

AI in Doctoral Research

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Abstract

The use of Artificial Intelligence (AI) can be very helpful in doctoral research without introducing plagiarism. Dissertations take a large amount of time to produce. Any tool that can reduce this time burden may benefit doctoral students. This paper explains the use of AI for activities like discovering background material, sources for literature review, creating research questions and hypothesis statements, data analysis options for quantitative data and thematic analysis of qualitative data. Several tools were used during this research, and the major example covered was thematic analysis which takes a long time to perform for any qualitative study. The paper is written from a Research Chair perspective. This paper proposes a chapter-by-chapter framework for ethical AI integration in Dissertations, illustrated with a comparative thematic analysis case.

Keywords: Artificial Intelligence, AI, Doctoral, Dissertation, Qualitative Research

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1. INTRODUCTION

For Doctoral students, usage of Artificial Intelligence (AI) can be confusing, since writing without plagiarism is a concern. While using AI can streamline the work involved, a student must maintain integrity of the writing. In this research, each chapter of a Dissertation is covered, with strong emphasis on a thematic analysis example which takes a lot of time to produce manually for qualitative studies.

Although a growing body of scholarship addresses the ethical use of artificial intelligence (AI) in scholarly writing and scientific research, most existing work focuses on high-level publication ethics, disclosure norms, or general research-integrity concerns rather than the realities of dissertation work.

There is a lack of empirically grounded, chair-authored guidance on AI for dissertation work. One of the heaviest burdens for qualitative studies is the thematic analysis, where text is coded, organized, and themes derived. One example of performing thematic analysis using AI tools was performed on thousands of pages of source material spanning 500 years of written material on Christian Perfection as a topic (Snider et al., 2025). This researcher was the main author of that example research paper. This paper proposes a chapter-by-chapter framework for ethical AI integration in Dissertations, illustrated with a comparative thematic analysis case.

Plagiarism is defined as “the use of someone else’s language, ideas, or work without sufficient credit.” (Lemley & Ouellette (2025). According to Lemley & Ouellette (2025), citing the AI avoids plagiarism, but also use AI suggestions and findings as the starting place for research, not for the final product. In this paper we focus on using AI for dissertation research, not writing the document itself.

A Chapter-by-Chapter Framework for Ethical Use of AI in Dissertations

According to Ingram (2026), the content of a dissertation should contain an introduction, literature review, methodology, results, and conclusions. This researcher has seen this set of sections in practice in the role of Research Chair. While some formats at different universities vary for dissertations, the basic elements follow what Ingram (2026) and Kamler and Thomson (2014) state should be included.

1.1 Chapter One of a Dissertation

Chapter one is the background of the research topic and includes such things as the topic, the general problem statement, the specific problem to address, research questions, hypothesis statements, and overall scope of the research. In short, it answers the “what” question on the topic – what is being covered. The problem statement, purpose, research questions, and hypothesis statements are some of the more challenging text to write for a Dissertation, based on years of this researcher being a Chair for Doctoral candidates. Access to AI tools may make dissertation refinement more efficient by providing on-demand support.

For the background on a Dissertation topic AI can be used conversationally to provide sources. The prompts might include aspects such as identifying the population, valid data or statistics on the subject, and seminal works to help define the problem (MIT Sloan Educational Technology, 2026). Refining a problem statement, purpose statement, and hypothesis statements is a typical AI conversation to have.

AI prompts can lead to sources on the background of a topic. Prompts such as “locate source on <topic>.” or “what are current statistics on <topic> and state the sources.” or “provide data set sources on <topic>.” are ways to generate information on the background of a topic (KU Leuven, 2024).

1.2 Chapter Two of a Dissertation

Chapter two is the literature review. It contains the answer to “why” the research is important. This section reviews what other people have written on the subject and their results as they pertain to the current research being done.

The main use of AI for the literature review is finding sources. Perplexity and other AI tools can be prompted directly to locate articles. A prompt like “who are the seminal authors on <topic>?” or “provide valid sources on the problem statement and purpose statement loaded into the knowledge base” makes all the difference in saving time. Once 20 sources are gathered to start with, then look at their reference sections for more sources to use and 20 become 100 sources very quickly. Since AI tools can hallucinate, or provide invalid sources, a researcher always has to look up the sources to make sure they exist.

AI prompts such as “who are the seminal authors on <topic>” or “locate articles or books to read on <topic> that give multiple perspectives or controversies” or “locate three rich articles about <topic> and provide their reference list” can enhance the search for articles (Wang and Ellington, 2026). The last prompt yielded the Wang and Ellington (2025) article, which has 46 references included.

1.3 Chapter Three of a Dissertation

Chapter three is the methodology and answers “how” the research will take place. The paragraphs delineate the steps in process of how the research is conducted. If quantitative, the data to analyze is documented, any data cleanup involved, outlier discussion, analytical tools used, types of statistical analysis employed, and how samples were derived from a population.

AI tools can be used to provide statistical tools and techniques to use on a data set, whether the data was in a qualitative or quantitative study (Creswell and Creswell, 2023). Perplexity, for instance, can help locate datasets for quantitative studies without giving false source leads like other AI tools. It can help locate transcription tools, provide word counts, analyze themes, come up with valid questions for surveys, and even provide graphical visualizations and the steps to produce them in popular software like Excel, R, or SPSS.

AI prompts such as “what statistical tests are appropriate for the data set” or “provide the code to perform multiple regression analysis in R” can be used to speed up the process for quantitative analysis for a Dissertation. AI tools can also provide guidance for interpretation of a statistical test (Perkins and Roe, 2024).

1.4 Chapter Four of a Dissertation

Chapter four is for results of the research, taking each research question from chapter one and describing the results in tabular, summary, narrative, or pictorial form. Any statistics are documented in proper format.

Once chapter three is written and IRB approval is given to perform the research, it is possible to reuse the scripts from before and generate results. It is possible to use AI to create summary information, steps to perform the analysis, and how to format the results in a certain style like APA.

AI tools require guidance on how to use them for quantitative analysis. According to Queen’s University Belfast (2024), the usage of AI could include analysis of qualitative data, detecting patterns in data, and creating statistical analysis code.

1.5 Chapter Five of a Dissertation

Chapter 5 is where conclusions and future research are expounded upon. Any limitations of the current research would become input to the discussion of future research opportunities.

Trinka.ai (2026) provides a chapter breakdown of how AI tools can be used in chapter five to align major findings to literature, strengthen credibility, and create concise conclusions and implications. In any use of AI, spurring on thoughts is the goal, not to create the final product.

For conclusions and future research opportunities, AI tools can have a conversation on the possibilities and then the researcher synthesizes that into constructive conclusion statements and future research that can take place based on prior or current research. Asking “what conclusions can be drawn from my results?” or how can the limitations of my research be dealt with by future research and how would that new research add positively?” could be prompts to use with the AI tool.

2. ARTIFICIAL INTELLIGENCE (AI) TOOLS USED FOR THEMATIC ANALYSIS

2.1 Perplexity

Perplexity is a generative AI platform from Perplexity AI, Inc, founded in August 2022 (Forbes, n.d.). It is a conversational chat interface that can produce research sources minus the hallucinations that other AI tools give back (GPTZero, 2025). This can offer an advantage for research by providing valid sources and datasets more efficiently; researchers can think about using AI tools as a mentor or research assistant. The AI tool can eliminate lack of knowledge on a specific topic and more importantly with current large language models provide answers to the how and why questions inevitable in research. Prompting experience is key to locating sources (MIT Sloan Educational Technology, 2026).

2.2 Boodlebox

Boodlebox.ai, founded in 2016, is an umbrella environment that supports using many different AI offerings under one platform. The advantage of using Boodlebox is that the knowledge base is loaded once and then the researcher interacts with multiple AI tools on that knowledge base instead of building a knowledge base for each AI tool (Claude, ChatGPT, Gemini, etc.). The researcher can overlay conversations with two or more AI tools simultaneously to have a “group chat”. Boodlebox has customized bots with many trained on specific knowledge like economics or finance or statistics.

2.3 Thematic Analysis Top Tools

In the article listing the top five thematic analysis AI tools (Oberoi, 2024), Gemini, Claude, ChatGPT, Llama, were mentioned. BibleBot was added to that mix and is available separately or through Boodlebox. A set of results for thematic analysis are provided below. All the tools were free versions.

3. CASE EXAMPLE

Snider et al. (2025) provided an illustrative comparative analysis using a comparison of manually creating a thematic analysis to AI generation of the same topic of Christian Perfection. The topic was chosen for its rich set of writings over hundreds of years. One difference found was that the AI tool worked on fifteen sources of data within minutes, while the manual method worked with three sources. The net result was less time (weeks shrunk down to less than one hour) to work on more sources and create a credible thematic analysis and coding structure for thousands of pages of qualitative data.

Snider, et al. (2025) provided an example showing AI tools performing thematic analysis much faster than humans can and with more sources. What took weeks to perform manually on three sources took minutes to perform using AI and with 12 additional sources.

All prompts used in the study were the same for all AI tools used. One specific prompt asked the AI tool what coding structure (Saldana, 2021) was used to come up with the results found. This suggests that the coding approach was consistent with established qualitative methods.

The key prompts (page 18) for all AI tools in the article by Snider et al. (2025) were:

- PROMPT: based on the uploaded files, perform a thematic analysis on the topic of Christian Perfection
- PROMPT: What types of perfection are mentioned in the uploaded files and can you give descriptive charts or tables on the results
- PROMPT: can you provide counts on the different types of perfection mentioned
- PROMPT: provide an infographic on the uploaded files on the topic of Christian Perfection
- PROMPT: perform a sensitivity analysis on the uploaded files

- PROMPT: perform a sentiment analysis on the uploaded files
- PROMPT: What is the method and steps used to create a thematic analysis? Did you create coding or categorization before creating the themes? If so, what were they?

Tool	Type of Perfection
Human-Generated	Perfect in Christ Perfect in Love Perfect in Relationship Perfect in Surrender Perfect in Grace
ChatGPT.4o from OpenAI	Perfection in Conscience Theological and Mystical Perfection Practical and Daily Perfection Holistic Perfection in Love Perfection in Service and Works
Claude 3.5 Sonnet from Anthropic	Love-Centered Perfection Conscience/Spirit Perfection Theological/Mystical Perfection Progressive/Developmental Perfection Practical/Daily Perfection Natural/Divine Perfection
BibleBot from Kerigma Digital	Divine Law Perfection Moral/Spiritual Perfection Sanctification/Progressive Perfection Gift Perfection Corporate/Church Perfection
Gemini 1.5 PRO from Google	Perfection as to the state of the conscience Perfection as to the object of the heart Perfection in the principle of our walk Perfection in the character of our service Perfection in our equipment for service
Llama 3.1 from Meta	Christian Perfection Divine Perfection Moral Perfection Spiritual Perfection Absolute Perfection Relative Perfection Progressive Perfection Perfect Love Perfect Holiness Perfect Obedience

Table 1: Tools and Themes from Snider et al. (2025)

The results from the AI tools are just suggestions of themes to engage the writer to think critically about the coding and thematic generation (Snider, et al., 2025). It is not meant to be used directly from the AI and inserted into the dissertation. The method of using a coding scheme was the same between the manual and AI methods of thematic analysis (Creswell and Creswell, 2023). Codes were created using text data, organized into a coding structure, and ultimately themes. The AI tools were asked what process was used and each tool explained the coding method.

4. CONCLUSIONS AND IMPLICATIONS FOR IS/CS DOCTORAL EDUCATION

This paper outlined practical ways that doctoral researchers can use AI tools across dissertation chapters without committing plagiarism, positioning AI as an assistive technology rather than a substitute for scholarly judgment. The illustrative Christian Perfection case suggests that AI-assisted thematic analysis

can substantially reduce time while expanding the volume of qualitative data analyzed, provided that human researchers still validate coding structures, review themes against source texts, and situate findings within appropriate methodological traditions.

For IS/CS doctoral education, these findings imply that programs should explicitly address AI use in dissertation seminars, research methods courses, and supervisory guidelines. Chairs and methodologists can adopt chapter-by-chapter guidance like the framework proposed here to help students design appropriate prompts, document AI involvement, and distinguish between legitimate support (e.g., code generation, theme suggestions) and unethical practices (e.g., fabricated sources, undisclosed ghostwriting). Policies should also require transparent disclosure of material AI use in proposals, methods chapters, and acknowledgments, aligning doctoral practice with emerging publication standards on authorship, data integrity, and privacy.

From the perspective of the Research Chair for Dissertations, an AI tool can be an always-available stand-in for the Research Chair (mentor). AI can also act as a Research Assistant (colleague). AI should not write the paper, but should help in locating materials, formatting, and mentoring regarding research methods and statistical techniques.

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