



QUALITATIVE VS QUANTITATIVE: THE DIFFERENCE IN THE KEY SECTIONS OF DOCTORAL DISSERTATIONS – A COMPARATIVE ANALYSIS AND A SUMMARY OF FINDINGS

Azad Ali*	University of Fairfax, Salem, VA, USA	aali@ufairfax.edu
Umesh Varma	University of Fairfax, Salem, VA, USA	ucvarma@ufairfax.edu
Shardul Pandya	University of Fairfax, Salem, VA, USA	Spandya@ufairfax.edu

* Corresponding author

ABSTRACT

Aim/Purpose	The aim is to conduct a comparative analysis and summarize findings on the difference between the key sections of quantitative doctoral dissertations versus qualitative doctoral dissertations. A summary of the findings will be presented in a tabulated format with bullet points to help clarify the differences between the two approaches.
Background	Doctoral students often face challenges in selecting a qualitative or quantitative doctoral approach for writing their dissertation documents. The challenge is usually faced at the outset of the process. Students contemplate which approach and the difference between them. The students also may not know the specific requirements for each section of the dissertation for each approach. Conducting a comparative analysis and providing a tabulated summary of the difference between the two approaches is deemed to be helpful to the students.
Methodology	First, this research is an attempt to investigate and analyze the existing literature to establish a contextual framework for a structured and logical dissertation process applicable to both qualitative and quantitative research approaches. Second, the paper applies the framework to both approaches to guide doctoral students in the completion of the dissertation process. Unlike

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	many other studies, this study provides doctoral students with a foundation to develop and build a research identity, leading to quality doctoral dissertations. This study is significant for doctoral students' preparedness for the dissertation process as they move through different stages and apply appropriate pedagogical approaches to not only connect these stages but also scientifically and logically validate the relationships between these stages.
Contribution	Developing a tabulated summary of findings based on comparative analysis for the differences between the key sections of qualitative and quantitative to be used as a reference for doctoral mentors/advisors as they guide their students on the choice between qualitative or quantitative dissertation approaches. This study is different from other studies published on the same topic for two reasons. First, this paper focuses on specific sections of the doctoral dissertation, namely seven sections that are considered "key" sections of the dissertation document. Second, the study provides a tabulated summary at the end. The one-page summary of keywords suggests what is included in each approach (qualitative vs quantitative). The summary of keywords could also initiate further discussion and research on the same topics.
Findings	The outcome of this study is the presentation of a tabulated summary of findings on the difference in the key sections of qualitative doctoral dissertations versus quantitative doctoral dissertations. The findings of this research aim to help doctoral mentors/advisors guide students when contemplating the selection of research approach and doctoral students who are conflicted between the two approaches.
Recommendations for Practitioners	Performing comparative analysis and presenting the findings in a tabulated summary to doctoral students is deemed helpful. It helps address the challenges the students face at the beginning of their dissertation writing when they contemplate the selection between the two study approaches.
Recommendations for Researchers	More research is needed to give examples of the differences between qualitative and quantitative dissertations.
Impact on Society	The findings of this research aim to help doctoral mentors/advisors guide students when contemplating the selection of research approach and doctoral students who are conflicted between the two approaches.
Keywords	doctoral dissertations, qualitative vs quantitative dissertations, comparative analysis, qualitative vs quantitative research

INTRODUCTION

The successful completion of a doctoral dissertation is not just confined to discipline or topic, mentoring or advising, and data collection or analysis. Establishing a dissertation process in the context of qualitative and quantitative methods can ensure that the doctoral student verifies the acquisition of scholarship and validates the dissertation process from the start. This study could help doctoral students to avoid the "all but dissertation" (ABD) situation by focusing on the deliverables from start to finish - concept, construct, variables, operationalization of variables, and outcome - and translating the outcome into a significant contribution made towards their specific disciplines. With the help of a series of illustrations and examples, this study provides doctoral students with a discipline-independent framework to refine their research model based on either qualitative or quantitative methods, understand the difference between testing a theory and establishing a new one, and communicate with confidence the significant contribution made by their research. Defending

their research with motivation, confidence, and scientific justification could help the researcher earn the “Dr” title. Students often decide to select a research approach at the start of the dissertation writing process (Levitt et al., 2021). That is, they need to select whether to use a quantitative or qualitative approach to their work. Although some may choose a mixed method (a combination of the qualitative and quantitative approaches), this study does not address the selection of mixed-method research. We handle the choice between a quantitative or a qualitative dissertation and what needs to be considered during the writing of the dissertation document.

Selecting an approach could influence a good portion of the dissertation writing (Almalki, 2016). Each research approach requires a different set of work and a dissimilar expertise set (Choy, 2014). Students may not have full knowledge of what is involved in each approach and the requirements for each, but selecting the correct approach could help streamline the dissertation writing process (Mehrad & Zangeneh, 2019). Giving them a snapshot of what is involved in each approach upfront may help shed light on the process and provide more knowledge of what is ahead of them when selecting either approach. This insight can help them make the correct choice between the two approaches.

The literature reviewed for this paper provides a generic description vis-a-vis the writing and is lacking in specifics on how different sections of a dissertation would need to differ from one another depending on the approach (Mehrad & Zangeneh, 2019; Ochieng, 2009; Queirós et al., 2017). A gap that we found through our research is how the selection of a research approach can impact the writing of different sections of a doctoral dissertation. This paper intends to fill that gap, describe the difference between the two approaches in key sections of the doctoral dissertation, and present these differences in a tabulated summary of findings.

In this paper, we review the literature on the topic, conduct a comparative analysis, combine the different points from the reviewed literature, and form a summary table. The intention is to introduce the summary table so it can be used as a reference for selecting qualitative or quantitative research approaches. The summary table divides the findings based on the key sections in the dissertation documents. The key sections that this study will address include the research problem statement, research purpose, research questions, research methodology, data collection, data analysis, and research findings. Table 1 shows a snapshot of the tabulated summary with the columns and rows that we intend to present in this paper. Although the columns and rows of the table are empty, we intend to fill them with keywords for each approach.

Table 1. Snapshot of the comparison table that this study intends to develop

	Qualitative research approach	Quantitative research approach
Problem Statement		
Research Purpose		
Research Questions		
Research Method		

	Qualitative research approach	Quantitative research approach
Data Collection		
Data Analysis		
Research Findings		

EXPLAINING THE CORE DIFFERENCE THROUGH A STORY

To illustrate the difference between the two approaches and the skills each approach requires, we will rely on a story. Although fables or stories are not typical in research papers, they can uniquely illustrate, compare, or make a point. People can associate with them because they are told in layman’s language and have little or no prior knowledge of the subject under discussion (Abrar, 2016). We have used the following story in our courses to help explain the core differences between qualitative and quantitative dissertations. After telling, we establish core concepts from it and apply them to the difference in dissertation writing.

The story

Three men were watching a game of American football. After the game, they were asked the same question: “How was the game?” The three men provided different answers; all the answers were correct, but they each described the game differently.

The first man answered:

- It was a good game; I liked it.

The second man answered:

- I liked it, it was a good game. I liked the first quarter when the quarterback passed a very long ball. Did you see how the wide receiver caught it and zig-zagged to the finish line? I disagreed with the call in the second quarter; it was not offside, and the official made a mistake. I was worried in the third quarter when the team was down, I thought we would lose the game. It’s good that they came from behind, the good defense that caused it most to win the game. The last two minutes were fascinating, I kept on the edge of my seat; the turnover was so nerve-racking I held my breath and could not breathe until the game ended. What a game.

The third man answered:

- Look at the score 45-23, it tells it all. There were three interceptions and four defense tackles. Three bad calls by the officials did not change the game outcome. One hundred and twenty yards running and 200 yards passing by the quarterback. How many penalties, seven penalties cost them 75 yards, more than 10 yards average. Four field goals made 12 points added to the difference. One missed field goal did not change the score, but they scored three touchdowns, 21 points, and half the game’s points. A 70% pass completion rate is not bad.

What can be illustrated from this simple story?

Although the answers are entirely different from one another, they are all correct answers. The differences stemmed from the viewpoint of the attendees.

- The first man may not think about writing a dissertation or describe how dissertation writers explain things. Writing a doctoral dissertation document requires explanation and elaboration, whether in verbal descriptive phrases or mixing the explanation with numbers and stats.
- The second man answered in a way that qualitative researchers would typically describe their research. They explain things in text, phrases, and similar examples.
- The third person responded like a quantitative researcher. He presented the facts with numbers and stats.

APPLYING THE STORY TO DOCTORAL APPROACH

The story we told above, and the lessons learned from them, can be applied to selecting approaches in doctoral dissertations. In the selection between the approaches, studies suggested that if the issue (that is, the dissertation’s topic) can be explained numerically, the quantitative approach is advised (Hands, 2022). However, the qualitative approach is recommended if the topic can be explained through sentences, phrases, and texts (Bowen, 2010). To extend this understating a bit further and to view it from a different perspective, it can be said that quantitative studies are used when there is an attempt to confirm or test something. On the other hand, the qualitative approach is used when the research aims to understand something (Mohajan, 2020).

The above statements may tend to oversimplify the difference between the two approaches. A common adage is, “The devil is in the details.” We want to change it here and say, “The challenges come from the requirements in the individual key sections of the doctoral dissertation.”

Despite these challenges, we can form a couple of question sets and refer to them as we go through our literature review and our discussion and recommendation sections. Here is the first set of core questions:

- Can the issue at hand be explained in numerical expressions?
- Can the issue at hand be explained in textual or phrase description?

The second set of questions is a modification of the first and could include the following:

- How can this issue at hand be explained in numbers or be given numerical descriptions?
- How can this issue at hand be explained in texts or phrases?

As noted earlier, this paper aims to develop a tabulated summary of findings. To achieve our goal, we are going to write about different sections and follow other steps. So, to achieve our goal from this research, this study follows through these steps:

- Review the literature regarding each key section in a doctoral dissertation.
- Explain the research methodology followed in this paper.
- Discuss the literature review to draw a summary of it.
- Select keywords based on the discussion to give ideas for concepts to include in the summary.
- Draw the summary into bulleted lists for each key section of the dissertation.
- Tabulating or putting the bulleted points into a table to show the main differences between the key qualitative and quantitative dissertations sections in one place, in one table.

LITERATURE REVIEW

The traditional practice of presenting a literature review is to proffer all the reviewed literature in one section. However, this study will modify this practice a bit for a more straightforward approach to presenting and understanding the reviewed literature. We present the literature review in seven subsections, each corresponding to a key section of the doctoral dissertation. This way, the literature review will be more consistent with the tabulated summary of findings that we intend to present in this

paper. For each key dissertation section we will discuss here, we will list the words “Literature Review About” followed by the section’s name. This way, we try to avoid confusing the section name with the same name used in doctoral dissertations.

LITERATURE REVIEW ABOUT RESEARCH PROBLEM STATEMENT

The research problem statement of a dissertation document is typically where the research starts, and many of the remaining sections depend on the problem statement (Ali & Pandya, 2021). It represents the foundation on which a dissertation is built; thus, a careful effort to build a clear problem statement is needed to complete the dissertation. Students are supposed to articulate the problem that they are working on for their dissertation. The implicit assumption is that the students have a problem in their minds as they start their doctoral dissertation, and they attempt to address the problem in their dissertation document. So, the first step is to articulate and clearly define the problem statement (Faryadi, 2018).

Not every written problem statement is considered a research problem statement. Some conditions must be met for the statement to be correctly identified as such. Conditions are that the problem statement must be researchable, it must be research worthy, it must be viable, and it must contribute to the field of study. It must be doable within the confines of time and money available to the doctoral student. Since dissertations most often start by defining the research problem statement, other sections in the dissertation refer to it; thus, the remaining sections of the dissertation depend on writing the sections of the problem statement. Due to this dependence and interdependence of doctoral dissertation sections, the research problem statement section influences other dissertation sections (Jacobs, 2013).

A viable research problem statement can be completed using existing resources. Two resources are essential for consideration here: time and money. Ali and Pandya (2021) raised three questions about the availability of resources:

- Does the student have sufficient time to complete the dissertation within the time allotted?
- Does the student have the financial resources to complete the dissertation within the time framework?
- Does the problem statement have a chance to survive within the constraints and conditions surrounding the problem?

A research-worthy problem statement means the stated problem is supported by literature that shows a need for research in that field and that solving the problem will be beneficial to that field. A contributing problem statement helps address the problem (Ellis & Levy, 2009). These are general conditions for all dissertations, whether they are qualitative or quantitative. However, there are specific explanations that can be given to each approach.

A qualitative problem statement is a depiction of a problem that can be explained using words, sentences, and phrases rather than numbers and figures. It is also a reflection on the type of research that is conducted via qualitative studies (Onen, 2016). Such a problem could include a multi-faceted or multi-construct issue whose influential factors are undetermined or unknown. This undetermined situation is either problematic or causes a loss, and thus, the dissertation study is conducted to investigate this problem (Goldberg & Allen, 2015). The phrasing of the problem statement in qualitative dissertations needs to reflect this kind of uncertainty or problem in the phases that were noted in. influencing factors for a given phenomenon, and the influencing factors are best expressed in words, verbs, or sentences rather than numbers and statistics. So, the question is, what are the specifics of writing a qualitative research problem statement? It can be said that if the problem is stated in a way that can be explained through phrases and the factors that influence each, then it is a qualitative study (Taherdoost, 2022).

Quantitative studies introduce variables from the onset of the research problem statement and express uncertainty about the relationship between variables. Quantitative study problems are about the

effect of one or more factors (independent variables) on one or more other factors (dependent variables). The same studies typically refer to the association between variables (or lack thereof) causing some problem or uncertainty about the situation (Bloomfield & Fisher, 2019).

The quantitative problem could also be predicting future trends and what causes the trend to go in one direction versus another. The uncertainty about the direction could be the problem pushing the study. It is the same association among variables, but the prediction about the future could be problematic. Additionally, the problem statement needs to be phrased in such a way that expresses this relationship. To reverse the order of this sentence, they could say that if a problem statement describes a relationship among variables or a trend about the future, then a quantitative approach will be recommended for this kind of problem (Disman et al., 2017).

LITERATURE REVIEW ON RESEARCH PURPOSE

The research purpose section expresses the reason for starting and completing dissertation documents. The research purpose section typically follows the section of the research problem statement. It is intended – in part or in whole – to address the problem that was articulated in the research problem statement section (Åkerlind & McAlpine, 2017; Lim et al., 2015). After explaining the problem statement, this section expresses what the researcher intends to do about the articulated problem. The following questions are typically answered:

- What is the dissertation planning to do about the problem?
- What is the intended outcome of this dissertation regarding the defined problem?

The phrasing in this section (like any other section in doctoral dissertations) is subject to rules and conditions. The purpose needs to be specified as an objective (with objective verbs), and the objectives must be measurable. In other words, what is listed as an objective can be explained at the end and can be gauged whether the purpose is met (McNabola & Coughlan, 2014).

A standard tool that is used for establishing measurable objectives is called Bloom’s Taxonomy. This tool suggests a list of verbs that can be used to set objectives. The list of objective verbs in Bloom’s taxonomy is divided into a hierarchy; the objectives at the higher levels of the hierarch represent verbs that require more in-depth work, while objectives at the lower level of the figure are broader and require not as much level of in-depth information (Chandio et al., 2021). Figure 1 shows an illustration of Bloom’s Taxonomy. It is divided into layers or groups of objectives. Each group suggests a list of verbs (or objectives) that can be used to achieve the research purpose.

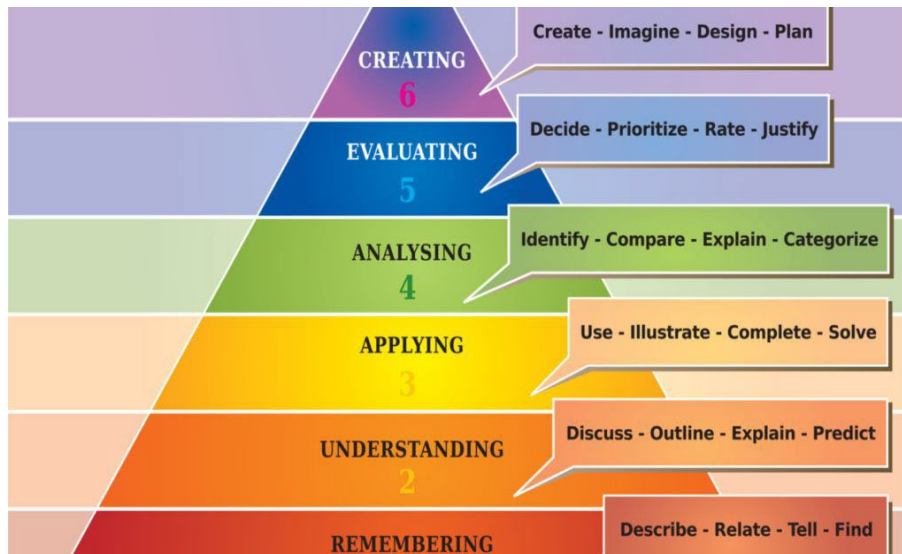


Figure 1. Bloom’s taxonomy (Flanagan, 2019)

Qualitative research typically expresses the research purpose (objectives) in words, sentences, and phrases. A few of these objectives are used more frequently than others in qualitative dissertations. Common objective verbs used in qualitative research are explain, describe, and discover. The problem statement states objectives achievable through words, sentences, and phrases. Since the problem is presented in words and phrases, the actions that intend to address it will be phrased in words, sentences, and phrases (Ochieng, 2009).

The purpose of qualitative research is subjective. It typically intends to learn from experts and present what is learned. Examples of what is noted in such research include learning better things to do or better ways to do things. Developing a model that includes multistage processing is common in qualitative research. Determining influencing factors for certain operations is common in qualitative research (Mohajan, 2018).

In quantitative research, the outcome of the study could be explained through the presentation of numbers and statistics that signify the relationship between two (or more) variables already defined in the first two sections of the dissertation (Rudestam & Newton, 2014). It also depends on how the research problem statement is stated. So, if the problem statement noted the uncertainty of one variable over another, then the purpose would be to formulate a relationship if one does not exist, or if it does not, understand the extent of its existence between the two variables (Taherdoost, 2022).

Three more points need to be noted. First, this section of research purpose must be consistent/congruent and aligned with what was/is listed in the research problem statement (Ali et al., 2023). Second, the student is expected to provide compelling evidence that their research would contribute to knowledge and that their purpose for conducting this research has a societal or professional relevance (McNabola & Coughlan, 2014) before moving to the next step in writing the dissertation. Third, the research purpose section is not expected to be verbose. A few sentences are typically sufficient to convey what needs to be described in the research purpose section.

LITERATURE REVIEW ON RESEARCH QUESTIONS

The research question section articulates the question(s) the researcher intends to answer in the dissertation. Typically, one or more research questions are formulated by taking what was discussed in the problem statement section along with what was specified in the research purpose section. Thus, combining the problem statement with the research purpose results in the phrasing of the research question(s) (Lim, 2014). Following this direction will result in the research question(s) being aligned and consistent with the research problem statement and purpose (Ali et al., 2023). This alignment is necessary to ensure that different downstream sections of the dissertation are consistent and do not deviate from the intended problem and purpose.

Qualitative research questions often begin with “What ...” or “What are the factors ...” or “What causes ...” or “To what extent ...” or “What criteria ...” which are common for qualitative research. In other words, they are exploratory questions, and they tend to be open-ended questions that are typically answered with sentences, phrases, and others (Bowen, 2010). Mohajan (2018) suggested that qualitative research is mostly about human beliefs and experience based on what is obtained from the perspective of the people. Thus, the research questions should ask about these beliefs, experiences, and others.

Cooper and Schindler (2014) suggested that quantitative research would ask questions about how much, how often, how many, when, and who. Common problem statements are about uncertainty of trend or uncertainty of lack of effect between two or more variables. These problem statements can typically be expressed in numbers and stats.

Quantitative research questions are presented along with corresponding null and alternate hypotheses pairs. In other words, it takes the two statements – one validating or influencing the existence of a relationship articulated in the research question and the other conforming the lack of existence of such a relationship. Typical research questions in quantitative studies express a finding that shows the

relationship between two variables or the prediction of a trend for a variable. It could include a comparison between precondition or post-condition (Wisse & Roeland, 2022).

LITERATURE REVIEW ON RESEARCH METHODOLOGY

The research methodology section of a doctoral dissertation specifies how the researcher plans to achieve his/her research purpose and how they answer the question posed in the research question section (Hands, 2022). Typically, the research methodology governs how the data will be collected and analyzed, how the research will conclude, and how the results will be presented. A typical guiding question that this section answers is:

- How is the researcher going to go about the data collection, data analysis, and the research finding?

The difference between qualitative and quantitative research approaches is more apparent in this section than in the previous sections. These differences will be more accurate as the student progresses more into the writing of the dissertations and faces steps that apply either to qualitative or quantitative studies. The selection of a research methodology will influence the remaining dissertation sections. In other words, selecting a research methodology will dictate how the student will collect and analyze data, present conclusions, and how the research purpose was fulfilled, and the research question answered (Cooper & Schindler, 2014).

Below, we discuss different research methodologies that the student can follow in qualitative studies. While the list of qualitative methodologies appears to present each method as distinct – and they frequently are – it is not uncommon for a qualitative researcher to mix and match, as appropriate, elements native to different qualitative research methods. One common underlying theme among qualitative research methods is the need to develop a robust, customized classification and coding schema to analyze the data gathered from qualitative research (Ochieng, 2009).

The various qualitative research methods that could be explained here include the following:

Case Study: A case study research design is used to generate an in-depth understanding of the issues at hand. It involves the bounded, detailed study of one thing, such as a person, event, or organization (Coombs, 2022). A note to be made is that case studies provide a holistic examination of a specific case, offering an in-depth understanding of its unique context (Yin, 2018).

Ethnography: Ethnography research is typically the study of a culture. Ethnographic data are collected and used to explain social or cultural behavior. Data is collected through interviews and then presented to provide an understanding of social and cultural behavior. There are some considerations for ethnography to be successful: the researcher is required to have an in-depth knowledge of the culture being studied, immersion of the researcher into the culture is expected, and the data collection typically takes place where the behavior is studied, such as workplace (Lunenburg & Irby, 2008). The expected deliverable of an ethnographical study would be an uncovering of cultural norms, practices, and social interactions through participant observation and in-depth interviews (Hammersley & Atkinson, 2007).

Grounded Theory: Grounded theory research intends to understand the meanings of people's interactions, social actions, and experiences. In other words, these explanations are grounded in participants' interpretations or explanations of some phenomenon (Chun Tie et al., 2019). Another characteristic of grounded theory is that the analysis takes place simultaneously with the data collection (Cooper & Schindler, 2014). The deliverable of grounded theory research is frequently the development of one or more theories grounded in the data collected from participants. Researchers systematically analyze data to generate concepts and theories that explain the observed social phenomena (Charmaz, 2014). Researchers use constant comparative analysis to identify patterns, categories, and ideas that emerge from the data, ultimately leading to the development of grounded theories (Chun Tie et al., 2019).

Observation: Observation research means watching and examining what is happening and documenting what is being seen. Observation typically includes measurements such as completion time, steps followed, effort spent, and other similar practices. The purpose is often to compare the actions completed to evaluate the work completed. The observation could be personal, or it could be remotely managed. Technology can help in managing remote observations. Researchers systematically observe behaviors, interactions, and activities in their natural settings to understand social phenomena in individuals or groups in their natural settings. Researchers record behaviors, interactions, and contextual factors to gain insights into social phenomena (Emerson et al., 2011; Lunenburg & Irby, 2008; Queirós et al., 2017).

Field Research: Field research is closely connected to observation research, but the main difference is that field research can take place in a natural environment (out in the “field”). It connects people with processes, and it could take repeated processes (Queirós et al., 2017).

Action research: Action research refers to generating knowledge and acting on the knowledge gained. It is used to find solutions to problems in social systems. Action research involves collecting data and then adopting a solution through trial and error (Cooper & Schindler, 2014). Collaboration between researchers and participants is typically necessary to identify and address real-world problems. The goal is to understand the issues and implement and assess solutions collaboratively (Stringer, 2013). Emphasis is placed on reflection, iterative cycles of action, and shared decision-making (Lutabingwa & Auriacombe, 2007).

Phenomenology: Phenomenological research focuses on exploring and understanding individuals’ lived experiences of a particular phenomenon. It aims to uncover the essence or meaning of these experiences as described by the participants (Moustakas, 1994). The researcher is expected to study the subjective experiences of individuals and understand how they interpret and make sense of phenomena. It emphasizes suspending judgment and personal biases to delve into the essence of experiences.

Delphi: A Delphi study is a research method that aims to gather and synthesize expert opinions and insights on a specific topic or problem. It typically involves a series of iterative rounds of surveys or questionnaires where experts provide anonymous feedback. The process continues until a consensus or convergence of opinions is reached. Delphi studies are valuable for exploring complex or uncertain issues and forecasting future trends. The final results represent a collective expert judgment that can be used for decision-making, policy formulation, or further research. Overall, the Delphi method is a systematic and structured approach for tapping into the expertise of knowledgeable individuals to arrive at a consensus or expert judgment on complex issues (Linstone & Turoff, 2002).

Generic Qualitative Inquiry: A generic qualitative inquiry is typically conducted via interviews. The interviews can be performed in various formats, including open-ended, semi-structured, or structured, to gather in-depth information directly from participants. Interviews allow researchers to explore participants’ perspectives, experiences, and opinions (Kvale & Brinkmann, 2015). Generic qualitative inquiry is a flexible and adaptable research method that allows researchers to engage with participants directly. For this reason, this methodology is common among qualitative research studies.

Content Analysis: Content analysis involves systematically analyzing textual, visual, or audio content to identify patterns, themes, or meanings. It is commonly used to analyze media, documents, or other communication artifacts (Krippendorff, 2018). Researchers methodically examine textual, visual, or audio content to uncover underlying themes, messages, and patterns (Neuendorf, 2019). Coding schemes must be developed to categorize and analyze the content in a structured manner. Researchers apply rigorous coding and categorization techniques to extract meaningful information.

Narrative Research: Narrative research focuses on collecting and analyzing individuals’ stories or narratives. Researchers explore how people construct and share stories to make sense of their experiences (Riessman, 2008). This form of research centers on individuals’ stories to convey their

experiences and perspectives. Researchers analyze narratives to understand the construction of meaning and how individuals shape their identities through storytelling.

Focus Groups: Focus groups involve group discussions with participants to gather insights and perspectives on a specific topic. Participants interact with each other, providing rich data through group dynamics (Krueger & Casey, 2014). The researcher assembles a small group of participants to engage in guided discussions about a specific topic. Focus group research leverages group dynamics to elicit a range of perspectives, often yielding rich qualitative data.

Photovoice: Photovoice is a distinct method in qualitative research where participants use photography to document and share their experiences. This method allows participants to visually represent their perspectives and narratives (Wang & Burris, 1997). It empowers participants to use photography as a means of self-expression and storytelling. Participants capture images that reflect their experiences and perspectives, providing a visual narrative of their lives and communities.

Below is a summary of different quantitative research methods. As with the qualitative methods, there are blurry demarcations between them, and a researcher can – and indeed is expected to – borrow from different methods for their work.

Descriptive statistics: Descriptive statistics are about describing more significant numbers about a population, a situation statistically with fewer numbers representative of the population, and cases under study. The goal is to make it easier for the reader to have a general population trend by presenting with fewer numbers rather than listing all (Hazra, 2023). For example, if a teacher wants to have an idea of the score of the students in a class of fifty students in a particular exam. The teacher can look at all the fifty scores, but an easier way is to find the average (mean) to find the general trend. The teacher can also use standard deviation to discover the wide range of the cores and how students' scores deviated from the mean.

Correlational design: Correlational design refers to finding the relationship between two or more variables so that one variable influences (correlates to) one or more variables. The correlational analysis compares trends between two or more variables (Seeram, 2019). For example, if a researcher wants to see the effect of age on mathematics scores for ages six to 12 by months, the researcher can collect data for age and math scores for a group of students in the range specified to find if age influences (correlates) to improving scores in mathematical courses.

Casual-Comparative: Casual comparative explains relationships between independent and dependent variables after an action has already occurred (Hasan et al., 2021). Take, for example, if a study is conducted to measure improvement in SAT scores after the student takes a preparation course for the SAT. The researcher can take the scores of SAT exams for students before and after they take the SAT preparation course.

Quasi-Comparative: The comparative method is a comparative study similar to casual comparative, but the word “Quasi” changed it a bit. It is about finding similarities and differences between two groups (Maciejewski et al., 2013). Take, for example, measuring the difference in understanding computer programming concepts between male and female students.

Experimental Research: Experimental research involves the manipulation of one or more independent variables to observe their effects on a dependent variable under controlled conditions. It aims to establish cause-and-effect relationships (Trochim & Donnelly, 2008). For example, in a psychology experiment, researchers investigate the impact of sleep deprivation on memory retention. They could set up an experiment randomly assigning participants to either a sleep-deprived or well-rested group, expose both groups to a memory task, and measure the differences in memory performance between the two groups.

Survey Research: Survey research collects participant data through structured questionnaires or interviews. It gathers information about attitudes, opinions, behaviors, or demographics (Fowler, 2014). For example, a marketing firm surveys to understand consumer preferences for a new

product. They distribute a questionnaire to a random sample of potential customers, asking about their product preferences, price sensitivity, and buying habits. The survey data is analyzed to inform product development and marketing strategies.

Longitudinal Research: Longitudinal research involves collecting data from the same participants over an extended period. It allows researchers to study changes or developments over time and explore causal relationships (Menard, 2002). For example, a cohort study is conducted to examine the impact of smoking on health over 20 years. Researchers recruit a group of individuals and collect data on their smoking habits and health conditions at multiple points in time. By tracking changes in health outcomes over the years, they can assess the long-term effects of smoking.

LITERATURE REVIEW OF DATA COLLECTION SECTION:

Doctoral programs require their students to collect data firsthand as a requirement for completing the dissertation. There are several reasons why programs prefer this over analyzing historical or published data. Since this is a firsthand data collection, it is subject to close examination by the university. The data collection method and the questions asked are often subject to more immediate review by a committee termed the Institutional Review Board (IRB). Before starting the data collection, the student must submit the applications and other accompanying documents to the IRB (Musoba et al., 2014). The IRB examines these documents to ensure data collections follow proper procedures and do not violate any rules. Additionally, the following can be examined by the IRB when reviewing the data collection document and its attachments:

- Data collection does not violate confidentiality or privacy.
- Anonymity is maintained to protect the identity of the participants.
- The asked questions in the data collection help answer the research question and help meet the research purpose.
- The questions asked are consistent with all regulations.

Having completed the IRB step, students can take different directions for their data collection, and that is when a different approach is taken for qualitative and quantitative dissertations. One of the similarities between qualitative and quantitative data collection is the section about the demographic questions about the participants. Demographic questions are intended to learn about the participants and validate that the participants in the data collection have the necessary background to participate in the study (Mehrad & Zangeneh., 2019). There are various data collection methods, and some could be more suitable for the type of research methodology selection and the approach (qualitative vs quantitative).

Data for qualitative dissertations are unstructured or semi-structured. This semi-structured depends mainly on the study's purpose and the expected outcome. Since qualitative dissertations deal with topics that can be explained in sentences and phrases, the questions that are asked in qualitative studies are expected to produce answers that satisfy the research purpose; that is, open-ended questions. After all this is determined, researchers start collecting their data. Queirós et al. (2017) listed some of the data collection methods followed in qualitative research: structured interviews, observations, focus groups, and content analysis.

Structured Interviews: They are a primary source of data collection in qualitative studies. However, conducting the interviews requires the following of specific procedures, and thus, it is called a "structured interview." There are a few challenges facing structured interviews. Since the questions asked are open-ended, getting the relevant information from the participants must be considered (Galletta, 2013). Open-ended questions can be answered with short and a few words, while other participants can use longer sentences and paragraphs to answer the questions. It will be the task of the interviewee to ask questions that spark more thought and answers.

Observation data collection takes effect when watching behavior occur in their natural setting. This data collection method could be about the task completion process; the researcher can collect data by

observing the work completion process in their natural setting. It could also be about following the completion process of a bureaucratic process; then, the researcher can keep the steps followed in the bureaucratic process. Observation can be explicit or implicit. Direct observation is when the observers know they are being observed, while implicit observation is when the person does not know they are being observed (Fox, 1998).

Focus group: Focus group is another form of data collection in qualitative studies. It includes the collection of data through group communication and group interaction. The group is typically formed to complete communication about the questions asked in the dissertation. Through discussion and communication, the researcher can obtain data to be included in their research (Belzile & Öberg, 2012).

Content analysis: Content analysis is another form of data collection in qualitative research. Here, the researcher gathers data by analyzing content from documents or similar. It is more like collecting data from artifacts or other related documents, and it helps the researcher acquire tacit knowledge about the topic presented in the dissertation document (Durak et al., 2018).

Unlike qualitative studies, data in quantitative studies are typically structured. The collected data are presented in numbers that can be tabulated, graphed, and presented in a structured format. The data collection section of dissertations is about what data to collect to answer the questions asked in the research questions section. Goertzen (2017) suggested the following methods for data collection for research studies that follow the quantitative approach: surveys, questionnaires, simulation, and field experiments.

Surveys: They are applied to quantitative studies, and the researchers distribute survey questions to participants in the study. Participants respond by completing the survey questions and then returning or submitting them. Since this is a quantitative study, the answers to the questions need to be codified and translated into numeric value before further analysis. A common approach followed in survey questions is using the Likert Scale. In this scale, answers are divided in a numeric value ranging from 1 to 5 or 1 to 7. The survey also includes instructions explaining the questions, the scale and what it means, information about collecting the survey, and other related information (Choy, 2014; Queirós et al., 2017).

Questionnaire: This is like a survey in that it consists of a set of questions and is used as an instrument for data collection in research. However, it is less restricted by the Likert scale type of questions, and it could include open-ended questions as well. Nevertheless, it is still used to obtain statistical information from the participants (Dooley, 2017).

Simulation: Simulation is the imitation of a function, a working system, or a process during the work that is typically done. Simulation could also mean that a researcher who studies a function can use an imitative version of the function in the study, and the finding can be applied to the original function (Dooley, 2017).

Field experiments: As the name indicates, it is experimenting in the field. In other words, the researcher takes to the field to collect the data (Queirós et al., 2017). This could occur in the science field when the research requires testing objects in the lab and finding the results.

LITERATURE REVIEW OF DATA ANALYSIS

After data collection comes the phase of data analysis. Data analysis takes the results of data, breaks them apart, tabulates them differently, finds directions or trends of the data, and finds meaning from the data to report them in the report findings. The primary goal of this step is to prepare the data for the next step to see if the data supports the research purpose. However, to achieve this, some data analytic methods must be followed (Lunenburg & Irby, 2008).

Qualitative data analysis means organizing, analyzing, and interpreting qualitative data -non-numeric, conceptual information, and user feedback to capture themes and patterns, answer research

questions, and identify actions to improve the process (Queirós et al., 2017). Quantitative data analysis methods could include (Cooper & Schindler, 2014; Lunenburg & Irby, 2008):

- Content analysis
- Thematic analysis
- Narrative analysis
- Grounded theory analysis
- Discourse analysis

Content Analysis: It means reviewing the collected data, examining them, and looking for words, phrases, and sentences to find patterns and establish meaning among them. This may sound oversimplified by looking at phrases and sentences. However, the words that need to be searched require knowledge of research and the field of study. The collected data is supposed to come from experts and reliable sources. Often, these sentences and phrases are plentiful; thus, it becomes challenging to look at this volume of data to find words that are relevant to the research study (Gheyle & Jacobs, 2017).

Thematic Analysis: Thematic analysis means reading through text to find commonalities and establish groups or categories. In the dissertation writing process, the volume of the collected data could be significant, so it will be hard to present them in a simple format; the data needs to be in groups or categories. Thematic analysis is about grouping the collected data into smaller categories that are more representative of the larger data volume and are easier to understand (Clarke & Braun, 2017).

Narrative Analysis: Narrative analysis is about listening to human stories, evaluating them, and telling them based on their understanding of the stories. This can be explained by the fact that human stories can be told differently and understood differently. Thus, the researcher's interpretation is based on the stories listed from the collected data (Faherdoost, 2022).

Grounded Theory: Grounded theory analysis method means constructing a theory from collected data (Chun Tie et al., 2019). In other words, the researcher takes the collected data and based on specific procedures and processes, could be able to form a theory. The aim will be to develop the intended theory (Charmaz, 2014).

Discourse Analysis: It is an analysis method like many others but adding the word “discourse” makes it different. Discourse could mean expressing thoughts on a subject to give an extended explanation. It is somehow “looking for meaning behind the words” (Merriam-Webster, n.d.). When using this discourse analysis, the researcher takes the collected data, connects them with other theories, and looks for additional (deeper) meaning beyond the collected data (Mohajan, 2018).

In quantitative dissertations, data are collected in numerical formats; thus, their analysis would differ from what is followed in qualitative data analysis. The structured data collected by the researcher is typically summarized, tabulated, and taken through different measurements and stats, resulting in numbers, charts, and figures supporting the research purpose. The charts and figures are asserted by either supporting (accepting) the hypothesis formulated in the research question section or not supporting (rejecting) it. To achieve the decision on the hypothesis, quantitative data analysis follows different methods, some of which are (Goertzen, 2017; Queirós et al., 2017):

- Correlational analysis
- Cross tabulation analysis
- Regression analysis
- Linear model
- Multivariate analysis

Correlational Analysis: It refers to establishing a relationship between two or more variables and the strength of the relationship. As noted before, quantitative research deals with variables. Correlational analysis shows whether the variables selected for the research vary together (correlates) or do

not vary together. Varying together means that as one variable increases, the other increases by an equal or a different margin (Taherdoost, 2022).

Cross Tabulation Analysis: This refers to presenting the result in data tables that show the conclusions of the entire data group. It best compares different groups, such as male and female students or grouped by graduate and undergraduate students or similar. Another example would be to have voters divided by party, democratic, republican, and independent. Data for these three groups can be presented in three tables (Cooper & Schindler, 2014). The presentation of groups may not be as clear when comparing the three groups. Instead, one table is created with three tabs representing a group of voters. Putting the data in three tabs of one table can simplify comparing the three data groups.

Regression Analysis: Regression analysis explains the relationships between a dependent variable and one or more independent variables. It is used for predicting one variable's value based on another variable's changes. It used past historical data in two variables. For example, if employees' annual income increases by a certain percentage, what percentage changes their expenditures? In this case, regression predicts spending based on the rise in income (Chatterjee & Simonoff, 2013).

Linear Model: The linear model is similar to the regression model in that it shows the effect of one variable in predicting another variable. However, the linear model requires a continuous data feed, and it shows the impact of the data of one variable and how that affects the other variables (Zou et al., 2003).

Multivariant Analysis: Multivariant analysis is used to compare multiple variables in a given dataset. It allows us to find the relationship when studying multiple variables using different research methods for any given situation. This method of analysis is described as being flexible because it can be adjusted to fit the specific characteristics of the environment or the population being studied (Queirós et al., 2017).

RESEARCH FINDINGS IN DISSERTATION DOCUMENTS

The research finding represents the outcome of the research. It is a culmination of the efforts exerted for the dissertation (Levitt et al., 2021). In the study finding section, the student typically answers the following two questions (Taherdoost, 2022):

- How did the research answer the question(s) asked in the section of the research question?
- How did the dissertation achieve the objectives listed in the research purpose section?

Returning to the research and the explanation given to qualitative studies, we learned that qualitative is descriptive and aims to explain a situation where a problem is divided into phases (or constructs), and the finding seeks to suggest a solution along the constructs identified. Thus, the findings of qualitative studies go along with these explanations: they are subjective and describe how the problem statement is addressed along with the constructs identified. Qualitative studies, however, discuss how the problem process was dealt with (Choy, 2014).

Quantitative dissertations show the results and the achievement of goals through statistical figures and by explaining them through numerical expressions (Goertzen, 2017). A typical outcome from quantitative research is verifying whether a relationship between variables exists. It could also check the influence of one or more variables over others, design a model, or establish something that could include better ways of doing a particular action (Ochieng, 2009).

RESEARCH METHOD FOR THIS STUDY

This study aims to develop a tabulated bulleted summary of findings for the differences and similarities between qualitative and quantitative doctoral dissertations in their key sections. To achieve this outcome, we conducted a comparative analysis of the literature we reviewed. Comparative analysis

means looking at two or more subjects to analyze their contents to find their similarities and differences (Thomann & Maggetti, 2020).

Webster's dictionary defines a summary as "covering the main points succinctly" (Merriam-Webster, n.d.). The emphasis is on the word "succinctly," which is defined by Webster's dictionary as "marked by compact, precise expression without wasted words" (Merriam-Webster, n.d.). The question to be asked in this regard is how to list the summary succinctly. We found that listing the findings in bullet points helps in what "succulently" means. In the bulleted list, we present the data broken into items that represent major points of each finding. The purpose is to break down our long discussion into a smaller and easier list. Another way to help make the summary succinct is to include the summary of findings in a table, or what is termed a "summary table."

A summary table compares information side by side (Guyatt et al., 2013). Examples of information that can be compared are research methods, advantages/disadvantages, limitations/delimitations, and other information. Listing the findings in a summary table and bulleted points gives the advantages of being succinct, brevity, and all in one place.

The advantages of a tabulated summary are clarity and easy comparison, in addition to other advantages (Guyatt et al., 2013). With a limited number of rows and columns, including key points in each row and column helps with clarity in presenting the tabulated summary of findings. The question that needs to be answered here is how to select keywords from what we have reviewed in the literature review and then include them in the table. The selection of the keywords is discussed in the next section of Discussion and Findings.

DISCUSSION AND FINDINGS

This section goes through what was covered earlier in this paper's various literature review sections. It breaks down the discussion by the key sections reviewed earlier. Reviewing each section, we searched what was reviewed and found keywords to include in the tabulated summary. The guiding question for this section is what keywords can be seen from the literature review to include in the summary table.

ABOUT THE LITERATURE OF THE PROBLEM STATEMENT

The literature review showed that the dissertation begins with defining the research problem statement. It also showed several similarities between the two dissertation writing approaches. These similarities are natural because they start a longer journey of writing the different sections of the dissertation document, and it is normal to include general information at the beginning. So general content that could be applied to both qualitative and quantitative approaches is introduced with some notable differences later. The obvious difference is that qualitative dissertations deal with words, sentences, phrases, descriptions, and the like, while quantitative studies deal with numbers, charts, figures, and the like. This will be the consistent theme presented in the summary of the findings. There is content in the literature review that could be applied to both qualitative and quantitative approaches. It is essential that students get exposed to a general description of the problem statement and the correct way of phrasing the statement. However, there are points specific to each approach: qualitative and quantitative. So, it is important to mention this as well, as they shape the entire research process. We found these words to be helpful as general words in explaining the problem statement: "cause and effect relationship," "research worthy," and "viable."

For the qualitative research problem statement, we found these keywords to be included in the tabulated research summary:

- Problems that can be explained in text and phrases.
- About social problem.
- Statement about lack of understanding of something.

In our review of the literature about quantitative research problem statements, we found the following keywords are more helpful to include in our summary of findings.

- Problem statement is expressed in numbers and stats.
- Statements about prediction or prediction analysis.
- Association among variables.

ABOUT THE LITERATURE FOR RESEARCH PURPOSE

The research purpose section of dissertation documents is about what is intended to be done in the dissertation to address the problem stated in the earlier section. Typically, there are only minor demarcations in language between the two approaches, but those are important to note. Language referencing the relationship among variables (or lack thereof) and problems about future predictions is preferred for quantitative studies. For qualitative studies, the language could imply understanding the issue(s) and looking into the topic's meaning from the point of expertise. It is prudent not to cross lines. In other words, using language appropriate to one method while the researcher conducts their research using the other method is not recommended.

Some common keywords between qualitative and quantitative research purposes include:

- States the research objectives.
- Helpful to use Bloom's Taxonomy.
- Explain how the research addresses the defined problem.

Some specific points about qualitative research purpose

- Aims at understanding the issue at hand.
- The issue at hand is often expressed in phases or constructs.

Some specific points about quantitative research purpose include:

- Introduction of variables.
- Association among the variables.

ABOUT THE LITERATURE FOR RESEARCH QUESTIONS

The research question combines the problem statement with the research purpose and should be stated in question format (that the sentence ends with a question mark). These are similarities that both qualitative and quantitative researchers need to follow. However, there are differences between what the research question section contains following each approach (qualitative or quantitative).

In qualitative dissertations, typical questions lead to exploration, explanation, understanding, or similar. Specific questions for qualitative studies start with "What are ...," "How is ...," and the like to show the lack of understanding of the phenomenon being studied. Below are the keywords that we can call out for the qualitative section of the summary finding:

- Questions that lead to explanations in sentences or phrases.
- Questions that lead to description, exploration, or understanding.
- Typically, phrases start with "what," "how," and similar.

A notable difference is the requirement to state the research question in hypothesis format in quantitative studies. Besides, this marked difference is that the answers are supposed to be answered with numbers and how they are asked. Below are the keywords that we can call out for the quantitative section of the research problem statement:

- Establishes hypothesis.
- Questions asked that lead to answers shown in numbers.
- Expresses questions about how much, how many, and similar notations.

ABOUT THE LITERATURE FOR RESEARCH METHODOLOGY

The difference between the two approaches starts to deepen from this section forward. These differences are illustrated in the literature review when most talked specifically and distinctly about quantitative research methods and qualitative research approaches. So, we suggest the following keywords to add to the qualitative research approach column of the finding's summary: case study, ethnography, grounded theory, field research, action research, and observation.

We also suggest the following keywords to include in the quantitative research approach: descriptive statistics, correlational design, casual-comparative, quasi comparative, and experimental research.

ABOUT THE LITERATURE FOR DATA COLLECTION

Our literature reviews showed that data collection differs notably between quantitative and qualitative approaches. We have surveys, simulations, and the like in the quantitative approach. In qualitative, we have interviews, observations, and others. Although there are some commonalities between the two approaches, most of the commonalities are essential and can be illustrated in a general explanation of the study. We suggest the following keywords to be included in the summary section for the qualitative column of the summary table: structures interviews, observation. focus groups, documents and records, and in-depth interviews.

We also suggest including the following keywords in the quantitative side of the summary: questionnaire, surveys, simulation, and field experiments.

ABOUT THE LITERATURE OF DATA ANALYSIS

The data analysis section is quite different in qualitative versus quantitative dissertations. The literature review talked directly about the specific data analysis methods of the two approaches: qualitative and quantitative. So, the keywords that we list in the quantitative keywords are correlational analysis, cross-tabulation analysis, regression analysis, linear model, and tabulation analysis

We suggest including the following keywords for the qualitative side of the summary table: content analysis, thematic analysis, narrative analysis, grounded theory analysis, and discourse analysis.

ABOUT THE LITERATURE OF RESEARCH FINDING

There are similarities and differences in what is listed in the research findings between qualitative and quantitative approaches in doctoral dissertations. The key points that need to be emphasized on the similarities are that in both approaches is: the "Research Finding" section should provide answers to what is stated in the research question section and should also explain how this research met the objectives stated in the section of research purpose.

Besides these similarities, there are some notable differences between the two approaches and what needs to be included in the research findings section. Content in the Research Findings section differs for the two approaches. For qualitative studies, an expected answer to the question(s) asked in the research question section is expected in sentences, phrases, bullet points, and similar. For quantitative studies, the expectation is a declaration of acceptance or rejection of the hypotheses presented and to show the results numerically in tables, charts, and similar. Both sections would begin with a review of the research purpose and end with a commentary on whether the stated purpose was met or not.

The following are the key points that we intend to include in the qualitative section of the research findings column:

- Findings are expressed in texts, phrases, and paragraphs.
- Satisfies what was stated in the sections in the research purpose section.
- Answers the questions asked in the research questions section.
- Clarifies the lack of understanding expressed in the dissertation.

The following are the key points that we intend to include in the quantitative section of the research findings column:

- Shows the results in numbers, graphs, and charts.
- Expresses the results of the finding of the hypothesis stated.
- Satisfies what was stated in the sections in the research purpose section.
- Answers the questions asked in the research questions sections.

CONCLUSION

In this section, we develop a tabulated summary of findings after going through the literature review and the discussion and findings. Our intention for this summary is that it could be used first by doctoral mentors/advisors to explain these differences. To simplify the comparison, we show our results on one printed page. Using one page to display the results is meant to make it easier for the mentors to present it and for the students to review the findings.

Our summary of findings is presented in Table 2, which is divided into three columns. The first column lists the key sections of the doctoral dissertation; the other two columns list the key points that we listed earlier for each of the two approaches, qualitative and quantitative. Since we discussed seven key sections in this paper, our summary table contains one row for the headings, seven for the content, and one for each of the key sections we discussed in this paper.

RECOMMENDATIONS

In this section, we present our recommendations on how to use our findings in this study in dissertation courses. The recommendations are different for students and advisors.

RECOMMENDATIONS FOR DOCTORAL ADVISORS/MENTORS

For advisors and mentors to use this study to explain the difference between the two approaches, we recommend that the explanation begins by presenting the one-page report at the end of this study, going over the keywords and giving a general description of each, and then encouraging questions. A more helpful approach will be to initiate a conversation for each of the keywords, asking the students what they know about each section and how they will approach the section if they select the specific approach. The keywords and the questions that follow them can help to initiate more thoughts about what the students know about them and eventually focus on an approach after they have a better idea of what is involved in each approach. For more information on each keyword, mentors can refer the students to sections of the literature review about the keywords where the questions are asked.

RECOMMENDATIONS FOR DOCTORAL STUDENTS

Students can use our study to get a view of what is ahead of them when they select each approach. It can work as a snapshot of the work involved in each section of the dissertation. General knowledge of the sections of the doctoral dissertation document can be helpful. Then, glancing through this study from the beginning, going section by section to understand what is included in each section could be helpful. The most can be gained from going over Table 2, studying each keyword in more detail, and asking more questions about them. Going through the table could trigger more questions, more discussions, and more reviews, which are essential in deciding on the approach taken to complete the doctoral dissertation document.

Table 2. Tabulated summary of the comparison between qualitative and quantitative approaches

	Qualitative research approach	Quantitative research approach
Problem Statement	Marks the beginning of the research Need to specify cause and effect relationship. Must be research-worthy and viable Can be explained through text and phrases. It looks for research gap.	Marks the beginning of research. Need to specify cause and effect relationship. Must be research-worthy and viable. Can be explained through numbers and stats Statement of association and prediction analysis.
Research Purpose	States the research objectives. Recommend using Bloom's Taxonomy. Explains how the research addresses the problem. Most often explores.	States the research objectives. Recommend using Bloom's Taxonomy. Explains how the research addresses the problem. Most often analyzes.
Research Questions	Combines the problem and purpose in one. Must be phrased in question format, ending with a question mark. Specifies an overarching question about the problem.	Combines the problem and purpose in one. Must be phrased in question format and ends with a question mark. Establishes hypothesis.
Research Method	Case study Ethnography Grounded theory Field research Action research Observation	Descriptive statistics Correlational design Causal comparative Experimental research Longitudinal design Cross-sectional research design
Data Collection	IRB process Structured interview Observation Focus group Content analysis	IRB process Questionnaire Surveys Simulation Field experiments
Data Analysis	Content analysis Thematic analysis Narrative analysis Grounded theory analysis Discourse analysis	Correlational analysis Cross tabulation analysis Regression analysis Linear model Tabulation analysis
Research Findings	Uses texts and phrases for explanation. Explain the outcome of the research. Shows how the research question was answered. Shows how the research purpose is met.	Uses numbers and stats for explanation. Explain the outcome of the research. Shows how the research question was answered. Shows how the research purpose is met.

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Difference in the Key Sections of Doctoral Dissertations

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AUTHORS



Azad Ali, D.Sc., Professor of Information Technology, has more than 35 years of combined experience in the areas of financial and information systems. He holds a bachelor's degree in Business Administration from the University of Baghdad, an MBA from Indiana University of Pennsylvania, an MPA from the University of Pittsburgh, and a Doctorate of Science in Communications and Information Systems from Robert Morris University. Dr. Ali's research interests include service-learning projects, web design tools, dealing with writing doctoral dissertations, and curriculum development. Azad has been involved in mentoring doctoral students to complete their doctoral dissertations and has so far mentored more than ten students to complete and defend their dissertations.



Umesh C. Varma, D.I.A. Dr. Varma has more than 35 years of teaching experience in higher education at undergraduate, graduate, and doctoral levels in Information Technology, Computer Information Systems, Computer Science, Cyber Security, and Information Assurance. He has designed, developed, and implemented several academic programs in various institutions of higher learning. He has worked with several institutions for program accreditation, outcome assessment, and institutional research. Currently, he serves as a President of the University of Fairfax. He also served as a Dean of IT programs at American National University. He has conducted several webinars on Cyber Security. Dr. Varma holds undergraduate degrees in General Science, Business Administration; Master's in Computer Science; and Doctorate in Information Assurance/Cyber Security from India, U.K., and the United States respectively. His research interests are Cyber Security Intelligence analytics, anti-forensics, covert channel analysis, query optimization, Cloud architecture, AI/ML, and complex data structures.



Shardul Y. Pandya, Ph.D. Dr. Pandya retired from Capella University, where he served as Core Faculty and Sr. Doctoral Dissertation Advisor with the School of Business, Technology, and Healthcare Administration. He has a Bachelor's degree in Industrial and Production Engineering (dual major) from the BMS College of Engineering at Bangalore University, a Master of Science degree in Mechanical Engineering from the College of Engineering at the Colorado State University at Fort Collins, CO, and a Ph.D. in Engineering Management from the College of Engineering at Old Dominion University in Norfolk, VA. Over the years, he has worked and consulted at various manufacturing organizations, as well as in the areas of Data Mining and Database Marketing. He has taught university-level courses at all levels, and approximately 20 doctoral students have successfully defended their dissertations under his supervision. His public LinkedIn profile is at <https://www.linkedin.com/in/shardulpandya/>