Chapter 9
Planning, Writing and Defending Doctoral Thesis:
Strategies and Recommendations

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ABSTRACT

The purpose of this chapter is to explain the processes of successfully completing and defending a doctoral thesis. Despite the ever-growing number of candidates registering for doctorial programmes, here is a need to embolden them to fully understand strategies of producing a doctoral thesis and defending it. The chapter focus on six key issues: (1) choosing a research problem (2); reviewing previous literature (3) crafting the methodology (4) results (5) discussions (6) preparing and defending the thesis. The chapter contribution to the field by enabling doctoral candidates to understand ways to navigate the doctoral degree process and completion.

INTRODUCTION

The doctorate is the highest academic degree that a university can award to a doctoral candidate who has successfully completed a defined program of work and research in a particular field of study. The first doctoral degree was granted in Paris in the 12th century (Bourner, Bowden & Laing, 2020). Between the 12th and 19th centuries, doctoral degrees were typically in theology, law, and medicine. The first professional practice doctorate (Doctor of Jurisprudence) was awarded by the College of William and Mary in 1793 in the USA. These degrees were awarded decades

DOI: 10.4018/978-1-6684-4905-9.ch009

before the first U.S. Doctor of Philosophy (PhD, from the Latin Philosophiæ Doctor) was conferred by Yale University in 1861 (Bourner, Bowden & Laing; 2000). The first English PhD was issued by the University of Oxford in 1920, the same year that Harvard conferred its first "professional doctorate," a Doctor of Education (EdD). For hundreds of years, the doctorate degree has been held as the upper limit of higher education.

During the early 1990s, the UK doctorate diversified significantly. This shift was driven by the competitive knowledge economy, leading to the launch of professional doctorate programs to respond to demands from industry, professional bodies, and professionals for more relevant forms of learning, skills, and qualifications (Rolfe & Davies, 2009). The professional doctorate has become increasingly popular in several disciplines, including business, health, social sciences, education, and science. Several universities offer doctorates in Education (EdD), Business Administration (DBA), Engineering (EngD), Clinical Psychology (DClinPsy), Public Administration (DPh), and Professional Studies (DProf). Professional doctorates are delivered in part-time mode, and candidates usually have four to eight years to complete the program. These programs vary from research-based to taught programs, including those delivered via distance learning.

Professional doctorate programs are offered in countries such as Canada, Australia, New Zealand, Hong Kong, South American countries (e.g., Peru, Chile), the United Arab Emirates, South Africa, Gambia, China, India, Indonesia, and several European countries (e.g., France, Monaco, the Netherlands, Spain, Germany, Belgium, Ireland, Switzerland). Doctoral research requires identifying a relevant problem, conducting a systematic literature review to identify gaps in the literature, explaining the methodology employed, and demonstrating original contributions to knowledge. While both PhD and professional doctorate research are expected to contribute originally to knowledge, professional doctorate research is more applied and informed by real-world challenges in professional practice. These professional doctorates are becoming increasingly prominent as global education and qualification comparability are needed to promote mobility and strengthen career opportunities. Completing and successfully defending a doctoral thesis often boosts the candidate's career in their chosen field.

To explain the strategic approach to completing and defending a doctoral thesis.

1. To assist doctoral candidates in understanding the important steps to take when developing their thesis.
2. To suggest ways doctoral candidates should prepare for their viva.
3. To explain the viva process.

The remainder of the chapter will focus on discussing the following: choosing a research problem, reviewing previous literature, crafting the methodology, explaining results, contributions, and defending the thesis.

CHOOSING A RESEARCH PROBLEM

Identifying the research problem, is the issue being addressed in a study, is the first and most important step in undertaking research. A research problem is derived from a topic. A research topic is selected by considering the factors of interest, capabilities, motivations, manageability, time scale, and contribution to the literature. It is important that the research problem fulfils these factors. The fulfilment of these factors can indicate that the problem can and should be investigated. Choosing the research problem is one of the most sensitive steps in the research process and goes beyond rigor. Doctoral scholars should justify why they are conducting their research on a particular topic (Creswell, 2012), defined as "a general educational issue, concern, or controversy addressed in research that narrows the topic" (p. 60). A doctoral scholar expected to provide evidence of a research contribution (i.e., it should add something new) to existing knowledge in a field of research and provide solutions to the needs of Higher Education Institutions or industry. Thus, the doctoral scholar should start with a general statement introducing the main issue of the thesis, i.e., the research problem, and emphasize the significance of finding a solution.

Identifying what is not yet known about the research topic will strengthen the need for further investigation (Bell, Bryman & Harley; 2023; Maher, 2018). Doctoral scholars should consider the following questions:

1. Can the topic be enthusiastically pursued?
2. Is the problem solvable?
3. What is the potential for making an original contribution to the literature in the field?

Answering these questions will guide doctoral scholars to choose an appropriate research design, strategy and provide the structure for the next phases of the research process (Maher, 2018; Maher & Bedwei-Majdou, 2025; Marra & Nielsen, 2025). In addition to answering these questions, doctoral candidates should ensure that the research problem is related to their interests, capabilities, and motivations. To make sure that doctoral scholars can complete and submit their thesis on time, they should make sure that the topic they are selecting can be solved during the University thesis completion period. They should also consider whether the research problem

is manageable in size and make certain that the topic is timely and relevant, so that the thesis makes an original contribution to the literature and practice.

LITERATURE REVIEW CHAPTER

A literature review is a comprehensive overview of prior research regarding a specific topic. It is one of the core elements of any thesis and should be up-to-date and relevant to the research topic. It is important to conduct an extensive literature review by retrieving and using previous knowledge about a topic (Bryman & Bell, 2022; Brignardello-Petersen et al., 2025). Reviewing the also solidifies the doctoral scholars familiarity with the area of research. It also requires doctoral scholars to critically assess the knowledge they have on the topic and to gain more information where it is needed (Kumar & Praveenakumar, 2025; Maher & Bedwei-Majdou, 2025).

Identifying what is not yet known about the topic will strengthen the call for further investigation. This phase also solidifies the doctoral scholars understanding of the area of research. It also requires doctoral scholars to critically assess their existing knowledge on the topic and gain more information where necessary. Having an awareness and understanding of a range of appropriate theoretical perspectives is critical, and examiners expect this to be demonstrated in the thesis.

It is also important to demonstrate awareness of literature review models, such as:

(a) Narrative Literature Review: Is often a starting point for future inquiries and research developments; it summarizes previously published research on an area of interest. It focuses on concepts and theories, research methods, findings and identifying gaps or inconsistencies in a body of knowledge. Thus, helping researchers to determine research questions or formulate hypotheses. Narrative reviews do not propose novel conceptualizations or cumulative knowledge from what is reviewed to validate a theory; instead, they often synthesize the literature to demonstrate the value of a particular point of view. (Bell, Bryman & Kleinknecht, 2023: Andrews, Davis, Esin, Harrison, Hyden, Hyden & Squire; 2025).
(b) Developmental Literature Review: Provides new approaches to address existing research problems or offers directions for improvements to a research topic (Dudovsky, 2024). Developmental reviews may propose new conceptualizations or theoretical approaches, or critically analyse previous knowledge, offering constructive insights into problematic areas. The primary contribution of developmental reviews typically goes beyond simply gathering and synthesizing prior studies. They are usually highly iterative in nature. Researchers start with a broad research topic and refine it into a more nuanced question as evidence

from studies informs the topic (Hoon, 2013; Brignardello-Petersen, Santesso & Guyatt, 2025).

(c) Descriptive Literature Review - Determines the extent to which a body of knowledge in a particular research area reveals any interpretable pattern or trend with respect to pre-existing propositions, theories, methodologies, or findings. It follows a systematic and transparent procedure, including searching, screening, and classifying studies (Petersen, Vakkalanka & Kuzniarz, 2015). Descriptive literature reviews evaluate studies by extracting characteristics of interest, such as publication year, research methods, data collection methods, and the strength of findings and research outcomes (e.g., positive, negative, or non-significant) in the form of frequency analysis to produce quantitative results. Each study included in a descriptive review is treated as the unit of analysis, and the published literature as a whole provides a database from which the researcher(s) attempt to identify any interpretable trends or draw overall conclusions about the merits of existing propositions, methods, or findings (Brignardello-Petersen, Santesso & Guyatt, 2025). By doing so, a descriptive review may claim that its findings represent the state-of-the-art literature review process.

(d) Aggregative Literature Review: Involves a rigorous and consistent procedure for executing reviews, providing a clear set of research objectives and questions that guide the development of a structured review protocol. It follows explicit, systematic methods selected to minimize potential errors and bias, thus providing reliable findings from which conclusions can be drawn. By gathering and combining replications of prior research, aggregate reviews ensure formal appraisal of primary data quality to substantiate results.

The types of literature reviews discussed above will enable doctoral scholars to gain a better understanding of the differences between review types. Each type of review has its own strengths and limitations. However, the methodological rigour of any literature review is a critical aspect that should be considered seriously by doctoral candidates. All types of literature reviews focus on extracting the correct prior literature before primary data is collected for analysis (Maher, 2018). Errors or bias during the literature review can lead to misrepresentation in data analysis, which would decrease internal validity.

Further benefits of a thorough and well-planned literature review are that it gives doctoral scholars innovative ideas on how to determine where there are problems or flaws in existing research. It enables them to place their research in a larger context, demonstrating what new conclusions might result from their research, and to focus only on the aspects of previous studies that are relevant to their work (Brignardello-Petersen, Santesso & Guyatt, 2025). Reviewing the literature demonstrates that doctoral scholars have a firm understanding of the topic, giving them credibility

and instilling integrity into their overall research argument. If literature on the area of study is limited or patchy, or if aspects of a topic have not yet been examined, doctoral scholars should seek supplementary information by consulting industry experts, published reports, government publications, and academic conference papers. Additionally, the literature review generates a conceptual basis for the interview guide (Kallio, Pietilä, Johnson, & Kangasniemi, 2016; Crabtree., & Miller,2023).

CRAFTING THE METHODOLOGY CHAPTER

The methodological approach of the thesis should be explained and justified, providing a clear discussion of the ontological and epistemological assumptions underpinning the research (Bedwei-Majdoub, 2021). This explanation depends on the epistemological and ontological motivations of the research in general. In fact, an exploration of these motivations should be initiated with the decision to conduct research, as deciding whether the inquiry seeks an output related more to knowledge (epistemology), reality (ontology), or both is crucial for the selection of methods. Research in the social sciences, business management, and sciences is often considered more suitable for the deductive and positivist frameworks of quantitative studies associated with epistemology (Dudovsky, 2024). These frameworks, which aim to discover what is objective and fundamentally true for a particular area (e.g., the market share of a brand or the impact of social media on the mental health of young people), tend to perpetuate the epistemological assumptions attributed to their most used research tool, the survey (Maher & Bedwei-Majdou; 2025).

However, they also rely on ontological assumptions that are challenged by the inductive and phenomenological paradigms, with which positivism is often contrasted (Dudovsky, 2024). In positivism, reality is viewed as mind-independent, objective, and observable. In contrast, phenomenology suggests that reality is subjective and socially constructed. Therefore, ontology is applicable to both the deductive and inductive frameworks, but the relevance of positivist epistemology may be less clear in the inductive framework, where knowledge is considered a matter of individual perception, while in the deductive framework, knowledge is factual and objective (Bedwei-Majdoub, 2021; Maher & Bedwei-Majdoub, 2025).

Doctoral researchers should also demonstrate an understanding of the most used research methods in their field to show their grasp of research design, strategy, methods of data collection, and analysis. The alignment between methodological components and the research questions directly contributes to methodological coherence (Bell, Bryman & Harley; 2023). Researchers need to be aware of the distinction between "methodology" and "method." Methodology refers to the theoretical analysis of research, while the method refers to the systematic and structured approach to data

collection and analysis. Different types of studies require different methodologies. There are generally three main types of methods used in business management and social sciences research:

Quantitative Method

This method systematically views the population numerically, quantifying the data in percentages relative to the whole. It is vital to design a survey that will yield meaningful information during data collection. The survey should begin with an introduction that explains the topic and purpose, clearly indicating that participants' answers are strictly confidential. This ensures that participants feel comfortable providing honest feedback and personal information. Additionally, the survey questions must be theoretically sound and field-tested to ensure the validity and reliability of the instrument (Hair, Page, & Brunsveld, (2019). Once the survey is prepared, it can be administered via post, telephone, email/internet, or self-administered. The following are common types of survey questions:

- Open-ended Questions: These require elaboration and cannot be answered with a simple “yes” or “no.”
- Ranking Scales: Participants rank responses to selected statements, usually on a scale (e.g., No. 1 is the lowest, No. 10 is the highest).
- Sliding Scales: These questions assess participants' attitudes and feelings about a given situation, product, or event. For example, the participant may indicate their degree of agreement or disagreement with a statement.
- Multiple-choice Questions: Participants select one of several options.
- Dichotomous Questions: The participant responds with either Yes/No or True/False.
- Participants' responses in surveys are assigned scores, and the data is then analysed statistically. This method makes it easier for other researchers to follow and understand the research findings or test its reliability.

Qualitative Method

This method focuses on the interpretation, understanding, and perspectives of participants. It is concerned with the quality of information and data collected from fieldwork, aiming to gather participants' views and perceptions of their experiences. Structured interviews typically involve pre-designed questions that are asked in a

face-to-face or phone interview. The advantage of structured interviews is that the data collected is uniform, ensuring comparability.

Unstructured interviews, by contrast, are less formal, with the researcher having complete freedom regarding content, wording, and style of questioning. Unstructured interviews are commonly used in both qualitative and quantitative data collection. Researchers using semi-structured interviews should apply scholarly judgment and interpretation. These interviews are often based on focus group discussions, observations, multimedia conferencing, face-to-face interviews, or phone interviews.

The interview process offers a valuable opportunity for the researcher to learn about participants' perspectives. It fosters reciprocity between the researcher and participants (Bell et al., 2023; Galletta, 2013). Interviews conducted haphazardly with little preparation can lead to disappointing results, wasting both time and resources (Clark et al., 2021; Crabtree et al., 2023). The use of semi-structured or open-ended interviews allows flexibility in questioning, making the interview feel more like a conversation while maintaining focus on the research topic. Additionally, the researcher can ask follow-up questions based on participants' responses (Bell et al., 2022; Maher & Bedwei-Majdoub, 2025).

Mixed Methods

The use of quantitative with qualitative methods in a single study are increasingly being recognised for their ability to provide deep insights into organisational culture, human resource management and commercial processes. Several researchers (Leppens, Chatteur, & Perkins, 2023; Oranga, 2025) outline the principles, strategies, and guidance for effectively combining quantitative and qualitative methods. They emphasise the adaptability of mixed-methods research across various disciplines, highlighting its utility in providing a more robust and nuanced understanding of research questions emphasizing the growing significance of mixed methodology research in business management and social sciences (Maher, 2018) .Thus, a mixed method research question requires that both quantitative data and qualitative data are collected and analysed either concurrently, sequentially, or iteratively before the research question is addressed.

Ethical Considerations in Research

Ethical considerations are paramount in data collection. Ethical concerns in social science and business management research aim to avoid any risks to participants' physical and psychological well-being (Denzin, Lincoln, Giardina, & Canella, 2023). Before starting fieldwork, the researcher must seek ethical approval from the

University Ethics Committee (Rana, Dilshad & Ahsan, 2023). The researcher must obtain a signed consent form from each participant, ensuring that:

(a) Consent is given voluntarily, with participants understanding what is being asked of them. (b) Participants are adequately informed about the research and have the freedom to choose whether to participate. (c) Participants are informed that they can withdraw from the research at any time (Rana, Dilshad, & Ahsan, 2023). In certain situations, verbal consent may be used, particularly in communities where participants may be illiterate or place more value on spoken words than written ones (Wa-Mbaleka & Wa-Mbaleka, 2021). In such cases, the informed consent statements should be read aloud, and verbal consent should be audio-recorded.

By adopting an ethical approach throughout the process, doctoral candidates ensure the credibility of their work and demonstrate how they plan to align participants' evidence with their perceptions (Goldim & Fernandes, 2023; Islam, 2025; Maher, 2018). Additionally, attention to trustworthiness criteria when planning data collection and the interview process is crucial for maintaining the quality of the research.

Drafting the Interview Guide

It is important for the researcher to assess the interview guide before scheduling interviews with participants (Maher, 2013). When drafting the interview guide (i.e., the list of questions to ask participants), careful formulation is crucial to the success of the research. The way questions are framed greatly influences the research design. The interview guide should be clear, unambiguous, and developed early in the research process. Once the literature review is completed, the research questions should be refined, focused, and revised (Maher, 2023; Kumar & Praveenakumar, 2025).

The interview guide should outline the topics and questions to be addressed in a logical sequence. This is typically guided by the interview guide, which helps direct the conversation toward the areas the researcher intends to explore. Interview guides can range from highly scripted to loosely worded but share certain common features. This guidance assists doctoral candidates in preparing for what to ask, in what order, and how to pose follow-up questions (Bell & Bryman, 2022).

The rigorous development of interview guides produces trustworthy results (Blandford, 2013; Bryman & Bell, 2022). This process requires various skills, including self-awareness, careful planning, and highly developed interpersonal, emotional, and ethical skills (Bell & Bryman, 2023). The researcher must ensure that the research design is internally coherent and reflected in the interview guide. The guide should inspire confidence that the methodology is justifiable. The epistemological and ontological assumptions outlined earlier support the researcher's validity and reliability claims regarding the research output.

The Interview Guide

Field-testing of the interview guide is an essential step in refining the interview process and ensuring that the interview questions are clear and effective (Turner, 2010; Bell, Bryman & Harley, 2023). The guide should aim to generate exclusive, in-depth, and spontaneous responses from participants (Crabtre Krauss et al., 2009). It is essential to pilot the guide with a small group of participants (four to eight) to assess the clarity of the questions and make necessary adjustments (Selvi, 2019). Field-testing improves the quality of data collection, ensures the validity of the responses, and helps the researcher identify any biases or flaws in the questions (Maher,2023).

When planning the field test, consider the following recruitment and relationship management factors:

1. Who the appropriate participants are and how to recruit them.
2. Where and when to collaborate with participants in data gathering.
3. How to engage with participants throughout the research project.

Creswell and Báez (2020) emphasize the importance of selecting the appropriate participants for interviews. Researchers should use sampling strategies such as criterion-based sampling or critical case sampling to recruit participants who are likely to provide credible, open, and honest information. Interviews should ideally take place in a comfortable, familiar setting for the participants. Furthermore, approaches to recruitment will depend on the purpose of the research project and the types of participants needed. These approaches include:

a. Direct Contact: Approaching individuals in the workplace, with authorization from line managers if needed, or engaging with people in public spaces, with due regard for safety, informed consent, etc.
b. Mediated Contact: An introduction through someone else, such as the Head of Department in a company, friends, acquaintances, or other participants.
c. Advertising: Via noticeboards in physical spaces, targeted email lists, or through online platforms, social networks, and social media.

What matters is that the approach to recruitment is effective in terms of recruiting both a suitable number of participants and the appropriate participants for the overall aims and objectives of the research project Saunders, 2012). Two frequently asked questions are: “How many participants should be included in a research project?” The answer is, “it depends”—on the aims and objectives of the research and the available resources. In practice, pragmatic factors often determine how many

participants to involve in a research project. One factor might be the time available: recruiting each participant, arranging and conducting data collection, and analysing the data can be time-consuming. Another factor is the availability of participants who meet the recruitment criteria, for example, performing a specific role in an organization or having certain experience (Maher, 2018).

Throughout the recruitment and interview process, it is important to remain aware of participants' motivations for participating and their expectations of the outcome, whether, for example, they expect novel interaction designs or simply want to gain the experience of participating (Bell, Bryman & Kleinknecht, 2023). If doctoral candidates intend to conduct interviews with diverse groups, questions should be tailored to each specific group. Researchers should ensure they budget enough time to carefully draft and edit the interview guide and questions, allowing for several iterations and feedback from the supervisory team.

When introducing sensitive topics, where participants may have reasons to share or withhold certain information or behave in particular ways, it is also important to be aware of motivations and their effects on the data gathered (Maher, 2016). Such considerations imply the need to:

1. Review data-gathering techniques to maximize the likelihood of collecting valid data.
2. Use collaboration from other sources to ensure the validity of the data.
3. Reflect on data quality and the implications for the findings.

During the interview with participants, begin with a comfortable conversation to break the ice:

1. Use introductory questions: "Can you tell me about […]?" "Do you remember an occasion when […]?" "What happened in the episode you mentioned?"
2. Put positive questions first: "What are the good things about X?" or "What do you like about Y?" The advantage of this approach is that some participants, once they start with a critical tone, may find it difficult to say anything positive, as if they are worried, they might contradict themselves or downplay their grievances. Afterward, ask about areas needing improvement, always maintaining a neutral, nonjudgmental tone.
3. Decide in advance which questions are vital and which ones are optional. In theory, semi-structured qualitative interviews can be lengthy. As part of the preparation strategy, omit questions asking for simple facts that can be retrieved from an organization's website or public domain (unless you want to assess participants' understanding of those facts).

4. Transition to other questions: Use key questions to finish one part of the interview and open another. For example, "I would now like to introduce another topic [...]"
5. Follow-up questions: Direct questioning based on what the participant has just said, often by nodding or repeating significant words.
6. Specify questions: Develop more precise descriptions from general information, such as "What did you think happened there?" or "How did you react to what you heard or saw?"
7. Direct questions: Elicit direct responses. For example, "Having received that information, what did you do?" If participants use unrecognized acronyms, prompt them to elaborate by asking, "Could you expand on that?" Clarify what acronyms mean when used by participants before moving on to the next question. If the information provided is unclear, do not hesitate to request clarification. If participants drift into extraneous territory, wait until they finish before gently bringing them back to the priority topic.
8. Indirect questions: Pose ancillary questions, such as "How do you believe managers thought of these actions by staff members?"
9. Silences: Allow pauses to give participants time to reflect and let them break the silence themselves with significant information.
10. Interpreting questions: Rephrase the participant's answer to clarify and interpret rather than to explore current information. For example, "So you mean that [....]?" or "Is it correct that you felt that way?"
11. Avoid acronyms for non-native English speakers: If English is not a participant's first language, avoid using acronyms. Take care not to talk down to them.
12. Remove stigma: Search for ways to remove any stigma attached to certain answers. Instead of asking about what is "bad," ask about "areas that need improvement or further development."
13. Document references: Some participants may refer to certain documents that the researcher may not yet have. Keep a list of such documents (that are not subject to privacy restrictions) so these items can be collected immediately after the interview or ask participants to send a digital copy or a physical version by post. The post-interview thank-you note/email can serve as a reminder for participants to send the documents.
14. Demographic questions: Questions about marital status, age, education level, and income are best saved for the end of the interview. These questions raise fundamental identity issues. Instead of asking for exact amounts participant's income, ask participants to select from broad categories (e.g., income ranges).
15. Probing questions: Keep questions open-ended to draw out more detailed narratives. Probing questions allow for interaction between the researcher and participants, helping build rapport (Hair, Page & Brunsveld, 2019). Probing

can be both non-verbal and verbal. Non-verbal probing refers to maintaining silence and letting the participant think aloud (Flick, 2013; Maher, 2016).

16. Verbal probes: Repeating or rephrasing the participant's words, expressing interest with verbal agreement, or giving the impression that the researcher is aware of some relevant information. Probing ensures the reliability of data by prompting participants to clarify and elaborate on important issues they raise. This allows the interviewer to elicit valuable information by further exploring participants' responses and guiding them to recall something from their memory, as well as clarifying any discrepancies.
17. Prompt for descriptive answers: Ask for more detailed descriptions using "What," "Who," "Where," "When," "How," and in some cases, "Why." For example, "Could you say more about that issue?" "Can you give a more detailed description of what happened?" "Do you have further examples of this?"
18. Restate to confirm understanding: From time to time, it can be helpful to restate, in one or two sentences, the key points made by the participant, using their own words. This active listening technique reinforces that the researcher has understood the points made.
19. Audio recording interviews: Ensure that all interviews are digitally audio-recorded with the permission of each participant. This enables the researcher to have a record of the interviews and analyse the information provided in detail.
20. Closing the interview: At the end of each interview, give participants the opportunity to provide any additional information they consider relevant to the research.

The next step is data analysis. During data analysis, the separate data points collected by the doctoral candidate are summarized and integrated into a unified picture (Maher, 2016; Savin-Baden & Major, 2023).

Data Analysis

Analysis and synthesis can be performed following different methods and approaches. This is a systematic process of applying logical techniques and statistical instruments (for quantitative data) to give meaning and interpretation to the collected data. The data should be illustrated and evaluated properly to reach a meaningful conclusion. The accuracy of the findings depends on whether the data have been analysed correctly (Maher 2018, 2023).

It is essential to apply a sound theoretical framework when conducting data analysis. A seminal data analysis technique developed by Miles and Huberman (1994) offers a framework that describes the major phases of data analysis. Pre-test, post-test, surveys, observations, checklists, and interviews should be coded and made

ready for data entry. Common statistical analyses include descriptive statistics (e.g., means, standard deviations, frequencies, counts, and percentages) and widely used statistical tools (e.g., ANOVA, pairwise t-test, etc.). Microsoft Excel and the Statistical Package for the Social Sciences (SPSS) are commonly used to test hypotheses and analyse t-tests, chi-square tests, correlations, analysis of variance, and regression.

Based on Miles and Huberman's (1994) framework, the collected data should be analysed as follows:

1. Data Reduction: This involves using a combination of deductive and inductive analyses to organize the collected data. The data should be categorized and meaningfully reconfigured. Focus on crucial data, simplify, and extract it for easy comprehension.
2. Data Display: Patterns and interrelationships among the collected data need to be organized based on the research questions or hypotheses. Critical means and supporting evidence should be carefully analysed.
3. Data Verification: The conformity and validity of the data should be verified, and the implications of the collected data in answering the research questions or hypotheses must be assessed. Data should be cross-checked several times to determine its validity and reliability.

Next the importance of analysing the fieldwork findings, interpret their meaning, and show their importance are discussed.

RESULTS CHAPTER

A thesis is incomplete without a strong discussion of the research results. However, many doctoral candidates run out of steam by the time they start explaining their results. The objective of the results chapter is to outline the crucial findings of the fieldwork investigations without discussing or interpreting the meaning of your variables and findings. Always remember that there are other possible answers to your research questions. Show that your research findings can be applied to real-life situations. It is difficult to evaluate the contribution of a doctoral thesis if limited effort is made to explain and discuss the results, considering prior literature and the research questions or hypotheses (Maher, 2018). The Results chapter is a very important part of scholarly research. Write in a scientific and scholarly style. Use proper terminology when reporting the results. Simply report what you discovered objectively. Ensure that your writing is clear and that you use charts or tables to

help the external examiner understand the results and relate them to the research objectives.

When reporting the results, doctoral candidates should ensure they are properly organized. It is always helpful to start with a small introduction to the chapter's intentions. A short paragraph would help the examiners remember the research problem, research questions, or hypotheses, allowing them to better understand the results. Pay attention to the key findings from the fieldwork. Report results in the past tense, as the data have already been collected. When explaining results, avoid phrases like, "I found that..."; instead, state, "This research examined... and found that..." and so on. Start from the research problem statement and provide evidence to show that you have proven or disproven the research problem. Reiterate the research questions and explain, with evidence, what was discovered. Have you answered all your research questions? If you have presented hypotheses, explain whether they were accepted or rejected, using evidence based on the findings.

Doctoral candidates using statistical analysis should employ sub-sections and sub-headings to organize the results (Hair, Page, & Brunsveld, 2019). For example, if you plan to test multiple hypotheses using several regressions, create a section for each hypothesis tested and present the results of each hypothesis within that section before moving on to the next hypothesis and analysis. The order of the sections should mirror how the hypotheses were discussed in the literature review and methodology chapter to maintain organization throughout the thesis. Following this, explain the analysis used to test the hypothesis in a table, and clearly report the findings without distortion or interpretation, indicating which hypotheses were supported, not supported, or partially supported (Hair, Page, & Brunsveld, 2019). The length of the results chapter depends on the amount of data collected, as well as the number of charts, tables, graphs, etc., used to make the presentation of the results more meaningful and easier to understand. If more than one type of analysis was employed in the study, each should be described in the order the results will be presented. This discussion should cover the more technical aspects of the analysis, such as the statistical underpinnings, formulas for the analysis, the alpha level (p-value) used for hypothesis testing, and the specific variables used in each analysis.

At the end of the chapter, summarize how the results have answered the research problem, questions, and/or hypotheses. Outline the significance of the findings chronologically. Report the most significant part of your results first. At the end of the results chapter, write a concluding paragraph like the one in the introduction. In this way, the examiners will recall what you stated earlier.

Don't forget to discuss the weaknesses and limitations of the study so that other researchers can carry out further investigative work beyond the scope of the study. Yet do not worry if the findings do not support the hypothesis. Just be professional

and honest. Even negative results are significant findings that may be of interest to other researchers, prompting them to continue investigating further.

Construct an outline of the content in the results chapter so that you know exactly what to include or exclude. If you include too many facts or unnecessary findings, the results chapter will become cluttered. Try to be concise and to the point so that the results are manageable and easy to understand. Report what was discovered during the fieldwork, based on the data collected. Interpretation and argument can be discussed in the chapter that follows.

DISCUSSION CHAPTER

The main purpose of the discussion chapter is to enlighten the examiner about the significance of the research findings. The Discussion highlights the evidence and data collected and explains how the research questions have been answered. This chapter should also refer to other similar or related studies.

Keep in mind that the discussion chapter is a humble presentation of your scientific investigation. Have respect for other scholarly work and avoid being defensive. If you follow these ethics of research, you will be acknowledged among your peers. It might be useful to briefly mention your research questions and hypotheses again so that the reader can relate them to the discussion of your findings. Outline your objectives in conducting the research. Emphasize the importance of your investigation and the answers you have found. Discuss the why, the what, and the how of your investigation. Emphasize the significance and impact of your research in your conclusion. The examiner is keen to know your contributions to existing knowledge in the discipline.

The thesis should discuss the contributions (original or significant) to new knowledge, as this is a requirement of all doctoral theses. When discussing what a contribution to new knowledge entails, the terms “novelty” and “originality” are often used (Chetcuti, Cacciottolo & Vella, 2022). The Discussion chapter is an important part of a doctoral thesis. In this chapter, doctoral researchers should argue scientifically and logically to defend, support, and explain answers to the research questions or confirm or reject the research hypothesis.

In this chapter, include only issues that are of vital importance, while excluding less important ones. Start with specific issues, i.e., interpret the findings, and gradually move on to discuss how the findings can be generalized and applied. Explain how field-tested theories have supported the findings. You can also cite peer reviewed papers from other researchers who have done similar studies on the related topic. Point out how the application of an appropriate methodology and clearly defined concepts have increased the validity and reliability of the investigation.

Always stress that you have a reliable and measurable outcome and contribution to the field of study. Remember, when writing the Introduction chapter, you start from general to specific statements. It is vital to discuss everything starting from the specific and ending with a general understanding of things. Similarly to the rest of the chapters, this chapter should follow the scientific style of thesis writing, as other scholars may want to cite your work to acknowledge your contribution.

Address all important issues, such as the research problem, research questions, and hypotheses, one by one, and support your justification with documented evidence from other scholarly work. Impartiality is vital when discussing arguments from other scholars; discuss why the findings are different, practical, and relevant to the study at hand. Explain how your findings differ from others and support your claims with evidence from your findings (Pokharel, 2021; Maher, 2023). If you have conflicting findings, explain them so that you can make meaningful and logical arguments. Discuss the potential real-life applications of your findings to demonstrate their significance and impact on academia and industry.

Remember that your thesis may not be perfect, but you should endeavour to help the examiners understand the significance of your findings and contributions to your field of study. Ensure that the writing is free from typographical errors and grammatical mistakes. Consider using a reputable editor to proofread the thesis.

PREPARING AND DEFENDING THE THESIS

There are two key phases of preparation for the viva voce, commonly shortened to viva or defence. This is an oral examination of a doctoral candidate on their thesis. Phase one requires the candidate to prepare a written submission of the thesis, while phase two involves preparing for the oral examination. This is the time when the candidate is given an opportunity to explain the output of their research and to highlight their research contributions to knowledge, defend their findings and contributions to practice (Lantsoght, 2022). For examiners, a viva session is used to identify the originality, strengths, weaknesses, and trustworthiness of the candidate's thesis. The viva is usually conducted by the examination panel Chair and two examiners—one of whom is a member of the University where the thesis was produced (internal examiner) and the other is typically an expert on the thesis topic from another University (external examiner).

The panel Chair will request that the room where the viva will take place have a comfortable temperature, tables, chairs, drinking water, etc. The panel chair should be mindful of the well-being of everyone, e.g., scheduling comfort breaks and ensuring that the viva is conducted in line with the University's policy and guidelines.

The examiners will review copies of the submitted thesis independently before the viva date and express their respective opinions about the contents of the thesis in a written report. They are required to exchange their reports before the viva takes place and agree on a strategy for structuring questions and discussions with the doctoral candidate. This may take the form of questions about sections of each chapter, themes raised by the thesis, or a combination of both.

Preparing for the Viva

As the viva is an oral examination, both examiners may ask the candidate as many questions as they wish about the thesis. Here are some examples of how doctoral candidates should prepare:

1. The candidate should present their work to colleagues, attend internal University seminars, and work closely with their supervisors. Share (2016) suggests that candidates who prepared for their viva by receiving advice from their supervisor(s), presenting at conferences or internal seminars, and reading books and articles about the viva felt more confident in their preparation.
2. Read the thesis several times until you can identify chapters and sections where specific issues were discussed. For example, if the examiners ask about the strengths of the methodology employed, philosophical stance, or findings, the candidate should be able to recall the exact chapter and section where these were discussed. Be prepared for the unexpected.
3. It is likely that the candidate's supervisors will arrange a mock viva. It is good practice to participate in a mock viva so the candidate can practice and gain some understanding of the viva process.
4. The mock viva examiners should ask the candidate questions in the same way that the examiners would at the scheduled viva.
5. After the mock viva, the candidate should revisit the thesis, using the mock examiners' suggestions to make changes and discuss them with supervisors.
6. A few weeks before the scheduled viva date, the candidate should ask supervisors who have been appointed as their examiners. Upon receiving this information, the candidate should research the examiners—what is their area of expertise? What have they published? It is important for the candidate to be aware of their examiners' research interests and work. Understanding the backgrounds and expertise of the examiners is crucial, as it enables candidates to anticipate areas of questioning and respond effectively.

7. If the examiners have published articles in the candidate's research area, the candidate should read those publications and reference them in their thesis if this has not already been done. The candidate should prepare in advance before the viva.
8. This next point is vitally important: it is paramount that the candidate should not contact the examiners to discuss the viva. It is unethical.
9. All communication between the candidate and the examiners before or after the viva should go through their supervisor(s) or the University Examination Department.
10. Practicing relaxation exercises and taking care of their health and wellbeing will also help the candidate on the day of the viva. Davis and Engward (2018) found that the viva is often an emotional and anxious experience for candidates, both before and during the viva. Learning strategies to manage stress and anxiety will benefit the candidate.

The Viva Process

On the day of the viva, the candidate should arrive early to meet with their supervisors. The candidate should bring a copy of their thesis, any publications (if applicable), a notebook, and a pen. Typing information on a laptop during the viva will be distracting for both the candidate and the examiners. The way a viva is conducted depends on the chairperson. The chairperson will facilitate the session to ensure that the viva runs smoothly. Here is an example of the sequence of events during a viva:

- The chairperson will brief the examiners about the candidate, the University viva procedures, and the expectations from the examiners.
- The candidate will be invited to take a seat.
- Supervisors and invited observers will take their seats.
- The chairperson will introduce attendees in the room and brief them about the how the viva will be conducted.

The candidate may be asked to give a presentation or summary of their thesis objectives and findings. The time allotted ranges between 15 to 30 minutes. The main purpose is to allow the candidate to briefly explain their research. After the candidate has completed the presentation or summary of the thesis (if asked to do so), the question-and-answer (Q&A) session begins. Depending on the chairperson, the Q&A will normally be conducted in two rounds. In the first round, both examiners will ask the candidate broad questions about their work. Here are some examples of the types of questions the candidate may be asked:

- Why did you choose this topic?
- Have you achieved your objectives?
- Why did you choose this methodology?
- What have you learned during the process of conducting the research?
- What are the main contributions of your research?
- Have you presented your work at a conference, seminar, or published in an academic journal?

In the second round, the examiners may ask the candidate questions chapter-by-chapter, section-by-section, or sometimes page-by-page. There is no specific time set for a viva. It can last an hour, two hours, or more, depending on the examiners and the candidate's performance. During the viva, the examiners will ask about various aspects of the thesis. Typically, they want to ensure that the candidate can prove the originality of the work, defend the methodology used and discuss the major findings, highlight the outcomes of the research, and explain the contribution to knowledge and practice (Bedwell & Butcher, 2022). The examiners will seek clarification on any unclear phrases or sentences. They may ask the candidate: If given the opportunity to do the same research again, would you choose the same methodology? Are you aware of the latest developments in your field?

The examiners are experts in the field of research. The candidate should not overlook their knowledge and capabilities (Pokharel, 2021). The candidate should not rush their answers or display a bad attitude or arrogance. Take time to think about how best to answer each question. The candidate should be honest during the viva and answer questions clearly and carefully. Avoid interrupting the examiners' questions or statements; wait for the examiners to finish before responding. Interrupting could lead to incorrect answers or misinterpretation of the questions. At the end of the questions, the candidate should thank the examiners for their time and interest in their research.

Next, the candidate and their supervisors will be asked to leave the viva room. The examiners will then discuss the results of the viva. Sometimes, this may take a long time to reach a decision due to differences of opinion between the external and internal examiners. Once an agreement is reached, the candidate and their supervisors will be called back into the room, and the chairperson will announce the results. The result is what the candidate has been waiting for after years of researching, developing, and writing their thesis. When the chairperson says to the candidate, "You have passed," the candidate and their supervisors should listen very carefully.

Typically, there are several passing categories:

a. PASS without modification.
b. PASS with minor changes to be resubmitted to the internal examiner.

c. PASS with minor changes to be resubmitted to both internal and external examiners.
d. PASS with major changes to be resubmitted to the Internal examiner.
e. PASS with major changes to be resubmitted to both Internal and external examiners.
f. Not awarding the degree, without the option of resubmission.

The candidate and their supervisors should aim to receive the first PASS category (pass without modification), but this is rare. The common results are typically category b or c. If there are major flaws in the research, the candidate may receive category d or e, meaning they might be asked to redo major parts of their work. The examiners will provide detailed feedback for suggested changes after the viva, but it is useful for the candidate to make notes of their own during the viva. If the candidate receives category f, they can appeal. The degree-awarding body typically follows the recommendation of the examiners unless there are inconsistencies in the examiners' reports or other irregularities that the candidate and their supervisors can identify as evidence for an appeal. The University's degree regulations will have guidelines on how to process the candidate's appeal.

CONCLUSION

This chapter offers strategic and practical guidance for doctoral candidates to successfully complete and defend their thesis. The process of completing a thesis is not only about conducting high-quality research but also about effectively presenting and defending that research in a way that meets rigorous academic standards. Achieving this requires careful planning, thorough preparation, and the ability to communicate findings with clarity and precision.

Key strategies for completing the thesis include maintaining a clear, systematic structure, organizing the research coherently, and ensuring that the thesis contributes novel knowledge to the field. The importance of objective, scholarly writing is emphasized, with attention to proper citation and academic language throughout the document. The thesis must demonstrate both original thought and a deep understanding of the research topic.

Equally important is the preparation for the viva voce—the oral defence of the thesis. This chapter accentuates the importance of being thoroughly prepared to discuss and defend the research in front of the examination panel. Candidates should be prepared to articulate the significance of their findings, defend the methodology employed, and address any potential weaknesses or limitations in the study.

Moreover, the chapter emphasizes the need for doctoral candidates to approach the viva with confidence and professionalism. Even when faced with critical questions or challenges, maintaining a composed and respectful demeanour is key. Demonstrating a willingness to engage with constructive feedback, acknowledging areas for improvement, and defending the research with evidence-based arguments are all essential aspects of a successful viva.

Furthermore, managing stress and anxiety is an integral part of the viva preparation process. Candidates should practice relaxation techniques and focus on self-care to perform at their best on the day of the examination. By approaching the viva with a clear mind and a well-prepared defence, candidates can increase their chances of success.

The completion and defence of a doctoral thesis is a complex, multifaceted endeavour that demands careful preparation, critical reflection, and clear communication. The strategies outlined in this chapter are designed to help doctoral candidates navigate this process effectively, ensuring they are well-equipped to meet the expectations of their examiners and make a meaningful contribution to their field.

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KEY TERMS AND DEFINITIONS

Causation: When you are investigating, you will notice changes in your sample or subject before and after an experiment. For instance, if it is found that absentee students form the largest group of failures, we can conclude that absenteeism is the cause of failure.

Correlation: This refers to a relationship between two variables. You want to measure the variable that is the cause of a change. Once you notice a change in one variable, then you can presume how another will change. For instance, you note that hard working students always pass their exams with flying colours. On the other hand, those who are not hard working always perform badly in their exams. There is thus a positive correlation between hard work and success.

Doctoral Candidates: are individuals registered in a doctoral degree programme in a University or Higher Education Institution.

Random Sample: When you need a certain number of participants for a survey or experimental study, opting for a random sampling implies that all members of the target population have an equal chance of being selected.

Research Problem: Is a specific issue or gap in knowledge that a researcher aims to address through a systematic investigation. It acts as the foundation of the entire research process, guiding the development of research questions, objectives, and methods.

Sampling: You must decide how to select a small but representative portion of the target population.

Triangulation: This method mixes three methodologies, viz. qualitative, quantitative, and observation. It is vital to choose a methodology that is appropriate for your research. Qualitative method: is used to collect and analyse data while quantitative method can be used to further strengthen the qualitative data. Research shows that quantitative data reinforces qualitative data.

Variables: When something is a variable, it is not consistent but is prone to change, for example, age, height, weight, and income. These attributes take different values among people.

Viva Voce: Refers to an oral examination that is typically part of the process of earning a doctoral degree.