Institution: Embry-Riddle Aeronautical University

Degree: Doctor of Philosophy in Aviation

Year: 20##

The first paragraph of the abstract is flush left against the page margin. The subsequent paragraphs begin with a 0.5-inch indention from the left page margin.

The abstract is a concise, coherent, informationally dense, nonevaluative summation of the study and findings (200 to 500 words). It focuses on the original research, is self-contained, comprehensive, and stands alone without the need to reference others, so it does not include citations.

The abstract narrative for an empirical study describes the problem of interest, research questions and hypotheses, participants, essential features of the study method (research design, analytic strategy, data collection procedures, sample size, materials or central measures), basic findings (effect sized, confidence intervals, statistical significance), main findings from the data analysis, and the conclusions and implications or applications of the findings, all as appropriate. It takes an active voice and uses the present tense when describing conclusions and results that continue to be applicable, and uses past tense when describing the manipulation of variables and measurement of outcomes. (See § 3.3 Abstract Standards, APA, 2020, pp. 73–75.)

*Keywords*: Identify the key “words, phrases, or acronyms that describe the most important aspects of your paper” (APA, 2020, p. 38).

# Dedication

A dedication page is optional. Begin it on a new page. Use no more than 200 words.

# Acknowledgments

Genius is one percent inspiration, ninety-nine percent perspiration.

—Thomas Alva Edison, Harper’s Monthly Magazine

An Acknowledgments page is optional. Begin it on a new page. If you choose to include a decorative (popular) quote or epigraph, be sure to verify the authorship and provide the author’s name and title of the source on the line immediately below the quote and align the source with the right page margin (see § 8.35 Epigraphs, APA, 2020, p. 278). Do not include an entry for the source in the References section unless the quote is from an academic book or journal.

Table of Contents

Page

Signature Page iii

Abstract iv

Dedication v

Acknowledgments vi

List of Tables xi

List of Figures xii

Chapter I: Introduction 1

Statement of the Problem 5

Purpose Statement 5

Significance of the Study 5

Research Question and Hypotheses 5

RQ 6

H0 6

HA 6

Delimitations 6

Limitations and Assumptions 6

Summary 7

Definitions of Terms 7

List of Acronyms 7

Chapter II: Review of the Relevant Literature 8

Gaps in the Literature 9

Theoretical Framework 9

Research Model 10

Hypotheses and Support 10

Summary 10

Chapter III: Methodology 11

Research Method Selection 11

Population/Sample 11

Population and Sampling Frame 11

Sample Size 12

Sampling Strategy 12

Data Collection Process 12

Design and Procedures 12

Apparatus and Materials 13

Sources of the Data 13

Ethical Consideration 13

Measurement Instrument 13

Constructs 14

Variables and Scales 14

Data Analysis Approach 14

Participant Demographics 14

Reliability Assessment Method 15

Validity Assessment Method 15

Data Analysis Process/Hypothesis Testing 15

Qualitative Data Analysis Process 15

Summary 16

Chapter IV: Results 17

Demographics Results 17

Descriptive Statistics 17

Reliability and Validity Testing Results 18

Hypothesis Testing Results 19

Summary 23

Chapter V: Discussion, Conclusions, and Recommendations 24

Discussion 24

Conclusions 24

Theoretical Contributions 24

Practical Contributions 24

Limitations of the Findings 25

Recommendations 25

Recommendations for the [Target Population] 25

Recommendations for Future Research Methodology 25

Recommendations for Future Research 25

References 26

Appendices 29

A Permission to Conduct Research 29

B Data Collection Device 31

C Tables 33

D Figures 35

The Table of Contents (ToC) in this template is generated using Microsoft® field codes: The entries are not manually typed into the field. Only heading Levels 1–3 are included in the ToC. The Level 1 Chapter titles do not change, so you only need to mark new Level 2 and 3 headings and delete unused Levels 2–5 headings in the manuscript body and Appendices. Follow these steps to mark headings for entry into the ToC:

1. Select (highlight) a Level 2 or Level 3 heading in the manuscript body.
2. Simultaneously press the **Shift** key, **ALT** key, and letter **O** key.
3. Select Table Identifier **C** in the dialog box.
4. Select the Entry Level **2** to mark an APA Level 2 heading or **3** to mark an APA Level 3 heading.
5. Tap **Mark** and **Close**.

Follow these steps to update the ToC after adding, deleting, or changing headings:

1. Place your cursor inside the ToC and click the right mouse button.
2. Tap **Update Field**.
3. Tap **Update entire table** or **Update page numbers only** as appropriate.
4. Tap **OK**.

To see all hidden Microsoft® field codes and formatting marks, click the **Show/Hide** command (¶ icon) in the **Paragraph** group located in the **Home** tab. You might need to tap **File** and **Options,** and select the appropriate settings to show all formatting marks depending on the version of Microsoft® Word you are using (see this [Office Help](https://support.office.com/en-us/article/Show-or-hide-formatting-marks-c2d8a607-5646-4165-8b08-bd68f9d172a0)).

**List of Tables**

Table Page

1 Titles of Tables and Figures Take Title Case and Double Spacing, and the Content Should be Inferred From the Title 21

2 Contrast in Training Times Among Pilots 22

The List of Tables is generated using Microsoft® field codes. Follow these steps to mark the titles of tables for entry into the List of Tables:

1. Select (highlight) the title above the table.
2. Simultaneously press the **Shift** and **ALT** and the letter **O** keys.
3. Select Table Identifier **A** and Entry Level **1**.
4. Tap **Mark** and **Close**.
5. Inside the field code before the table title, manually enter (type) the **table number** followed by **five spaces** (tap the space bar five times) for single-digit table numbers or **four spaces** for double-digit table numbers.
6. Right mouse click inside the List of Tables field.
7. Tap **Update Field**.
8. Select **Update entire table**.
9. Tap **OK**.

**List of Figures**

Figure Page

1 Normal Distribution with Standard Deviations 4

The List of Figures is generated using Microsoft® field codes. Follow these steps to mark the titles of figures for entry into the List of Figures:

1. Select (highlight) the title above the figure.
2. Simultaneously press the **Shift** and **ALT** and the letter **O** keys.
3. Select Table Identifier **B** and Entry Level **1**.
4. Tap **Mark** and **Close**.
5. Inside the field code before the figure title, manually enter (type) the **figure number** followed by **five spaces** (tap the space bar five times) for single-digit figure numbers or **four spaces** for double-digit figure numbers.
6. Right mouse click inside the List of Figures field.
7. Tap **Update Field**.
8. Select **Update entire table**.
9. Tap **OK**.

# Chapter I: Introduction

Begin this chapter with a brief overview of what your manuscript will present. The reader should be able to gain a clear understanding of the problem of interest, the objectives of your research, the importance of the study, and the research questions and hypotheses. The introduction should be well developed and articulated and include the background for the study, the gaps in the research literature, and the study delimitations, limitations, and assumptions. Conclude the chapter with a tightly written summary of the introduction and a brief description of the chapters that follow.

With the start of Chapter 1, the Roman pagination ends, and the Arabic page numbers begin in the upper right-hand corner of each page and continue through the end matter or end of the manuscript. If you use this template as configured, you will not need to make any changes to the page numbers. However, if you add any section breaks, you will need to link the header section to the previous one, so the pagination remains continuous. Follow these steps to enable continuous pagination after inserting a section break: (a) double left click in the page-number field in the new section, (b)in the **Header & Footer Tools**,tap **Format Page Numbers**, (c) check the box next to **Continue from previous section** under the **Page numbering** options, and (d) tap **OK**. Then verify the numerical sequence of the pages is correct.

There are five APA heading levels or styles. You may use all five levels as needed, but only headings using APA Levels 1–3 are to be included in the Table of Contents (ToC) regardless of the complexity of your dissertation. (Note that APA is quiet on the table of contents and lists of tables and figures.) Per the 7th edition of the *Publication Manual* (APA, 2020), each heading in the body of the manuscript is double-spaced and takes bold title case, but the heading levels differ in their use of italic case and indention. Level 1 headings (i.e., chapter titles) are centered between the left and right page margins. Do not change the content or format of these headings in this template. Level 2 headings are aligned against the left page margin. Level 3 headings are left-aligned and italicized. Level 4 headings are indented 0.5 in. (1.27 cm) from the left page margin and end with a period. Level 5 headings are indented 0.5 in. (1.27 cm), italicized, and end with a period. (See Section 2.27 Heading Levels, APA, 2020, pp. 47–49.)

For each paragraph in the manuscript body, left indent the first line 0.5 in. (1.27 cm) [APA, 2020, pp. 45–46]. Use at least two sentences in each paragraph, and ensure each paragraph connects logically to its preceding and succeeding paragraphs within the same heading. Use one space after all closing punctuation, including only one space after the closing punctuation for each element in a reference and after the periods following the initials of names of authors and editors. Use double line spacing for all paragraphs (see § 2.21 Line Spacing, APA, 2020, p. 45).

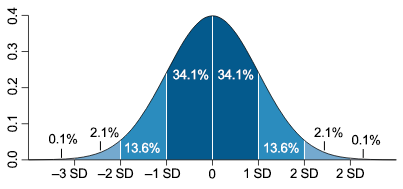
The formatting and placement of the titles and notes for tables and figures are treated the same (APA, 2020, p. 197). Table and figure callouts (Table # or Figure #) take bold title case; the titles take regular italicized title case; the title elements (i.e., callout and title) take double-spacing. “If text appears on the same page as a table or figure, insert a double-spaced blank line between the text and the table or figure” (APA, 2020, p. 45). Place supporting tables and figures that are not essential in a Tables appendix or a Figures appendix (APA, 2020, p. 198). If approved by your committee chair, you may embed long essential tables in the body of the manuscript, but be sure to repeat the header on each page of the table using the automatic feature in Microsoft Word®. You may also display wide tables in landscape orientation, but be sure to repeat the left stub column on each table when the table does not fit on one page (APA 2020, p. 206).

Align all tables and figures and their titles and notes against the left page margins. To ensure table and figure titles are always positioned with their notes, select the table/figure callout (**Table #** or **Figure #**), tap the **Home tab**, open the **Paragraph** **Settings** group(tap the diagonal arrow in the bottom right-hand corner of the Paragraph group), in the **Line and Page Breaks** submenu, select **Keep with next** (check the box), and tap **OK**. The tiny square located to the left of the callout indicates the control to keep it with what follows, in this example, the figure title. Repeat these steps to keep the title with the table body or figure image and to keep the table or figure with their notes.

Number the tables and figures consecutively in the order of their appearance in the manuscript (Table 1, Table 2, Figure 1, Figure 2, Table C1, Table C2, Figure D1, Figure D2, etc.). As demonstrated for Figure 1, mention the figure or table in the narrative immediately preceding its location in the body text: This is not necessary for tables or figures in an appendix unless they are essential. (See § 7.5 Referring to Tables and Figures in the Text; § 7.10 Table Numbers; and § 7.24 Figure Numbers, APA, 2020.) To ensure online readability and high-quality print reproduction, use an 8-pt to 14-pt font sans serif typeface (Arial, Calibri, Lucida, Sans Unicode) for image text.

Figure 1

Normal Distribution with Standard Deviations



Note*.* Adapted from “Standard Deviation Diagram,” by M. Toews, 2007, Wikimedia Commons, Copyright 2015 by Creative Commons Attribution 2.5.

The note for Figure 1 illustrates the format for the attribution for an image created by someone else when permission is not necessary. In addition to providing an attribution, use the note to provide an explanation if needed or to draw attention to what you want the reader to notice (see § 7.14 Table Notes and § 7.28 Figure Notes, APA, 2020).

Include permissions to reprint or adapt a table (or reproduce a figure) in electronic and print forms in an appendix and provide an appropriate attribution in the table/figure note (APA, 2020, pp. 235, 385–391). The following example illustrates the format for the attribution for a figure for which copyright permission is needed:   
From “This is the Title of the Source,” by A. A. Author and B. B. Author, 2020, *Publication Title*, *33*(3), p. 33. (https://doi.org/10.####.######) Copyright year by Copyright Holder. Reprinted with permission.

## Statement of the Problem

Use clear and concise language to connect to the introduction section and identify the problem of interest. The problem statement describes the need for increased understanding about the issue to be studied, articulates the relationship of the problem to previous research, and explains how the research will add to the body of knowledge specific to the field of study.

## Purpose Statement

Describe the objectives of the research. Ensure the purpose statement relates to the problem statement and uses logical, precise, and unambiguous language.

## Significance of the Study

Present the theoretical implications and the practical contributions of the study. Explain how the research will advance the field of study. Ensure the significance refers to the statement of the problem and connects to the research questions and hypotheses.

## Research Question and Hypotheses

Present the research question (RQ) and primary, secondary, and exploratory hypotheses, as appropriate, including their aims and objectives. The RQs focus and guide your research, so they (a) should be few; (b) must align with the problem statement, purpose statement, and theoretical framework; and (c) be understandable, open-ended, feasible, and answerable.

In confirmatory research, a hypothesis is a prediction about an RQ that defines a problem and proposes a solution and result. Therefore, it must focus on the observable, clearly state an expected relationship between an independent variable and dependent variable, and be both testable and falsifiable using the scientific method. The null hypothesis (H0) states there is no statistical significance between two variables, while the alternative hypothesis (HA) states there is a statistically significant relationship between the variables (APA, 2020, p. 87).

RQ

Lorem ipsum dolor sit amet, usu omnis impedit ponderum at. Copiosae persequeris te nam, graeco fabulas vim eu, ut his zril nemore saperet.

H0

Lorem ipsum dolor sit amet, usu omnis impedit ponderum at. Copiosae persequeris te nam, graeco fabulas vim eu, ut his zril nemore saperet.

HA

Lorem ipsum dolor sit amet, usu omnis impedit ponderum at. Copiosae persequeris te nam, graeco fabulas vim eu, ut his zril nemore saperet.

## Delimitations

Describe the scope of the study. Identify the boundaries to which the study was deliberately constrained.

## Limitations and Assumptions

Describe the limitations (methodological weaknesses or flaws) related to internal validity (rigor) and external validity (generalizability). Delineate limitations related to the geography, sampling frame, sample size, selected variables, confounding effects, test runs, and limited access to information and lack of available data. The Assumptions section describes any beliefs or facts assumed true though not examined or verified; for example, the belief that survey respondents will respond truthfully. Explain each assumption clearly and concisely and include all underlying assumptions, both implicit (e.g., social norms) and explicit (e.g., legal), because they are crucial to the research method of the phenomena of interest and testing theories.

## Summary

Begin with a concise summation of the content in this chapter. End with a tight overview of the content in the forthcoming chapters. A couple of paragraphs are sufficient.

## Definitions of Terms

Term This is the definition, including the citation as needed.

Term Lorem ipsum dolor sit amet, usu omnis impedit ponderum at.

## List of Acronyms

Acronym Abbreviation Spelled Out

Acronym Lorem ipsum dolor sit amet, usu omnis impedit ponderum at.

# Chapter II: Review of the Relevant Literature

Insert a page break if needed so that this chapter starts on an odd-numbered page. Start the chapter with a brief overview of its content, outlining the major topics to be presented.

The purpose of this chapter is to identify all of the extant research and literature relevant to your topic and evaluate and synthesize those works so readers can understand the problem of interest, gap in the research literature, and need for and importance of the study. The literature synthesis presents the theoretical, historical, or practical context (positive and negative) for the problem of interest and the research inquiry. The review must have a clear tie to the Statement of the Problem and Purpose Statement and must situate the research question(s) and objectives. This chapter should be an integrated, critical essay on the most relevant and current (≤ 5 years) published knowledge on the research topic, including classic and contemporary references, and should be organized around major themes. It should accomplish the following:

* Define the most important aspects of your study.
* Present a comprehensive review of relevant literature.
* Discuss the founding theories used to develop the theoretical framework and hypotheses for your study.
* Compare different points of view and contrast different research outcomes in a fair and balanced treatment without personal opinion.
* Cite the quality refereed studies related to the problem and scholarly literature and seminal books related to the fundamental concepts and research method.
* Use quotations sparingly as they detract from readability.

There are three types of lists: bulleted, lettered, and numbered. Use a bulleted list for items whose order does not matter, and for items that would be too long to seriate in a sentence within a paragraph. If you want to present a long bulleted list in two columns, do not use column section breaks because they will disrupt (break) the continuous page numbering. Instead, place the list inside a two-column table and omit all table borders and the callout and note. For seriation within a sentence (a) use lowercase letters to set apart each element, (b) enclose each letter inside parentheses, (c) use a comma or a semicolon, as appropriate, after each element, and (d) close the sentence with proper punctuation, as done here (APA, 2020, pp. 62, 189–191). To denote sequence or priority, use a numbered list indented 0.5 in., as illustrated here:

1. This is the first step or priority.
2. This is the second step or priority.
3. This is the third step or priority (APA, 2020, pp. 189–190).

## Gaps in the Literature

Expose the problem topic(s) not researched or not adequately researched and explain how your study adds to the body of scholarly literature.

## Theoretical Framework

The framework provides justification for the research method you used for your study. Present the theories and findings that substantiate and support the rationale for your framework (and conceptual framework if applicable), research model, research questions, and hypotheses. Describe how the framework either supports the study or provides the theoretical, historical, or practical context for the research problem. Identify any theoretical assumptions that will aid the generalization of your research findings.

Research Model

Describe how the methodology used in your study links to the theories presented in the Theoretical Framework section.

Hypotheses and Support

Present your hypotheses (predictive statements) derived from and aligned with the research questions and problem statement. Provide literature support for each hypothesis.

Possible APA Level 4 Heading**.** Do not include APA Level 4 headings in the ToC. Lorem ipsum dolor sit amet, usu omnis impedit ponderum at. Copiosae persequeris te nam, graeco fabulas vim eu, ut his zril nemore saperet.

**Possible APA Level 5 Heading.** Do not include APA Level 5 headings in the ToC. Lorem ipsum dolor sit amet, usu omnis impedit ponderum at. Copiosae persequeris te nam, graeco fabulas vim eu, ut his zril nemore saperet.

## Summary

Begin with a concise summation of the content in this chapter. End with a tight overview of the content in the forthcoming chapters. A couple of paragraphs are sufficient.

# Chapter III: Methodology

Insert a page break if needed so that this chapter starts on an odd-numbered page.

The Methodology chapter describes the research approach, design, and process and the data collection procedures, materials, and analysis. Describe everything in enough detail to enable replication of an empirical study or near-replication of a non-experimental study and provide total transparency of how the results were obtained (APA, 2020, pp. 77–85).

## Research Method Selection

Describe the research approach and explain how the method you chose to use logically derives from the research problem. Justify why other feasible methods would have been less effective than the one chosen.

## Population/Sample

In the Population section, provide the relevant demographic characteristics (biodata) of the population studied or the target population (i.e., all of the people or objects to which you seek to generalize the findings of your study). In the Sample section, describe the demographic characteristics of the sample (i.e., the subset of the population of people or objects selected for your study).

Population and Sampling Frame

In this Population section, include a general description of the target population. In the Sampling Frame section, present and defend the specific and comprehensive list of everyone or everything in the population from which the sample of participants or objects were selected and studied.

Sample Size

Define and defend the number of participants or objects chosen to be measured or observed. Include calculations for the sample size, precision estimates, and power necessary to obtain reliable data, detect statistically relevant differences, draw valid conclusions, and make evidence-based inferences about the population.

Sampling Strategy

Delineate the type of sampling (probability or nonprobability) and describe and defend the sampling plan (e.g., random, systematic, stratified, multistage, cluster) and the eligibility criteria for both recruitment and selection to ensure the sample is truly representative of the population.

## Data Collection Process

Provide a brief overview of the content presented in the subsections of the Data Collection Process section. They include the Design and Procedures section, Apparatus and Materials section, and the Sources of the Data section, all as appropriate.

Design and Procedures

Present the research design (e.g., descriptive, correlational, causal-comparative/quasi-experimental, experimental, meta-analytic, review), subtype (e.g., grounded theory, ethnographical, longitudinal case study, historical phenomenological) procedures (e.g., participant grouping) in enough detail to enable replication of an empirical study or near-replication of a non-experimental study. For example, in a design that compares an experimental group and control group, explicitly state how you formed the groups to ensure there was no assignment bias. Include operational definitions of the independent and dependent variables.

Apparatus and Materials

Describe the technical equipment (e.g., recording device, flight simulator, eye-tracking device), tools (e.g., analysis or coding software, computer, SurveyMonkey®), testing instruments (e.g., survey, questionnaire, exam), and materials (e.g., books, images, videos, sounds.) used to conduct the research and obtain the data.

Sources of the Data

Describe the types of data sources and defend their appropriateness for answering the research questions. Describe the primary data sources, such as data collected from your personal observations, interviews, and surveys. Describe the secondary data sources; for example, primary or pre-existing data retrieved from an archival source. Describe how and when the data were collected and direct your reader’s attention to the data collection tool(s) included in the appendix.

## Ethical Consideration

Describe the steps taken to ensure the ethical treatment and protection of the participants. Explain how you handled: (a) informed consent; (b) voluntary participation; (c) do no harm; (d) respect for anonymity, confidentiality, and dignity; and (e) only accessing information/data relevant to the study. Describe the Institutional Review Board (IRB) requirements and direct your reader’s attention to the IRB approval letter included in the appendix. Describe your past experiences or biases about the research topic.

## Measurement Instrument

Describe and defend the development of the instrument you created, including pilot testing, or describe and defend your choice of a standard (validated) instrument used to obtain the data.

Constructs [if applicable]

Present the underlying concepts, themes, or topics—abstract or not—that possess theoretical relevance to the variables of interest. For example, the broad construct of general intelligence is not directly observable, but one can conceptually define it using a definition from a dictionary. Intelligence quotient is a dimension of intelligence that one can operationally define as a research variable and measure as the score on a specific cognitive task or a battery of standardized cognitive tests. It is customary to introduce the conceptual definitions in either Chapter I or II and to present the operational definitions in Chapter III.

Variables and Scales

Present the operational definitions of the research variables and describe the measurement scales used (e.g., nominal, ordinal, interval, and ratio). Include appropriate literature support for the definitions and scales.

## Data Analysis Approach

Describe the procedures for how you coded and analyzed the data, how you handled discrepant cases and any missing data, including the procedures for data treatment and transformation and the testing for bias.

Participant Demographics [if applicable]

Describe the participants, including their number and characteristics, in enough detail so your reader can determine if they are representative of the population of interest.

Reliability Assessment Method

Describe the methods taken to determine the data collection instrument consistently measures what it was designed to measure. Reliability assessments include inter-rater reliability, test-retest, parallel-forms, and internal consistency.

Validity Assessment Method

Describe the methods used to determine the extent that the data collection instrument accurately measures or represents the phenomenon of interest. Assessments include face validity (the extent the tool measures what it appears to measure), construct validity (the extent the tool measures the underlying constructs), content validity (the extent the tool measures all aspects of a construct), and predictive validity (the extent a test result predicts the target behavior or result on a criterion measure).

Data Analysis Process/Hypothesis Testing

Describe the data analysis method and the procedures and software used for analyzing the data to test the hypotheses and answer the research questions.

### ***Qualitative Data Analysis Process*** [if applicable]

Describe the qualitative data analysis processes and procedures used, such as content analysis or narrative analysis, to identify the themes and outliers for understanding, explaining, and interpreting the behaviors of people or the characteristics of the phenomenon of interest. Describe the triangulation and external validation strategies.

## Summary

Begin with a concise summation of the content in this chapter. End with a tight overview of the content in the forthcoming chapters. A couple of paragraphs are sufficient.

# Chapter IV: Results

Insert a page break as needed so that this chapter starts on an odd-numbered page.

Objectively report the findings based on your methodology and in accordance with your research design. Organize the findings around the research hypotheses, questions, and objectives. Present the results from the pilot study (if applicable), explaining the outcomes from the data analysis. Provide the demographics, descriptive statistics, reliability and validity testing results, and hypothesis testing results (APA, 2020, pp. 80–81, 86–89, 99, 103–104, 108).

## Demographics Results

Present the demographics of the participants or the organization (as appropriate). Explain how the sample is representative of the population using the demographic variables and other pertinent information.

## Descriptive Statistics

Report the descriptive statistics of the variables researched, the frequency of missing data, and any outliers.

Display equations that are simple or short within a paragraph. An in-text equation, formula, or statistic should not break across lines. To avoid this, insert a non-breaking space by selecting all of the mathematical copy and then depressing the **Shift** key, **CTRL** key, and **spacebar** at the same time. Microsoft Word® indicates nonbreaking spaces by raised circles, as opposed to dots for normal spaces when all hidden paragraph marks are visible. Display equations that project above or below a line of text or that are complex or long (a) on a new line separate from the preceding paragraph, (b) indented 0.5 in. (1.27 cm) from the left-hand page margin, and (c) numbered sequentially and parenthetically in the order they appear. Display the equation number aligned on the right-hand page margin using a 5.99 in. (15.22 cm) right tab. You may use a high-resolution screen capture of an equation, although producing equations as a statistical or mathematical statement using the Microsoft® Equation Editor or some other math editor is preferred. Refer to Section 6.46 Equations in Text and Section 6.47 Displayed Equations (APA, 2020, p. 188–189) for additional guidance on displaying complex or long equations and formulas.

Mention the equation in the paragraph immediately preceding its display. Equation 1 demonstrates this as well as the proper format for an equation separated from the text.

Roscoe (1970) posited that the effectiveness of learning transfer is a “negatively decelerated function” (p. 3) of the amount of time spent practicing a skill. The transfer effectiveness ratio (TER), as shown in Equation 1, measures the incremental transfer of learning from training in aircraft simulators.

(1)



where:

*C* = Iterations of a task in the airplane by the control group.

*E* = Iterations of a task in the airplane by the experimental group.

*E*(FTD) = Iterations of a task in the simulator by the experimental group.

## Reliability and Validity Testing Results

Present the outcomes of reliability and validity testing.

## Hypothesis Testing Results

If hypotheses are used, include this section as titled to present the statistics and outcomes from the hypothesis testing. If quantitative methods are used, rename the heading for this section as “Quantitative Data Analysis Results” (and add the field code) and present and explain the outcomes from the analysis of quantitative data. If qualitative methods are used, rename this section as “Qualitative Data Analysis Results” (and add the field code) and present and explain the outcomes from the analysis of qualitative data. If mixed methods are used, rename this section as “Mixed Methods Data Analysis Results” (and add the field code) and present and explain the outcomes from the analysis of both quantitative and qualitative data. Keep in mind, the presentation and explanation of the results from your data analysis must be consistent with your research questions, hypotheses, and underlying theoretical/conceptual framework of the study.

Tables and figures need to contain enough information to convey understanding without the need for additional explanation in the manuscript body (APA, 2020, p. 196). Use tables to encapsulate a large amount of textual data (i.e., ≥ 20 data) so the reader can readily discern the precision information. Use graphical displays (figures) to present meaningful (but non-redundant) information that substantially advances the reader’s understanding.

Each table and figure requires a callout that includes the table/figure number and title, a table body or figure image, and a note to define abbreviations, identify key information, and provide attributions or descriptions when needed. Tables and figures must adhere to standard criteria (see § 7.21 Sample Tables and § 7.36 Sample Figures, APA, 2020), including the following:

* They conform to standard (canonical) styles or are self-descriptive and informative as possible.
* The surrounding narrative directly relates to the table/figure and directs the reader’s attention to key data or aspects.
* Provide concise titles and attributions and number them chronologically in order of their appearance in the manuscript; for example, Table 1, Table 2, Figure 1, Figure 2, Table C1, Table C2, Figure D1, and Figure D2 (APA, 2020, p. 41).
* For works authored by others, include appropriate copyright statements along with “Reprinted with permission” or “Adapted with permission” (APA, 2020, pp. 385–390).
* For images that include identifiable people, ensure compliance with the ethics standards for the protection of human participants (APA, 2020, pp. 21–22, 41, 388).
* Include the titles of tables and figures embedded in the manuscript body in the List of Tables or List of Figures, respectively.
* Place ancillary or supplementary tables and figures in the appropriate appendix (Appendix C for tables or Appendix D for figures) and include their titles on the title page of the appendix (APA, 2020, pp. 41–42, 198).
* Align all tables and figures against the left page margin regardless of where they appear in the manuscript (APA, 2020, p. 198).

Use clear and concise explanatory titles for tables and figures. Double-space the callout (table/figure number and title) and align the callout, table/figure, and note flush left against the left-hand page margin. In the narrative immediately before the table or figure, use “Table” or “Figure” followed by the number to refer to it and draw the reader’s attention to the chief data or aspects. Do not refer to its position as above or below the text. The following illustrates this for the example Table 1:

As shown in Table 1, the mean number of years working as an airline pilot is 4.15, and the standard deviation is 3.5 years.

Table 1

Titles of Tables and Figures Take Title Case and Double Spacing, and the Content Should be Inferred From the Title

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Variable | *N* | Missing | *M* (*SD*) | Mdn | Mode | Min. | Max. |
| Airl Yrs | 64 | 0 | 4.15 (3.50) | 3 | 1a | 0 | 13 |
| TT | 62 | 2 | 6,372.10 (2,373.74) | 6,137 | 5,000 | 2,424 | 12,023 |
| Attitude | 64 | 0 | 3.31 (.77) | 3 | 3a | 2 | 5 |
| Sfty Awr | 64 | 0 | 3.11 (.65) | 3 | 3 | 2 | 4 |
| Profess | 63 | 1 | 3.35 (.65) | 3 | 3 | 2 | 4 |
| SA | 64 | 0 | 2.98 (.28) | 3 | 3 | 2 | 4 |
| ADM | 64 | 0 | 3.11 (.36) | 3 | 3 | 3 | 5 |

*Note*. ADM = Aeronautical Decision Making; Airl Yrs = Airline Years; SA = Situational Awareness; Sfty Awr = Safety Awareness; Profess = Profession; Max. = Maximum; Min. = Minimum; TT = Total Time. Adapted from “Title of Source,” by A. A. Author and B. B. Author, 20##, *Title of Journal*, *##*, p. #. Copyright 20## by Name of the Copyright Holder.

a Multiple modes exist. The smallest value is shown. A specific note is denoted by superscript lowercase letters, refers to a specific cell, column, or row, follows a general note when present, and is aligned against the left page margin.

\**p* < .05. \*\**p* < .01. \*\*\**p* < .001. Use double daggers (††) to identify *p* values of one-tailed tests when reporting *p* values for two-tailed and one-tailed tests in the same table. A probability note follows general and specific notes when present, and is flush against the left page margin.

A general note precedes other notes when present and provides definitions of abbreviations and symbols, broad explanatory information, and attributions for copyrighted content, respectively. All abbreviations used in the table title and body must be defined (spelled out) in a general note, except the common statistical abbreviations and symbols (e.g., *N*, *n*, *M*, *SD*, *t*, *p*, *d*) are not defined. All notes take double-line spacing, but the table body may take single, 1 ½, or double line spacing. The table text can be a 10, 11, or 12-point font size. Use a double blank line (one tap of the Enter key) both before the table callout and after the table or its note if present (as illustrated with Table 2) when text surrounds the table (or figure) on the same page.

The results show ADM from Time 1 (*M* = 3.25, *SD* = 0.78) is significantly different from Time 2, *t*(34) = 3.70, SEM = 0.159, *p* < .001 (see Table 2).

Table 2

Contrast in Training Times Among Pilots

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Time 1 | Time 2 |  |  | 95% CI | | Cohen’s |
| Variable | *M* (*SD*) | *M* (*SD*) | *t*(34) | *p* | *LL* | *UL* | *d* |
| Attitude | 2.79 (0.89) | 2.61 (0.66) | 1.61 | .12 | -0.06 | 0.42 | 0.72 |
| Sfty Awr | 3.60 (.083) | 3.13 (1.18) | 1.91 | .06 | -0.05 | 0.98 | 0.85 |
| SA | 3.58 (0.82) | 3.26 (0.62) | 1.68 | .10 | -0.08 | 0.70 | 0.75 |
| ADM | 3.25 (0.78) | 2.65 (0.93) | 3.70 | <.001 | 0.26 | 0.94 | 1.65 |

*Note*. ADM = Aeronautical Decision Making; CI = Confidence Interval; *LL* = Lower Limit; SA = Situational Awareness; Sfty Awr = Safety Awareness; *UL* = Upper Limit.

## Summary

Begin with a concise summary of the content presented in this chapter. End with a tight overview of the content in the forthcoming chapter. A couple of paragraphs are sufficient.

# Chapter V: Discussion, Conclusions, and Recommendations

Insert a page break if needed to ensure this chapter starts on an odd-numbered page. Provide a brief introduction to the chapter.

## Discussion

Present a thorough evaluation and interpretation of the implications of the research findings for the research questions and hypotheses and compare the results with existing literature findings. Answer your research questions, explain how your answers are supported by the findings, and describe how your answers fit into the existing body of knowledge (literature).

## Conclusions

Present the conclusions substantiated by the findings.

Theoretical Contributions

Present and defend the generalizability, enhancement to the body of knowledge, and the theoretical contributions of the findings. Explain what makes your research an original contribution to the body of scholarly literature in the discipline or field. What gaps does it fill? Describe the contributions to the literature that your work will achieve once disseminated.

Practical Contributions

Describe the practical contributions of your study to aviation policymakers, practitioners, or professionals in the field. Identify the potential applications of your research within specific industries or real-world contexts. Answer the question, ‘Why are the findings important?’

## *Limitations of the Findings*

Present the limitations and explain how they affected the results of the study. Identify potential alternatives to address them.

## Recommendations

Provide suggestions drawn logically from the conclusions. This section should demonstrate (a) your understanding of your research, (b) research that has and has not been done by others, and (c) what is needed to both apply the findings and extend the research.

Recommendations for the [Target Population]

Identify who needs to pay attention to the results (e.g., policymakers, practitioners, professionals in the field). Explain how the results of this study benefit them. Describe how to disseminate the results to these various groups.

Recommendations for Future Research Methodology

Describe in detail your suggestions for new or improved research methods and analysis techniques based on your study’s research methods and procedures.

Recommendations for Future Research

Describe in detail any unanswered questions and suggest new areas of inquiry for researchers who may wish to extend or expand on your study.

**References**

American Psychological Association. (2020). [*Publication manual of the American Psychological Association*](http://www.apastyle.org/manual/index.aspx) (7th ed.). https://doi.org/10.1037/0000165-000

Author, A. A. (Year). *This is the title of an unpublished dissertation*. [Unpublished doctoral dissertation]. Embry-Riddle Aeronautical University.

Author, B. B. (Year). *This is the title of an unpublished thesis*. [Unpublished master thesis]. Embry-Riddle Aeronautical University.

Author, C. C., & Author, B. B. (Year). *This is the title of an unpublished manuscript*. [Unpublished manuscript]. School of Graduate Studies, Embry-Riddle Aeronautical University.

Author, D. D. (Year). *This is the title of a dissertation published in a database*. (Publication No. 123456789) [Doctoral dissertation, Embry-Riddle Aeronautical University]. ProQuest Dissertations and Theses Global.

Author, E. E. (Year). This is the title of a journal article. *Journal Publication Title, 123*(4), 5–67. https://doi.org/10.12345678

Federal Aviation Administration; Safety Management Systems for Domestic, Flag, and Supplemental Operations Certificate Holders, 80 Fed. Reg. 1308 (Jan. 8, 2015) (codified at 14 C.F.R. Pts. 5 and 119).

Roscoe, S. N. (1971). *Incremental transfer effectiveness. Human Factors, 13*(6), 561–567. https://doi.org/10.1177/001872087101300607

Smith, H. (2012). Innovation in supersonic air travel. In T. M. Young & M. Hirst (Eds.), *Innovation in aeronautics* (pp. 155–190). Woodhead Publishing. http://dx.doi.org/10.1533/9780857096098.1.155

Sprigman, C. J. (2016). *The indigo book: An open and compatible implementation of a uniform system of citation, public resource.* https://law.resource.org/pub/us/code/blue/IndigoBook.pdf

Thompson, B. (2000). Ten commandments of structural equation modeling. In L. G. Grimm & P. R. Yarnell (Eds.), *Reading and understanding more multivariate statistics* (pp. 227–284). American Psychological Association.

Follow the style and format prescribed in the *Publication Manual* (APA, 2020) for the list of references, except apply single-line spacing within each reference and double-line spacing between references to reduce pages. Order all reference entries alphabetically by surname, letter-by-letter, and then publication year. Use a single space after internal periods (e.g., C.F.R., U.S., U.S.C.) except for certain abbreviations that do not take spaces following periods (e.g., APA, FAA, ICAO). For each reference entry, apply a 0.5 in. (1.27 cm) hanging indent by selecting **Indents and Spacing** in the **Paragraph** group under the **Home** tab, selecting **Hanging indent** from the **Special** drop-down menu, and then selecting by **.05″** from the **By** drop-down menu. Do not use the spacebar to indent entries.

For references with 20 or fewer authors, list each author, and include an ampersand (&) before the last author’s surname. For references with 21 or more authors, include the first 19 authors followed by three ellipses and the last author, omitting the ampersand before the last author (APA, 2020, p. 286). Spell out the names of all group authors and end the name element with a period: Do not include the abbreviation of the group name in the reference. Use the same reference template for print and online resources alike, except for unpublished and published dissertations and theses. Do not include a retrieval date for electronic resources when a publication date is given or for a website with no date (n.d.), but do include a retrieval date for databases or websites that change periodically. Do not bold any entries in the reference list. Verify each reference entry has at least one citation in the manuscript body, and every unique citation has an entry in the reference list. Use <http://www.doi.org> or <http://www.crossref.org> to obtain doi names and to fact-check each reference (see the *Guide to Aviation Dissertations* for additional guidance).

**Appendix A**

Permission to Conduct Research

To mark **appendix titles** for entry into the **ToC:**

1. Select the title.
2. Press **Shift** + **Alt** + the letter **O** at the same time.
3. Select Table Identifier **C** and Level **4**.
4. Tap **Mark** and **Close.**
5. Insert the appropriate **appendix letter** followed by **nine** **spaces** before the appendix title inside the field code.
6. Click the **Show/Hide** command (⁋) to hide all formatting marks, and then update the ToC.

Insert permission form on this page.

# Appendix B

Data Collection Device

Insert data collection device on this page.

# Appendix C

Tables

C1 Table Title

C2 Table Title

Use this appendix for tables that convey supplementary information or that are oversized (i.e., span more than one page or overflow into the page margins). Label these tables with the letter of the appendix (e.g., C) and the number denoting the order in which they appear in the appendix. When referring to these tables in the manuscript body, always use the letter and number, not their title (e.g., Table C1).

Insert Table C1 here. Be sure to include the table header row on each new page when the table overflows to subsequent pages. Insert each additional table (e.g., C2) on a separate page. Format tables in this appendix the same way tables are formatted in the manuscript body.

# Appendix D

Figures

D1 Figure Title

D2 Figure Title

Use this appendix for figures that convey supplementary information (not essential) or that are oversized (i.e., span more than one page or overflow into the page margins). Label these figures with the letter of the appendix and the number denoting the order in which they appear. When referring to these figures in the manuscript body, always use their letter and number, not their title (e.g., Figure D1).

Insert Figure D1 on this page. Insert each additional figure (e.g., D2) on a separate page. Format the figures in this appendix the same way the figures are formatted in the body of the manuscript.

**Instructions for Using This Template**

Use this template as appropriate to your research and under the direction of your dissertation chair. The conformity it provides will enable your readers to focus on what is most important—your study. While this template largely adheres to the style guidelines established in the *Publication Manual of the American Psychological Association* (APA, 2020), it diverges somewhat. Where deviations occur, this template supersedes the *Publication Manual*, but your chair’s directions supersede both. Besides providing a uniform format and the required sections, the Table of Contents (ToC), List of Tables, and List of Figures are automatically generated using field codes, not heading styles. To take advantage of these real timesaving features, you will need to know how to do a few things in Microsoft Word®.

The ToC, List of Tables, and List of Figures rely on Microsoft® field codes to generate their entries while the headings and other content in the manuscript body rely on Microsoft Word® styles for their format. **Important: Do not use Word® styles to create the ToC or Lists of Tables and Figures**, as doing so will corrupt template. Furthermore, when pasting content from another document, **paste the copied content as plain text**—not as formatted text—to prevent hidden formatting, language, or macros being carried over and corrupting this template.

To **mark** **section headings** for entry into in the **ToC:**

1. Select the title.
2. Press **Shift** + **Alt** + the letter **O** at the same time.
3. Select Table Identifier **C** and Level **2** or **3** as appropriate.
4. Tap **Mark** and **Close**.

To mark **appendix titles** for entry into the **ToC:**

1. Select the title.
2. Press **Shift** + **Alt** + the letter **O** at the same time.
3. Select Table Identifier **C** and Level **4**.
4. Tap **Mark** and **Close.**
5. Insert the appropriate **appendix letter** followed by **nine** **spaces** before the appendix title inside the field code.

To **mark** **table** **titles** for entry into the **List of Tables:**

1. Select the title.
2. Press **Shift** + **Alt** + the letter **O** at the same time.
3. Select Table Identifier **A** and Level **1.**
4. Tap **Mark** and **Close.**
5. Insertthe **table number** followed by **10 spaces** for a single-digit table number or **9 spaces** for double-digit table number before the table title inside the field code.

To **mark figure** **titles** for entry into the **List of Figures:**

1. Select the title.
2. Press **Shift** + **Alt** + the letter **O** at the same time.
3. Select Table Identifier **B** and Level **1.**
4. Tap **Mark** and **Close.**
5. Insertthe **figure number** followed by **10 spaces** for a single-digit table number or **9 spaces** for double-digit table number before the figure title inside the field code.

All entries in the ToC and List of Tables and List of Figures take regular title case, and every noun and word with four or more letters begin with a capital letter. Follow these steps **to clear formatting of a field code:**

1. Navigate to that body heading or title.
2. Select the field code.
3. Tap **Clear All Formatting** in the **Font** group under the **Home** tab.

Follow these steps to **update an automatic field**:

1. Click the **Show/Hide** command (⁋) to hide all formatting marks.
2. Right-click inside the automatic field (e.g., ToC).
3. Select **Update Field** in the pop-up menu.
4. Select **Update entire table** (or select **Update page numbers only**).
5. Tap **OK**.

After updating an automatic field, verify the content and format are correct and that no entries are generated from orphan field codes (headings were deleted, but not their field codes). Before printing your manuscript, tap the **Show/Hide** command and display the field codes. Then review each heading/title to verify the words matche the content inside the field code.

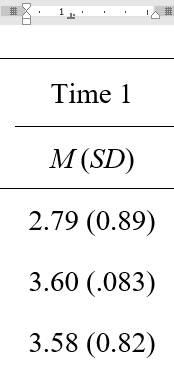
This template largely follows APA style, but there are some nonconformities worth noting. Remember, directions from your committee chair override this template, and this template supercedes APA guidelines. As mentioned, you may only add, delete, or revise Level 2, 3, 4, or 5 headings; do not change the Level 1 headings. Except where noted, use black Times New Roman typeface with 12-point font size. Except where noted, use normal double-line spacing throughout the manuscript.

Use a single space after closing punctuation of each sentence and between elements inside each reference list entry. To check the spacing after closing punctuation, toggle the **Show/Hide** command to display the formatting marks, depress **Ctrl** and **F** and then enter a period (**.)** followed by two spaces in the search box. All of the instances of two spaces will be highlighted yellow. Scroll through your manuscript and manually remedy any incorrect spacing.

This template employs a 1.5 in. (3.81 cm) left page margin and 1 in. (2.54 cm) right, top, and bottom page margins. Content in the front matter and body must not overflow into the page margins and nor should the content in the end matter. To verify content is not encroaching into the page margins, you can display the text boundaries by clicking **File**, **Options**, and **Advanced**, and then **Show text boundaries** located under **Show document content**. The margins will appear as faint non-printing borders.

Left indent all paragraphs and numbered equations 0.5 in. (1.27 cm) displayed outside of a paragraph by using the tab function or by dragging the **First Line Indent** marker to the half-inch mark on the horizontal ruler. Do not use the spacebar to indent. To see the page rulers, check **Ruler** in the **Show** group under the **View** tab.

To align numbers in a table on their decimals, select the column of numeric data and then click the indent selector located at the top left corner of the vertical ruler, tapping the selector icon until you see the decimal indent tab: . Next, click inside the horizontal ruler above the column you want to align. Then drag the decimal indent tab so that it is centered under the column heading, as illustrated in this screen capture from Table 2.



This template employs custom styles in MicrosoftWord® for the blue directional text and the dummy Latin text. You can simply delete unwanted text or overwrite it by selecting the text and then tapping the **Clear All Formatting** command in the **Font** group under the **Home** tab. The style should revert to Normal (i.e., black, 12-point font size, Times New Roman typeface, 0.5 in. paragraph indent). Alternatively, you may select the paragraph text and then apply **Body Text** from the **Styles** pane under the **Home** tab.

Finally, if you experience a formatting issue that you cannot figure out with a search of the [Microsoft Word Help Center](https://support.office.com/en-us/word), [APA Style](https://apastyle.apa.org), [APA Style Blog](https://apastyle.apa.org/blog), or [Academic Writer](https://digitallearning.apa.org/academic-writer) websites, feel free to contact [Jan G. Neal](mailto:nealc62@erau.edu), co-author of this template, for assistance.

~ Best wishes!