

**THE IMPACT OF COSTAQDA FEATURES ON ENHANCING QUALITATIVE DATA
ANALYSIS FOR RELIABLE OUTCOMES ACROSS DIFFERENT DESIGNS
– A QUALITATIVE EVIDENCE SYNTHESIS PROTOCOL**

**A Monograph Completed to meet full requirements of the
Research Development Practitioner in Social and Management Sciences**

Offered by

South Valley University

in association with

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by

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DECLARATION

I, Lethogonolo Mfolo, hereby declare that this thesis titled, "***The Impact of COSTAQDA Features on Enhancing Qualitative Data Analysis for Reliable Outcomes Across Different Designs – A Qualitative Evidence Synthesis Protocol,***" and the work presented in it are my own. I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at South Valley University.
2. Where I have consulted the published work of others, this is always clearly attributed.
3. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work.
4. I have acknowledged all main sources of help.
5. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself.
6. I further declare that a paper under this project was presented in conjunction with my supervisor at the 8th World Conference on Qualitative Research held in Johannesburg on the 23rd to 25th of January 2024, and such work appears in the conference's online proceedings.
7. Furthermore, I declare that part of this thesis has been published as a Preprint at Research Square.

8. Being a protocol, this thesis will be registered as part of requirements within the systematic review dimensions

Signed: _____

Date: _____

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ABSTRACT

In this abstract, I present a comprehensive overview of the utilization of Qualitative Evidence Synthesis (QES) methodologies in informing policy-making across various sectors, including education, public health, management, and economic sciences. The rapid growth of QES is driven by the increasing demand among scholars and practitioners for distilled information on effective interventions. However, conducting rigorous QES studies necessitates expertise and adherence to international standards. Integrating QES projects with computer-assisted qualitative data analysis software (CAQDAS) further enhances reliability and dependability.

I focus on the Collaborative Online Software Tool for Qualitative Data Analysis (COSTAQDA), a cloud-based platform designed to facilitate robust literature-based studies while upholding rigorous standards. COSTAQDA incorporates Inter-Coder Reliability Statistics, employing Cohen's Kappa, to ensure methodological rigor. I delineate optimal methodologies for leveraging QES to support policy-makers and decision-makers with credible and trustworthy information.

Advantages and disadvantages of QES methodologies are scrutinized, with attention to limitations. I explore opportunities for addressing methodological constraints through the proposed ENTREQ framework. Additionally, I introduce and demonstrate the COSTAQDA application, providing guidance from project inception to completion.

In conclusion, this abstract provides insights into the symbiotic relationship between QES methodologies and CAQDAS applications like COSTAQDA, aiming to advance evidence-informed policy-making. By adopting rigorous methodologies and innovative tools, policy-

makers and decision-makers can access reliable information crucial for addressing societal challenges.

Keywords: CAQDAS, COSTAQDA, Qualitative Data Analysis, Literature Review, Inter-Coder Reliability

ACRONYMS

PICO – Population, Intervention, Comparison, Outcome

CAQDAS – Computer Assisted Qualitative Data Analysis Software

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CHAPTER ONE: ORIENTATION

1.1 INTRODUCTION

In the realm of social sciences and various other fields, qualitative research methodologies have gained significant traction due to their capacity to capture rich, detailed, and nuanced data. However, the analysis of qualitative data poses challenges in terms of efficiency and rigor. To address these challenges, researchers have increasingly turned to computer-assisted qualitative data analysis software (CAQDAS). CAQDAS tools offer researchers a systematic and well-organized approach to managing, analyzing, and interpreting qualitative data. These software packages provide a range of functionalities that facilitate coding, categorization, retrieval, comparison, and visualization of data. By embracing CAQDAS, researchers can enhance data management, streamline the analysis process, and maintain transparency in their analytical judgments.

The adoption of CAQDAS has surged among scholars in South Africa in recent years. Several factors contribute to this trend. Firstly, advancements in technological availability and accessibility have made CAQDAS more practical and cost-effective for academics. Secondly, there is a growing recognition of the importance of rigorous qualitative analysis techniques, such as CAQDAS, in addressing complex social issues. The emphasis on evidence-based practice and policy-making has underscored the need for systematic and transparent methods of evaluating qualitative data, thus driving the uptake of CAQDAS in South Africa.

The introduction of CAQDAS represents a significant advancement in qualitative research methodologies, offering researchers in South Africa and beyond a powerful tool for

enhancing the efficiency, rigor, and transparency of their analyses. In this chapter, we delve into the rationale behind the adoption of CAQDAS among scholars in South Africa, exploring the benefits it brings to qualitative research practices and its implications for evidence-based decision-making and policy formulation. Through an examination of the evolving landscape of qualitative research in South Africa, we aim to shed light on the transformative potential of CAQDAS in advancing knowledge production and societal development.

1.2 BACKGROUND

1.2.1 Overview

Due to their capacity to collect detailed and nuanced data, qualitative research techniques have become more popular in the social sciences and other fields. However, it might be difficult and time-consuming to analyze qualitative data. In order to improve efficiency and rigor in qualitative analysis, researchers have resorted to computer assisted qualitative data analysis software (CAQDAS).

Researchers have access to a methodical and well-organized method for managing, analyzing, and interpreting qualitative data thanks to CAQDAS tools. These software packages provide a number of capabilities that make it easier to code, categorize, retrieve, compare, and visualize data. Researchers may improve data management, streamline their analysis process, and keep their analytical judgments transparent by adopting CAQDAS.

CAQDAS has grown in popularity among scholars in South Africa during the past few years. There are a number of reasons why the CAQDAS was adopted in South Africa. First off, CAQDAS is now more practical and inexpensive for academics because to improvements in technological availability and accessibility. Second, there is a growing need for rigorous qualitative analysis techniques, such as CAQDAS, as a result of the increasing relevance of qualitative research in tackling complex social issues. The need for systematic and open methods of evaluating qualitative data has increased as a result of the growing emphasis on evidence-based practice and policy-making, which is what is driving the adoption of CAQDAS.

South African researchers frequently employ a number of CAQDAS instruments. Some of the most used CAQDAS software applications in the nation include the ones listed below:

NVivo: One of the most popular CAQDAS tools, NVivo is used by researchers all around the world, including in South Africa. For qualitative data analysis, it includes a variety of functions, including as data coding, text search, visualization, and sophisticated querying. NVivo is appropriate for a range of research projects since it supports a variety of data forms, including text, audio, video, and photos.

ATLAS.ti: Another popular CAQDAS tool that allows qualitative data analysis is ATLAS.ti. It has tools for categorizing, noting, connecting, and arranging qualitative data. Advanced data visualization tools are also available in ATLAS.ti, enabling the investigation of patterns and themes in the data.

MAXQDA: MAXQDA is a thorough CAQDAS instrument that facilitates mixed-methods and qualitative data analysis. It provides tools for text retrieval, annotation, visualization, and data coding. MAXQDA is appropriate for research projects involving a variety of data sources because it also offers sophisticated features for analyzing multimedia data.

Dedoose: Dedoose is a CAQDAS tool with features for qualitative data analysis that is web-based. It enables the coding and analysis of text, audio, video, and image data by academics. Researchers can collaborate on projects remotely with Dedoose's assistance for collaborative analysis.

QDA Miner: This CAQDAS application has features for text mining and qualitative data analysis. For examining huge textual datasets, it provides sophisticated coding, retrieval, and analysis features as well as text mining capabilities. The incorporation of quantitative data into qualitative analysis is also supported by QDA Miner.

Due to their user-friendly interfaces, extensive functionality, and compatibility with many research approaches, these CAQDAS tools have grown in popularity among academics in South Africa. These software tools have shown to be quite helpful for researchers around the nation when managing and analyzing qualitative data, thereby improving the caliber and rigor of their research findings.

In conclusion, researchers in South Africa are increasingly using computer-assisted qualitative data analysis software (CAQDAS), which enables them to undertake thorough and organized analyses of qualitative data. The proliferation of CAQDAS software among researchers in the nation is partly due to the accessibility of tools like NVivo, ATLAS.ti, MAXQDA, Dedoose, and QDA Miner. Researchers in South Africa can improve the

effectiveness, transparency, and quality of their qualitative data analysis procedures by utilizing the characteristics provided by these CAQDAS platforms.

1.2.2 The Use of CAQDAS in South Africa

Over the years, postgraduate researchers and academics in South Africa have used computer assisted qualitative data analysis software (CAQDAS) more and more frequently. Even though it is difficult to estimate the precise level of utilization, there is evidence that CAQDAS has grown significantly in popularity and is being widely used in the research community.

The importance of CAQDAS in managing and evaluating qualitative data has been recognized by postgraduate researchers, including master's and doctorate students. These software packages provide tools that aid researchers in activities including data coding, categorization, retrieval, comparison, and visualization, all of which are necessary for carrying out thorough qualitative analysis. Postgraduate researchers can improve data management, streamline their analysis process, and keep their analytical judgments transparent by using CAQDAS.

The usage of CAQDAS in research projects has also been accepted by academics in South Africa. To investigate complicated social topics and phenomena, many academics use qualitative research techniques. They can find patterns, themes, and insights in their research by using the systematic and organized method that CAQDAS gives them for analyzing qualitative data. Academics in South Africa have a variety of needs and preferences, and the availability of several CAQDAS tools, including NVivo, ATLAS.ti, MAXQDA, Dedoose, and QDA Miner, satisfies those needs and preferences.

The popularity of CAQDAS among postgraduate researchers and academics has also been accelerated by the growing emphasis on evidence-based practice and policy-making. Processes for informing evidence-based decision-making require the ability to examine qualitative data in a systematic and transparent manner. By giving researchers a formal method for analyzing and interpreting qualitative data, CAQDAS tools make this easier while also guaranteeing the validity and trustworthiness of their conclusions.

The accessibility and availability of technology have also significantly contributed to the rise in CAQDAS usage. Academics and postgraduate researchers have had easier access to and use of CAQDAS tools as technology has grown more accessible and user-friendly. The adoption of CAQDAS by researchers in South Africa has also been influenced by the growing understanding of the importance of qualitative research in solving complex social problems.

There is no doubt that CAQDAS has become a crucial component of qualitative research methodology in South Africa, even though the precise level of CAQDAS utilization among postgraduate researchers and professors there may vary among fields and institutions. The growing number of CAQDAS-specific workshops, training courses, and other resources only serves to highlight how important and well-liked it is among researchers.

In conclusion, South African academics and postgraduate researchers are increasingly using CAQDAS in their research projects. The advantages provided by CAQDAS, including speeding qualitative analysis, improving data administration, and guaranteeing openness in analytical conclusions, have aided in its expanding acceptance. The accessibility of technology, the emphasis on evidence-based practice, and the availability

of many CAQDAS tools have all contributed to the rise in CAQDAS usage among postgraduate researchers and academics in South Africa.

1.2.3 COSTAQDA technique and software

Numerous domains, such as organizational research, health research, and educational research (Masehela & Costa, 2021), have employed the COSTA technique (Ntsobi & Costa, 2022). Data from interviews with teachers and students have been analyzed in educational research using the COSTA technique (Ntseno, 2022). Data from professional interview data have been analyzed in health research using the COSTA method. The COSTA technique has been used in organizational research to analyze data from employee interviews and find trends in corporate culture. In addition, the COSTA approach is a qualitative data analysis method that is founded on grounded theory ideas. Data analysis is an iterative process that involves categorizing, sorting, and looking for patterns in the data (Costa & Mfolo, 2024).

The first step in accessing the COSTAQDA software is creation of a profile and license, followed by creation of a project, as demonstrated in Figures 1.1 and 1.2 below.

WELCOME TO COSTAQDA SOFTWARE

Please enter Username or Email

costak@researchglobal.net

Password

...

Forgot password?

Log in

Not a member? [Register](#)

LOGIN AS: **Collaborator** | **Sponsor**

FEATURES OF COSTAQDA

1. Intuitive cloud-based capabilities
2. Enhancing collaboration across different regions and continents
3. Rigorous and taking Qualitative Research beyond the norms
4. Ability to test coding methods through ICR and Cohen's Kappa statistic
5. Ability to provide a more rigorous approach to literature review and evidence synthesis
6. Provision of platforms for critically appraising data and science mapping through CASP and Bibliometric Analytic approaches



Figure 1.1. Registration and creation of a profile

Projects				Create Project
ID	Project Name	Project Type	Action	
1	Budgets and Road Maintenance Research		View Project	Edit Delete
2	Business Rescue Case Study - Cohort 1		View Project	Edit Delete
3	Business Rescue Case Study - Cohort 2		View Project	Edit Delete
4	MGSLG - NIR DATA	Systematic Review	View Project	Edit Delete
5	The role of numbers and statistics in Qualitative Research	Systematic Review	View Project	Edit Delete
6	COSTAQDA DEMO	Systematic Review	View Project	Edit Delete
7	Public Seta	Systematic Review	View Project	Edit Delete
8	Univen Trial Project	Systematic Review	View Project	Edit Delete
9	MGSLG EMR - Primary Research Data	Primary Research	View Project	Edit Delete

Figure 1.2. Dashboard listing projects – and functionality for creating a project

1.2.3.1 COSTA QDA Elements (Coding, Ordering, Searching, Testing, Analysis)

Coding, organizing, searching, and testing analysis make up the five main parts of COSTA QDA, a special qualitative data analysis program (Costa, 2020). To organize and categorize text segments, researchers can use the coding component. They can also use the organizing, searching, and testing analysis components to manage and organize their data, find specific themes or patterns, and run various analyses and draw conclusions. By combining these elements, COSTA QDA enables a methodical and thorough examination of qualitative data, empowering researchers to draw relevant inferences and conclusions from their work. A more thorough explanation of each level of the COSTA QDA is provided in the next section (Costa & Mfolo, 2024).

1.2.3.2 Coding

According to Onwuegbuzie, Frels, and Hwang (2016) and Saldaa (2016), a "code" is a linguistic or visual sign, usually a word or a short phrase, that is used to symbolize and sum up the key and evocative characteristics of a particular piece of data. For inductive codes that are derived straight from the source documents, be they literary works or interview transcripts, categories must be established. Researchers may choose to employ anchor codes that are derived from important research title variables. These are additionally referred to as theoretical codes or deductive codes (Nowell, Norris, White, & Moules, 2017). As soon as system access is obtained, the initial action on the COSTAQDA is to create a project. The researcher is focused on three crucial pro-forma categories at this level: deductive codes, anchor codes, and apriori codes. The next stage is to upload articles that have already been coded after they have been developed on the software. Articles can be literary works like books or reports or they can be "gray" literature like dissertations and reports. Through the reduction method, the researcher would have isolated the codes (Mezmir, 2020).

The program enables invitations to collaborators after the project is formed and the categories are visible (Church, Dunn, & Prokopy, 2019). When it is proven that peers engaged with the data through the verification process, which creates the notion of credibility, this improves the concept of reliability and consistency of methodologies employed in analysis, according to Guba and Lincoln (1984). Intuitive, numerous, and geographically scattered real-time interactions on a cloud-based reality are made possible by this level.

After extending invitations to the collaborators, the researcher can proceed with the uploading of articles for a literature review-based study or transcripts for primary research. It is necessary to encode literature directly onto the document before to doing uploads. The act of uploading encoded documents facilitates the process for other academics to validate the origin of a specific inductive code inside the document corpus. Academic researchers possess the option to modify naming standards or even remove an uploaded material (Costa & Mfolo, 2024). Thorough deliberation is necessary to ensure that researchers refrain from deleting any document after its upload, as depicted in Figure 1.3, in order to prevent potential disruptions to the coding system. Once articles or transcripts have been uploaded onto the system, they may also be made visible to other individuals who possess the necessary access privileges for the project.

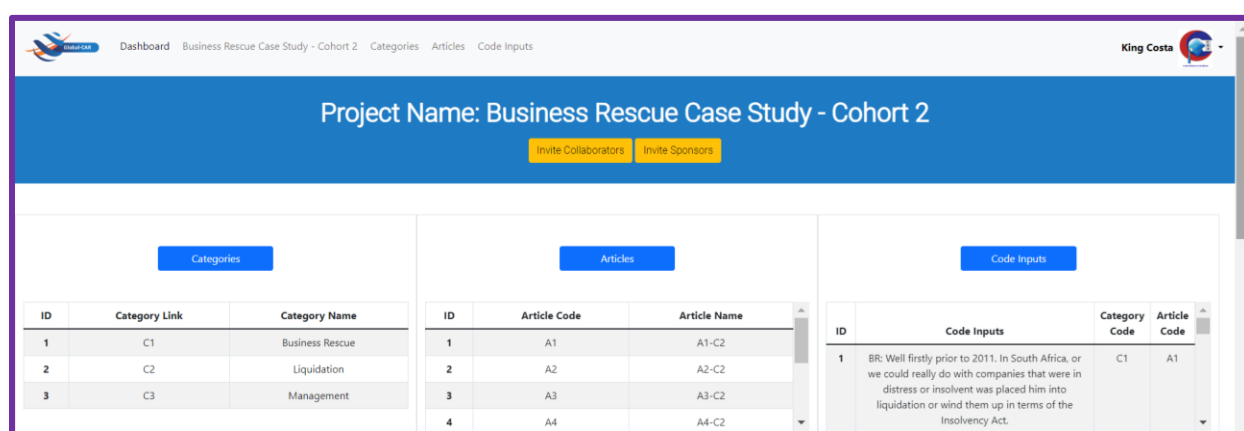


Figure 1.3 Invitations to collaborators and sponsors

The ultimate phase inside the Coding stage of the COSTA approach involves the direct input of code into the system. This task can be accomplished by either manually inputting the codes one by one using the "Add Code" option, or by importing data from a huge file.

During this phase, researchers and their partners undertake the task of categorizing each code and establishing its association with a certain article.

The representation of code inputs during exercise can be observed through the data displays. The present exhibit provides confirmation of the number of codes that were generated for each category and article within the Article Matrix. The distribution of code proportions for each category is visually depicted in a pie chart. The utilization of the Article Matrix holds significant importance in the study of literature reviews, as it serves to assess the robustness of primary sources employed in supporting a coherent argument and proposal put forth by researchers. Similarly, the Article Matrix plays a crucial role in identifying the main individuals involved in interviews and interactions with research participants.

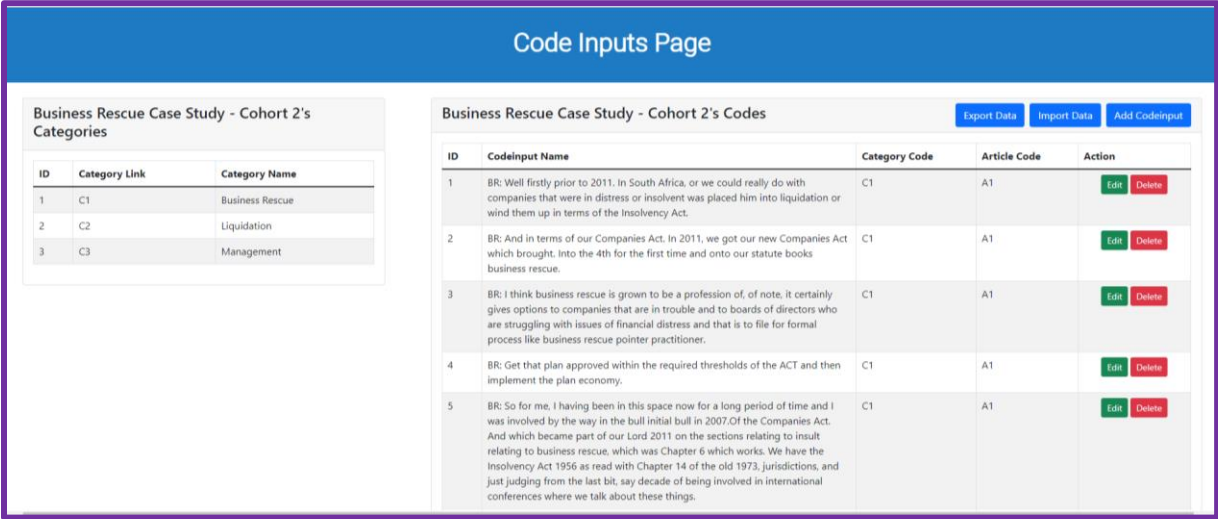
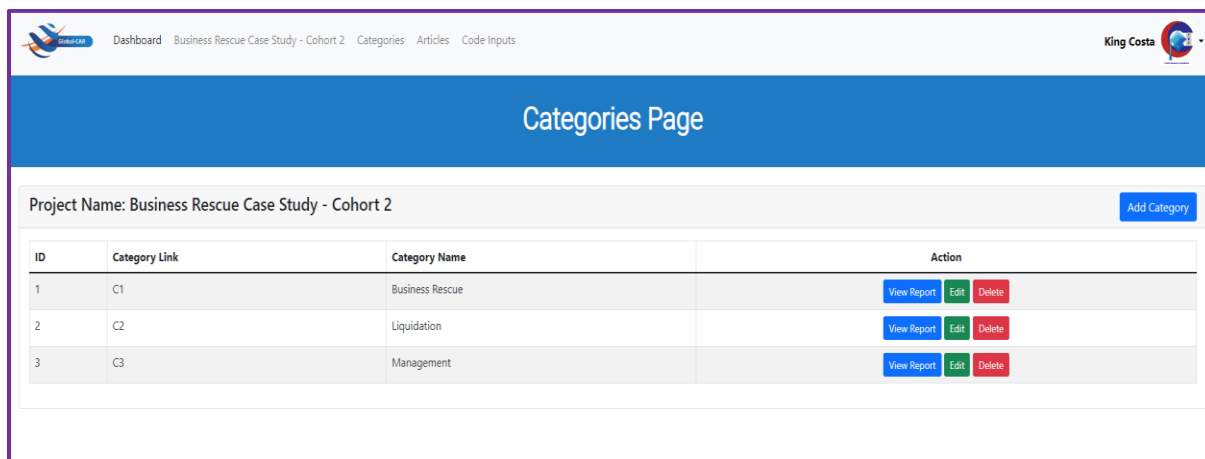


Figure 1.4 Code inputs

1.2.3.3 Ordering

Ordering data in qualitative data analysis is a crucial step that helps researchers make sense of their data and derive meaningful insights. By organizing and structuring the data, researchers can effectively analyze patterns, identify themes, and develop a comprehensive understanding of the research phenomenon. In this response, I will expand on the value of ordering data in qualitative data analysis and provide recent references to support the arguments.



The screenshot shows a web application interface for managing categories. The page title is 'Categories Page'. The project name is 'Business Rescue Case Study - Cohort 2'. There is an 'Add Category' button. The table below lists three categories with their respective actions.

ID	Category Link	Category Name	Action
1	C1	Business Rescue	View Report Edit Delete
2	C2	Liquidation	View Report Edit Delete
3	C3	Management	View Report Edit Delete

Figure 1.5 Ordering – Creating Categories

Qualitative data analysis involves working with rich and complex data, such as interview transcripts, field notes, or documents. Without proper organization and ordering, it can be overwhelming for researchers to navigate through the data and identify significant patterns or themes. By implementing a systematic approach to ordering data, researchers can enhance their analysis process and ensure a rigorous exploration of the research questions.

One of the primary benefits of ordering data is the ability to establish a clear structure and framework for analysis. By organizing the data into meaningful units, such as codes or categories, researchers create a roadmap for their analysis. This structure allows for easier navigation and retrieval of specific data segments, facilitating the identification of patterns and relationships. As noted by Saldaña (2016), ordering data through coding provides a systematic way to categorize and organize the data, enabling researchers to develop a comprehensive understanding of the research phenomenon.

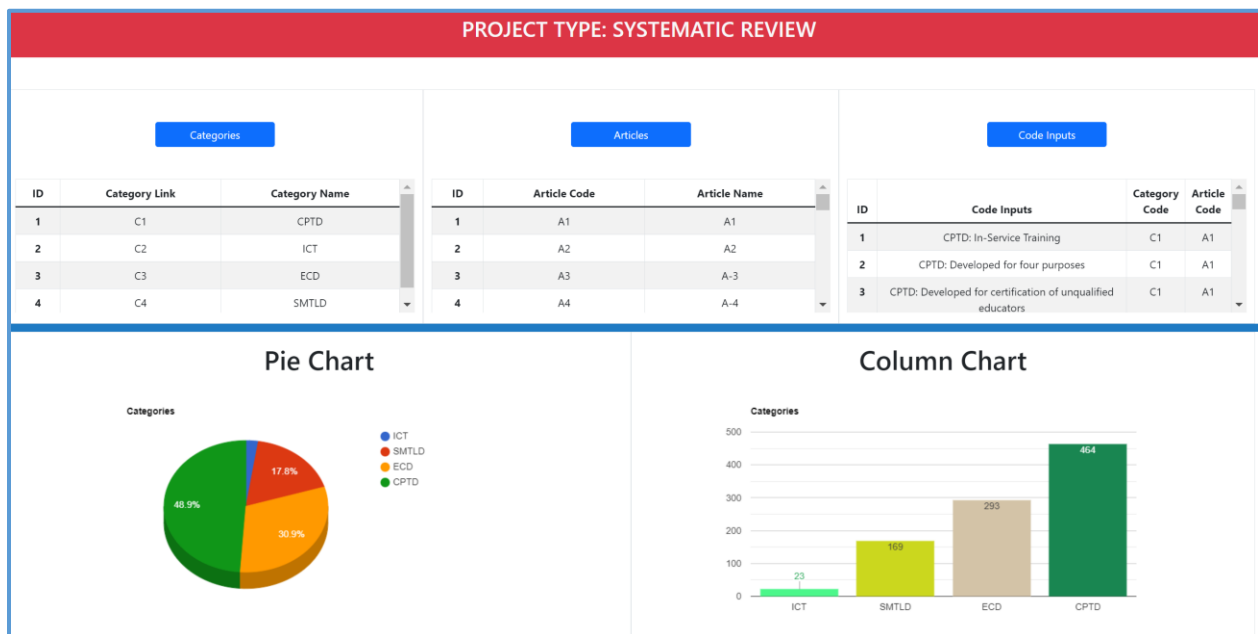


Figure 1.6 Data Displays

Moreover, ordering data helps researchers maintain consistency and transparency throughout the analysis process. It allows for a clear audit trail, enabling others to follow and understand the researcher's decision-making process. By documenting the coding and categorization process, researchers can provide a transparent account of how the

data were analyzed and interpreted. This transparency enhances the credibility and trustworthiness of the research findings (Nowell et al., 2017).

Ordering data also facilitates the identification of emerging themes and patterns. As researchers engage in the analysis process and review the ordered data, they can discern commonalities, differences, and relationships within the dataset. By systematically examining the data, researchers can identify recurring themes, outliers, or unexpected findings that may require further exploration. This iterative process of analysis, guided by the ordered data, allows for a comprehensive understanding of the research phenomenon and contributes to the development of theory or conceptual frameworks (Saldaña, 2016).

Furthermore, ordering data supports data reduction and synthesis. Qualitative data analysis often involves working with large volumes of data, and ordering allows researchers to condense and summarize the information effectively. By categorizing and organizing the data, researchers can identify overarching themes or concepts that capture the essence of the data. This process of data reduction helps researchers focus on the most salient aspects of the research and derive meaningful insights (Onwuegbuzie, Frels, & Hwang, 2016).

Recent research has emphasized the value of ordering data in qualitative data analysis. For example, Mezmir (2020) conducted a study exploring the experiences of teachers in implementing project-based learning. The researcher used a qualitative data analysis software, including the ordering of data through coding, to identify common themes and

patterns among the participants' experiences. The ordered data facilitated the synthesis of findings and the development of comprehensive insights.

Another study by Norris, White, Nowell, and Moules (2021) examined the experiences of parents whose children had complex care needs. The researchers utilized a systematic process of ordering data through coding to identify themes related to parental challenges, coping strategies, and support needs. The ordered data allowed for a comprehensive exploration of the research phenomenon and informed the development of recommendations for healthcare providers.

In conclusion, ordering data in qualitative data analysis is a critical step that adds value to the research process. By organizing and structuring the data, researchers can navigate through the complexity of qualitative data, identify patterns and themes, maintain consistency and transparency, and derive meaningful insights. Recent studies have highlighted the importance of ordering data in qualitative analysis, demonstrating its contribution to the development of theory, synthesis of findings, and generation of recommendations. By implementing a systematic approach to ordering data, researchers can enhance the rigor and credibility of their qualitative research.

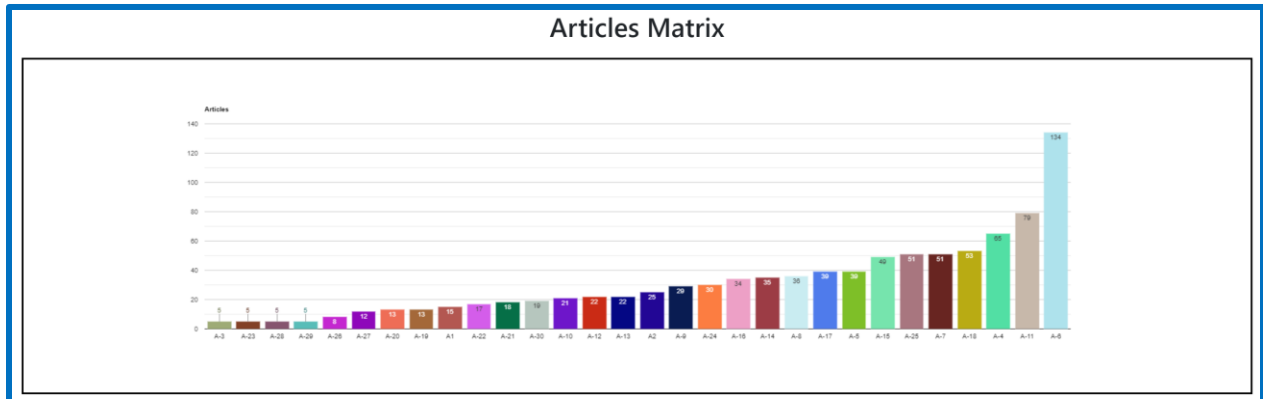


Figure 1.7 Display of Units of Analysis

1.2.3.4 Searching for Themes

In qualitative research, themes are essential components that emerge from the data analysis process. They represent patterns, concepts, or ideas that are identified and organized to provide meaningful insights into the research topic or question. The process of searching and developing themes in qualitative research involves several steps, and the use of qualitative data analysis software, such as COSTAQDA, can greatly facilitate and enhance this process. In terms of the COSTAQDA technique, using the COSTAQDA software, the process of searching for themes involved an intricate three-dimensional approach.

Theme Identification:

Theme identification is a critical stage in qualitative research, where researchers aim to identify overarching concepts or patterns that emerge from the coded data. COSTAQDA software provides researchers with various tools and features to assist in this process. For instance, word frequency analysis allows researchers to identify frequently occurring

words or phrases, which can indicate potential themes. By exploring patterns within and across different codes, researchers can identify recurring ideas or concepts that may form the basis of themes. Additionally, code co-occurrence analysis can help researchers identify relationships and connections between codes, further aiding theme identification. The visualization tools offered by COSTAQDA software, such as concept maps or network diagrams, can provide a visual representation of the relationships between codes and support the identification and development of themes (Guest, MacQueen, & Namey, 2012).

Theme Development:

Once potential themes are identified, researchers need to further develop and define them. COSTAQDA software can support this process by allowing researchers to review the coded data associated with each theme. Researchers can extract key quotes or excerpts that exemplify the theme, providing concrete examples to illustrate the theme's essence. The software enables researchers to link or associate coded segments with specific themes, facilitating the organization and management of the data. Annotating or adding notes to the data within the software allows researchers to provide clear descriptions or definitions for each theme. COSTAQDA software also enables researchers to generate reports or summaries of the themes and associated data extracts, aiding in the documentation and presentation of the developed themes (Saldaña, 2015).

Theme Review and Validation:

The theme review and validation stage is crucial for ensuring the accuracy and relevance of the identified themes to the research question or topic. COSTAQDA software plays a significant role in facilitating this stage. Researchers can use the software to conduct member checking or peer debriefing, where other researchers or participants review and provide feedback on the identified themes. This process enhances the credibility and trustworthiness of the themes by incorporating multiple perspectives. COSTAQDA software enables the sharing and collaboration of coded data and themes, making it easier to gather input from different stakeholders. Through the software, researchers can track and document the feedback received, ensuring transparency and rigor in the research process (Saldaña, 2015).

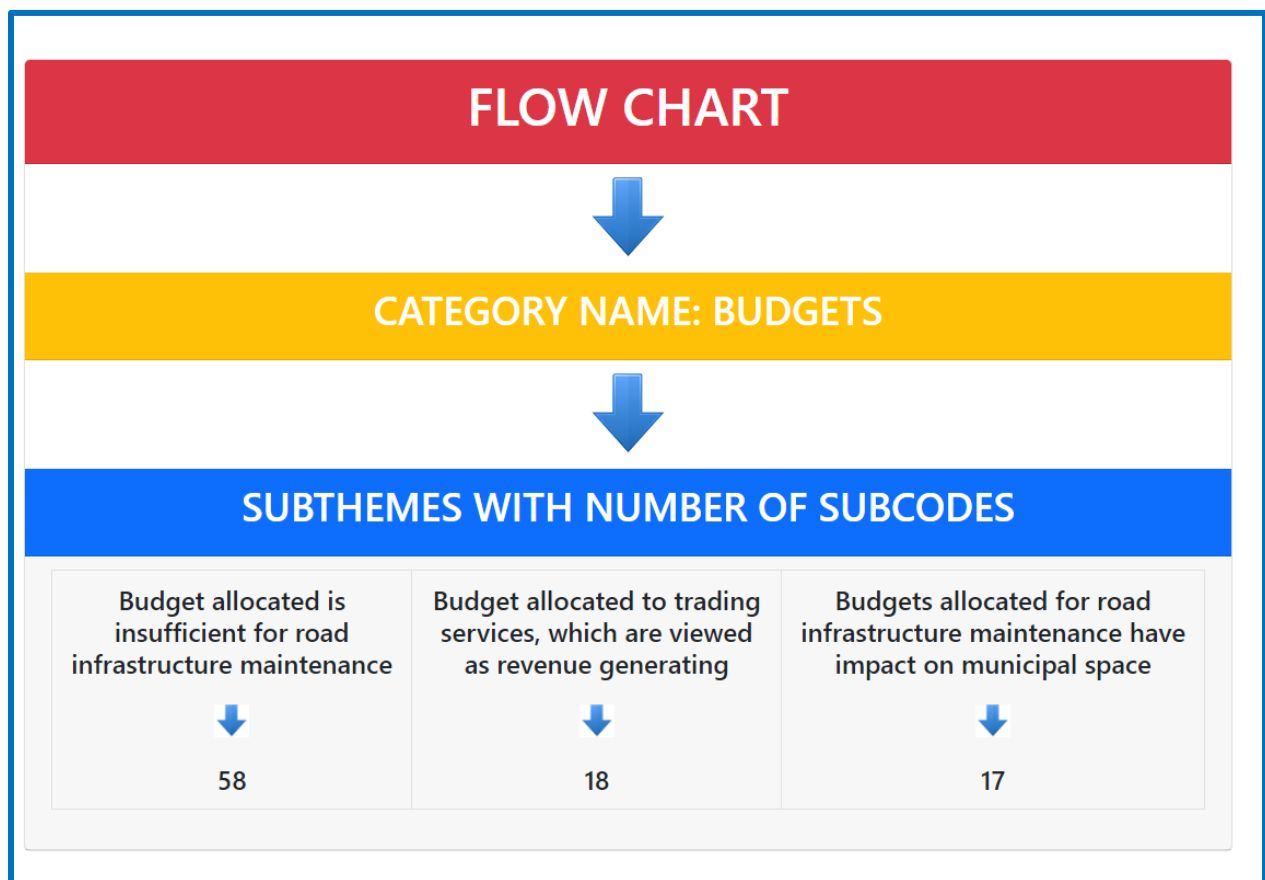


Figure 1.8 Searching for Themes in Categories

The COSTAQDA software enhances the process of searching and developing themes in qualitative research. Through features like word frequency analysis, code co-occurrence analysis, and visualization tools, the software aids in theme identification. Additionally, the software supports theme development by allowing researchers to review and extract key quotes or excerpts, link coded segments with themes, and generate reports or summaries. Furthermore, COSTAQDA software facilitates theme review and validation through member checking and peer debriefing, promoting transparency and rigor in the research process. By utilizing COSTAQDA software, researchers can streamline and enhance the theme searching process, leading to more comprehensive and reliable research outcomes.

1.2.3.5 Testing Analysis

Testing the analytic processes in qualitative research is a critical step in ensuring the reliability and validity of the findings. The use of inter-coder reliability measures, such as percentage agreement and Cohen's Kappa, in the COSTAQDA process helps to assess the consistency and agreement between different coders in their interpretation and application of codes (Guest, MacQueen, & Namey, 2012). Inter-coder reliability provides a quantitative measure of the extent to which multiple coders are coding the data in a consistent and reliable manner.

Inter-coder reliability is pivotal in qualitative research for several reasons. Firstly, it helps to establish the credibility and trustworthiness of the qualitative data analysis. By comparing the coding decisions of different coders, researchers can assess the degree

of agreement in the interpretation of the data and identify any discrepancies or inconsistencies. This process enhances the rigor and validity of the analysis by ensuring that the findings are not solely dependent on the subjective interpretations of individual coders (Saldaña, 2015).

Secondly, inter-coder reliability testing allows researchers to identify and address any ambiguities or uncertainties in the coding process. By examining areas of disagreement or low agreement between coders, researchers can refine the coding guidelines, clarify definitions, or provide additional training to improve consistency in coding. This iterative process of refining the coding procedures enhances the reliability and consistency of the analysis, leading to more robust and dependable research outcomes (Guest, MacQueen, & Namey, 2012).

In addition to inter-coder reliability, the use of citation mapping from the COSTAQDA software is pivotal in qualitative research for analyzing literature sources. Citation mapping involves tracing and analyzing the citations referenced in the literature to understand the network of scholarly communication and the influence of different studies within a particular field (Saldaña, 2015). By examining citation patterns and connections, researchers can identify key studies, influential authors, and the evolution of ideas and theories within the field.

Citation mapping is pivotal in qualitative research as it provides insights into the existing knowledge base, identifies gaps or areas of consensus, and helps situate the research within the broader scholarly discourse. By mapping the citations, researchers can identify seminal works, theoretical frameworks, or methodological approaches that have shaped the field. This analysis allows researchers to build upon existing knowledge, acknowledge

the contributions of previous studies, and position their research within the larger context (Saldaña, 2015).

Moreover, citation mapping aids in identifying potential collaborators, experts, or research networks within the field. By examining the citation patterns, researchers can identify researchers who have made significant contributions to the field and establish connections for potential collaboration or consultation. This networking aspect of citation mapping enhances the interdisciplinary dialogue and fosters the exchange of ideas and knowledge within the research community (Saldaña, 2015).

In conclusion, the use of inter-coder reliability measures, such as percentage agreement and Cohen's Kappa, is pivotal in the COSTAQDA process to ensure the reliability and validity of qualitative data analysis. Inter-coder reliability testing enhances the credibility of the findings and allows for the identification and resolution of discrepancies or ambiguities in the coding process. Additionally, the use of citation mapping from the COSTAQDA software is pivotal in qualitative research for analyzing literature sources, as it provides insights into the existing knowledge base, identifies influential studies, and helps position the research within the broader scholarly discourse.

1.2.3 Describing Diverse Contexts in Qualitative Research

Diverse research contexts in qualitative research refer to the wide range of settings, populations, and topics in which qualitative research is conducted. These contexts encompass various disciplines, such as social sciences, healthcare, education, psychology, and business, and can involve different cultures, geographic locations, and

socio-economic backgrounds. In qualitative research, the focus is on understanding and interpreting the subjective experiences, perspectives, and meaning-making of individuals or groups, which can vary significantly across different contexts.

One aspect of diverse research contexts is the variation in the settings where qualitative research is conducted. Qualitative researchers may work in academic institutions, community organizations, healthcare facilities, government agencies, or corporate environments. Each setting has its own unique characteristics, norms, and dynamics that can influence the research process and outcomes. For example, conducting qualitative research in a healthcare setting may involve working with patients, healthcare professionals, and administrators, while conducting research in a corporate setting may involve interactions with employees, managers, and stakeholders.

Another aspect of diverse research contexts is the inclusion of different populations and groups. Qualitative research can involve studying individuals from various demographic backgrounds, such as age, gender, ethnicity, socio-economic status, and cultural identities. Researchers may explore the experiences, beliefs, and perspectives of marginalized communities, minority groups, or specific populations, such as children, older adults, immigrants, or people with disabilities. Understanding the unique experiences and voices of these diverse populations is crucial for generating inclusive and representative research outcomes.

Furthermore, diverse research contexts in qualitative research encompass a wide range of topics and research questions. Qualitative researchers investigate a broad spectrum of phenomena, including social interactions, cultural practices, identity formation, decision-making processes, organizational dynamics, educational experiences, healthcare experiences, and many more. The research questions can be exploratory, descriptive, or explanatory, and may focus on understanding social phenomena, examining lived experiences, or informing policy and practice. The diversity of topics in qualitative research reflects the complexity and richness of human experiences and the need for nuanced understandings of various phenomena.

The significance of considering diverse research contexts in qualitative research lies in the recognition that social realities are complex and multifaceted. By conducting research in diverse contexts, qualitative researchers can capture the diversity of human experiences, perspectives, and meanings. This enhances the validity, generalizability, and applicability of research findings, as they can be contextualized and understood within specific social, cultural, and organizational contexts. It also promotes inclusivity and social justice by giving voice to underrepresented groups and shedding light on their unique experiences and challenges.

In summary, diverse research contexts in qualitative research encompass the wide range of settings, populations, and topics in which qualitative research is conducted. These contexts include different disciplines, cultures, geographic locations, and socio-economic backgrounds. Understanding and considering diverse research contexts is essential for

generating comprehensive and reliable research outcomes, as it allows for a nuanced understanding of various phenomena, captures the voices and experiences of diverse populations, and contextualizes research findings within specific social, cultural, and organizational contexts.

1.3 OPPORTUNITY STATEMENT

1.3.1 Opportunity Statement

The opportunity lies in the need for qualitative researchers to effectively navigate and analyze diverse research contexts. Qualitative research encompasses a wide range of settings, populations, and topics, requiring robust tools that can assist researchers in managing and analyzing large volumes of qualitative data. The COSTAQDA software presents an opportunity to enhance qualitative research by providing features that facilitate theme searching, inter-coder reliability testing, and citation mapping. By leveraging these capabilities, the COSTAQDA software can empower researchers to gain comprehensive insights into diverse research contexts and produce reliable and valid research outcomes.

1.3.2 Unique Selling Proposition

The COSTAQDA software offers a unique value proposition to qualitative researchers by providing a comprehensive suite of tools that support the exploration and analysis of diverse research contexts. Its features, including theme searching, inter-coder reliability testing, and citation mapping, enable researchers to navigate complex data sets, enhance the rigor of their analysis, and situate their research within the broader scholarly

discourse. By leveraging the COSTAQDA software, researchers can confidently delve into diverse research contexts, uncover meaningful patterns, and generate robust qualitative research findings.

1.3.3 Theme Searching

The COSTAQDA software's theme searching feature allows researchers to identify and develop themes that emerge from the coded data. By using tools such as word frequency analysis, code co-occurrence analysis, and visualization tools, researchers can uncover connections, explore patterns, and identify recurring ideas or concepts within diverse research contexts. This capability is pivotal in qualitative research as it facilitates a nuanced understanding of the data, captures diverse perspectives, and generates comprehensive insights across various settings, populations, and topics (Guest, MacQueen, & Namey, 2012). The theme searching feature of COSTAQDA software enables researchers to effectively navigate and analyze diverse research contexts, resulting in more robust and valid qualitative research outcomes.

1.3.4 Inter-Coder Reliability Testing

The COSTAQDA software's inter-coder reliability testing capability is essential for ensuring the consistency and agreement between different coders in their interpretation and application of codes. By employing measures such as percentage agreement and Cohen's Kappa, researchers can quantitatively assess the reliability and validity of the analysis across diverse research contexts. This capability is particularly valuable in qualitative research as it enhances the credibility of the findings and addresses potential discrepancies or inconsistencies in coding interpretations. By using the inter-coder

reliability testing feature of COSTAQDA software, researchers can confidently navigate diverse research contexts, ensuring the reliability and validity of their qualitative research findings (Saldaña, 2015).

1.3.5 Citation Mapping

The COSTAQDA software's citation mapping feature enables researchers to analyze literature sources and trace the scholarly communication within diverse research contexts. By examining citation patterns and connections, researchers can identify key studies, influential authors, and the evolution of ideas and theories. This capability is pivotal in qualitative research as it allows researchers to situate their research within the broader scholarly discourse, acknowledge previous contributions, and identify potential collaborators or research networks. The citation mapping feature of COSTAQDA software empowers researchers to navigate diverse research contexts, build upon existing knowledge, and foster interdisciplinary dialogue, resulting in more comprehensive and impactful qualitative research outcomes (Saldaña, 2015).

The COSTAQDA software presents a unique opportunity to enhance qualitative research in diverse research contexts. Its theme searching feature enables researchers to identify and develop themes that capture the nuances of various settings, populations, and topics. The inter-coder reliability testing capability ensures the consistency and validity of the analysis across diverse research contexts. The citation mapping feature allows researchers to situate their research within the broader scholarly discourse and foster interdisciplinary dialogue. By leveraging these capabilities, the COSTAQDA software

empowers researchers to effectively navigate and analyze diverse research contexts, resulting in reliable, valid, and impactful qualitative research outcomes.

1.4 RESEARCH PROBLEM

Qualitative researchers face significant challenges in effectively navigating and analyzing diverse research contexts. The absence of robust tools that can assist researchers in managing and analyzing large volumes of qualitative data hinders their ability to generate reliable and valid research outcomes. Furthermore, the lack of comprehensive solutions for theme searching, inter-coder reliability testing, and citation mapping limits researchers' capacity to explore and understand the complexities inherent in diverse research contexts. Therefore, there is a pressing need for a software solution that can empower qualitative researchers to effectively navigate and analyze diverse research contexts, enabling them to uncover meaningful patterns, enhance the rigor of their analysis, and situate their research within the broader scholarly discourse.

Qualitative research is characterized by its focus on understanding the subjective experiences, perspectives, and meanings of individuals within specific contexts. Researchers engage in an iterative process of data collection and analysis, aiming to uncover rich and nuanced insights. However, the sheer volume and complexity of qualitative data often pose significant challenges for researchers. Without appropriate tools, researchers may struggle to manage and analyze the data in a systematic and efficient manner, leading to potential biases, oversights, or inconsistencies in the analysis.

One major challenge faced by qualitative researchers is the identification and development of themes. Themes are overarching concepts or patterns that emerge from the coded data, providing a framework for organizing and interpreting the findings. However, manually identifying and developing themes can be a time-consuming and labor-intensive process, especially in the context of diverse research settings. Researchers need a software solution that can assist them in searching for connections and relationships between codes, exploring patterns within and across different codes, and identifying recurring ideas or concepts. Such a solution would enable researchers to navigate the complexity of diverse research contexts and facilitate the development of comprehensive and meaningful themes.

Another challenge in qualitative research is ensuring the reliability and validity of the analysis. Inter-coder reliability testing is a crucial step in assessing the consistency and agreement between different coders in their interpretation and application of codes. However, without a dedicated software solution, researchers may struggle to quantify and evaluate the reliability of their coding decisions across diverse research contexts. A comprehensive software solution would provide researchers with measures such as percentage agreement and Cohen's Kappa to assess the inter-coder reliability, enhancing the credibility and trustworthiness of the qualitative data analysis.

Furthermore, qualitative researchers often rely on existing literature to situate their research within the broader scholarly discourse. However, the process of analyzing literature sources can be challenging, particularly in diverse research contexts.

Researchers need a software solution that can support them in tracing and analyzing the citations referenced in the literature, enabling them to understand the network of scholarly communication and the influence of different studies. By employing citation mapping, researchers can identify key studies, influential authors, and the evolution of ideas and theories within diverse research contexts. This capability would allow researchers to build upon existing knowledge, acknowledge the contributions of previous studies, and position their research within the larger context.

To address these challenges, a comprehensive software solution, such as COSTAQDA, is needed. COSTAQDA offers a suite of tools specifically designed to enhance qualitative research in diverse contexts. Its theme searching feature provides researchers with the ability to identify and develop themes that capture the nuances and complexities of various research settings, populations, and topics. By leveraging tools such as word frequency analysis, code co-occurrence analysis, and visualization tools, researchers can uncover connections, explore patterns, and identify recurring ideas or concepts. This capability enables researchers to navigate diverse research contexts, leading to more robust and valid qualitative research outcomes.

COSTAQDA also addresses the challenge of ensuring reliability and validity in qualitative research through its inter-coder reliability testing feature. By providing measures such as percentage agreement and Cohen's Kappa, researchers can quantitatively assess the consistency and agreement between different coders, enhancing the credibility of the

findings. This feature allows researchers to confidently navigate diverse research contexts, ensuring the reliability and validity of their qualitative research outcomes.

Moreover, COSTAQDA's citation mapping feature empowers researchers to analyze literature sources within diverse research contexts. By tracing and examining citation patterns and connections, researchers can situate their research within the broader scholarly discourse, identify influential studies, and foster interdisciplinary dialogue. This capability enables researchers to build upon existing knowledge, acknowledge the contributions of previous studies, and establish connections with potential collaborators or research networks.

Finally, the absence of robust tools for managing and analyzing qualitative data in diverse research contexts poses significant challenges for qualitative researchers (O'Connor & Joffe, 2020). The need for a comprehensive software solution, such as COSTAQDA, is evident in addressing these challenges (Kisansa & Lubinga, 2020). By offering features for theme searching, inter-coder reliability testing, and citation mapping, COSTAQDA empowers researchers to effectively navigate and analyze diverse research contexts. By leveraging these capabilities, researchers can uncover meaningful patterns, enhance the rigor of their analysis, and situate their research within the broader scholarly discourse. The development and adoption of such a software solution would significantly enhance the quality and impact of qualitative research in diverse contexts.

1.4 RESEARCH QUESTION

In researchers utilizing qualitative data analysis software, specifically COSTAQDA, how does the integration of advanced features and functionalities enhance the process of coding, ordering, searching for themes and testing analysis of qualitative data, leading to more comprehensive and reliable research outcomes in diverse research contexts?

Many authors emphasize the significance of the review question in guiding the selection of Qualitative Evidence Synthesis (QES) methods, akin to other forms of knowledge synthesis (Grant & Booth, 2009). The review question delineates the specific information required to address the inquiry, thereby determining the precise approach employed in collecting and analyzing data. Within a qualitative synthesis, the question can either be predefined, akin to the a priori Population-Intervention-Comparison-Outcome (PICO) question in effectiveness reviews, or emergent, resembling the grounded theory approach in qualitative research. The structure of the question may serve as an "anchor," with predefined parameters, or a "compass," offering a general direction without predetermined limits (Eakin & Mykhalovskiy, 2003). Typically, aggregative QES methods, such as meta-aggregation, tend to adhere to fixed questions, while interpretive methods like meta-ethnography are more inclined to address emergent questions. When a qualitative synthesis aims to complement an ongoing or forthcoming intervention evaluation, the question is likely to be fixed and aligned with the intervention query.

However, there are instances where the qualitative review team may need to broaden their scope to encompass the experiences related to the desired condition (Lorenc et al.,

2012). In this report, alignment to PICO (Population/Problem, Intervention, Comparison, Outcome) is demonstrated in table 1.2 below.

Table 1.1 Alignment of research question to PICO

Letter	Description	Research question alignment
P	Population	Researchers utilizing qualitative data analysis software, specifically COSTAQDA
I	Intervention	Integration of advanced features and functionalities in COSTAQDA
C	Comparator	Traditional qualitative data analysis methods without the use of advanced software features.
O	Outcome	Enhanced process of coding, ordering, searching for themes, and testing analysis of qualitative data, leading to more comprehensive and reliable research outcomes in diverse research contexts.

1.5 RESEARCH OBJECTIVES

- To describe the functionalities and features of COSTAQDA as a Computer-Assisted Qualitative Data Analysis Software (CAQDAS) option, providing researchers with an in-depth understanding of its capabilities.
- To demonstrate how COSTAQDA can enhance literature-based analysis through the use of CASP and bibliometric analysis.
- To explain the extent to which credibility is presented, supporting the strategies used to establish credibility, transferability, dependability, and confirmability.

1.6 SIGNIFICANCE OF THE MONOGRAPH

The significance of this study lies in addressing the critical challenges faced by qualitative researchers in effectively navigating and analyzing diverse research contexts. By implementing the COSTAQDA software, researchers will have access to a comprehensive toolset that enhances their ability to generate reliable and valid research outcomes. The significance of this study can be understood in the following ways:

Advancing Qualitative Research: The study contributes to the advancement of qualitative research by providing researchers with a software solution specifically designed to address the unique challenges associated with diverse research contexts. By empowering researchers with tools for theme searching, inter-coder reliability testing, and citation mapping, the study enhances the rigor and validity of qualitative research outcomes, leading to more robust and impactful findings.

Improving Research Efficiency: The COSTAQDA software streamlines the process of managing and analyzing qualitative data, enabling researchers to work more efficiently. By automating tasks such as code searching, inter-coder reliability testing, and citation analysis, researchers can focus more on data interpretation and analysis, saving time and resources. This increased efficiency allows for greater productivity and the potential for conducting more comprehensive and in-depth qualitative research.

Enhancing Data Interpretation: The ability to navigate and analyze diverse research contexts is crucial for gaining a comprehensive understanding of qualitative data. The COSTAQDA software's theme searching feature facilitates the identification and development of themes, enabling researchers to uncover patterns and connections within and across diverse research contexts. This enhanced data interpretation leads to more nuanced and insightful findings, contributing to a deeper understanding of the research topic.

Ensuring Research Validity and Reliability: The study addresses the challenge of ensuring the reliability and validity of qualitative research through the inter-coder reliability testing feature of COSTAQDA. By providing measures such as percentage agreement and Cohen's Kappa, researchers can quantitatively assess the consistency and agreement between coders, enhancing the credibility of the findings. This feature contributes to the trustworthiness of qualitative research outcomes and increases confidence in the research findings.

Integrating Research within Scholarly Discourse: The citation mapping feature of COSTAQDA enables researchers to situate their research within the broader scholarly discourse. By analyzing citation patterns and connections, researchers can identify key studies, influential authors, and the evolution of ideas and theories within diverse research contexts. This integration with the scholarly discourse not only enhances the visibility and impact of the research but also fosters interdisciplinary dialogue, leading to collaborations and the advancement of knowledge in the field.

Supporting Evidence-Based Decision Making: The COSTAQDA software provides researchers with a comprehensive set of tools that enable evidence-based decision making. By offering features for theme searching, inter-coder reliability testing, and citation mapping, researchers can rely on robust data analysis to inform their decisions and recommendations. This evidence-based approach enhances the quality and credibility of research outcomes and contributes to informed decision making in various domains, such as healthcare, education, and policy.

Finally, this study's significance lies in addressing the challenges faced by qualitative researchers in navigating and analyzing diverse research contexts. By developing and implementing the COSTAQDA software, researchers will have access to a comprehensive toolset that enhances the rigor, efficiency, and validity of qualitative research outcomes. This study's findings contribute to the advancement of qualitative research, improve research efficiency, enhance data interpretation, ensure research validity and reliability, integrate research within scholarly discourse, and support evidence-based decision making. Ultimately, the significance of this study lies in its potential to advance qualitative research practices and contribute to the generation of reliable and impactful research outcomes in diverse contexts.

1.8 CHAPTER LAYOUT

Due to the nature of this study being a research protocol for qualitative evidence synthesis (QES), there are only three chapters as follows:

Chapter One: This chapter sets the tone and provides justification for the monograph, discussing the background, research questions and study objectives and significance of the study. A deviation from the norm is that the monograph does not discuss a problem statement but presents an opportunity statement for COSTAQDA Features in qualitative data analysis and literature review.

Chapter Two: This chapter focuses on literature review. The review provides a brief description of connotative meaning of key terms, operationalizes the research objectives and discusses the rationale for such operationalization. Furthermore, it provides an in-depth discussion of COSTAQDA Features and then explicates gaps and concludes by introducing Chapter Three.

Chapter Three: This chapter focusses on the Research Methodology to be used in the study. Research paradigms are discussed and more emphasis is placed on the research approach, culminating in the discussion of how the actual study will be aligned to ENTREQ methodology.

1.9 CONCLUSION

In conclusion, Chapter One has provided an overview of the growing significance of computer-assisted qualitative data analysis software (CAQDAS) in the realm of qualitative research, particularly within the context of South Africa. We have examined the challenges researchers face in analyzing qualitative data and how CAQDAS offers solutions to enhance efficiency and rigor in qualitative analysis processes.

The discussion has underscored the multifaceted benefits of adopting CAQDAS, including improved data management, streamlined analysis processes, and increased

transparency in analytical judgments. Moreover, the increasing relevance of qualitative research in addressing complex social issues and informing evidence-based practice and policy-making has driven the adoption of CAQDAS among scholars in South Africa.

Looking ahead, Chapter One sets the stage for further exploration of CAQDAS and its implications for qualitative research methodologies. Subsequent chapters will delve into specific features and functionalities of CAQDAS, its integration into research workflows, and its impact on knowledge production and decision-making processes. Through a comprehensive examination of CAQDAS in the South African context, this study aims to contribute to a deeper understanding of its transformative potential in advancing qualitative research practices and shaping societal development.

CHAPTER TWO: LITERATURE REVIEW

2.1 INTRODUCTION

Chapter Two delves into a comprehensive literature review focused on elucidating the connotative meanings of key terms pertinent to this study. It operationalizes the research objectives and provides an in-depth exploration of COSTAQDA Features. By scrutinizing existing literature, this chapter aims to identify gaps in knowledge and set the stage for the subsequent discussion in Chapter Three.

The utilization of computer-assisted qualitative data analysis software (CAQDAS), such as COSTAQDA, has garnered increasing attention in qualitative research methodologies. This chapter endeavors to synthesize existing literature to elucidate the significance and implications of CAQDAS in enhancing qualitative data analysis processes. Additionally, it aims to highlight the transformative potential of CAQDAS features in advancing qualitative evidence synthesis (QES) methodologies.

Through a critical examination of relevant literature, this chapter seeks to provide insights into the rationale behind the adoption of CAQDAS among researchers and practitioners. Furthermore, it aims to elucidate the functionalities and capabilities of COSTAQDA, shedding light on its role in facilitating rigorous and efficient qualitative data analysis.

By identifying gaps and limitations in current literature, Chapter Two paves the way for a deeper exploration of research methodologies in Chapter Three. It sets the foundation for understanding how COSTAQDA and its features can address existing challenges and contribute to the advancement of qualitative research practices.

This chapter unfolds a narrative that not only illuminates the current state of research on CAQDAS but also identifies avenues for future inquiry. Through a systematic review of literature, it seeks to foster a nuanced understanding of the role of CAQDAS in qualitative research methodologies and its implications for evidence-based decision-making and policy formulation.

2.2 CONOTATIVE DEFINITION OF TERMS

2.2.1 COSTAQDA

Contextual Definition: COSTAQDA refers to the qualitative data analysis that specializes in Coding, Ordering, Searching for themes, Testing Analysis using intuitive cloud-based collaborative approaches. COSTAQDA aims to enhance efficiency, rigor, and transparency in qualitative research methodologies by providing researchers with a systematic and well-organized platform for managing and analyzing qualitative data.

2.2.2 COSTAQDA Features

Contextual Definition: COSTAQDA Features encompass the functionalities and capabilities offered by the COSTAQDA software. These features include but are not limited to coding tools, categorization options, data retrieval mechanisms, comparison functionalities, and visualization tools. COSTAQDA Features are designed to streamline qualitative data analysis processes, improve data management, and facilitate transparent analytical judgments.

2.2.3 Qualitative Data Analysis

Contextual Definition: Qualitative Data Analysis refers to the process of examining and interpreting qualitative data to uncover patterns, themes, and insights. It involves systematic procedures for organizing, coding, categorizing, and interpreting textual or visual data obtained through qualitative research methods such as interviews, focus groups, or observations. Qualitative Data Analysis aims to derive meaning from rich, detailed, and context-specific data to generate insights and understand phenomena from a subjective perspective.

2.2.4 Reliable Outcomes Across Different Designs

Contextual Definition: Reliable Outcomes Across Different Designs refers to the consistent and dependable results obtained from qualitative research studies conducted using various methodological designs or approaches. It emphasizes the importance of ensuring methodological rigor, validity, and reliability in qualitative research to produce trustworthy outcomes that can be replicated or generalized across different contexts or settings.

2.2.5 Qualitative Evidence Synthesis

Contextual Definition: Qualitative Evidence Synthesis (QES) involves the systematic integration and interpretation of qualitative research findings to generate new insights or conclusions. It encompasses various methods such as meta-ethnography, thematic synthesis, or grounded theory synthesis to synthesize qualitative data from multiple studies. QES aims to provide a comprehensive understanding of complex phenomena by synthesizing diverse perspectives and generating evidence-informed insights.

2.2.6 QES Protocol

Contextual Definition: QES Protocol refers to a structured plan or framework outlining the methodology, procedures, and criteria for conducting a Qualitative Evidence Synthesis study. It delineates the research objectives, search strategies, data extraction methods, quality appraisal criteria, and synthesis techniques to be employed in the synthesis process. A QES Protocol provides a systematic and transparent approach to conducting and reporting qualitative evidence synthesis studies, ensuring methodological rigor and replicability.

2.3 THEORETICAL FRAMEWORK

2.3.1 Defining a Theoretical Framework

A theoretical framework provides a conceptual foundation for understanding and interpreting phenomena within a research study. It serves as a roadmap that guides researchers in conceptualizing their study, formulating research questions, and interpreting findings within a broader theoretical context. This section will define a theoretical framework, discuss its components, and highlight its significance in research.

A theoretical framework, also known as a conceptual framework or theoretical model, is a systematic arrangement of concepts, theories, assumptions, and hypotheses that provide a lens through which researchers interpret and analyze data (Babbie, 2016). It is derived from existing literature, theoretical perspectives, and empirical research in the field and serves as a foundation for the study's design, methodology, and interpretation of results.

2.3.2 Components of a Theoretical Framework

Concepts: Concepts are the building blocks of a theoretical framework and represent abstract ideas or phenomena under investigation. They are defined and operationalized to guide data collection and analysis.

Theories: Theoretical frameworks are often grounded in established theories or theoretical perspectives that provide explanatory power and structure to the study. These theories help researchers make sense of the relationships between concepts and predict outcomes.

Assumptions: Assumptions are underlying beliefs or premises that shape researchers' understanding of the phenomena under study. They guide the selection of variables, research design, and interpretation of findings.

Hypotheses: In quantitative research, theoretical frameworks often include hypotheses, which are testable predictions about the relationships between variables based on theoretical reasoning.

2.3.3 Significance of a Theoretical Framework

Guiding Research Design: A theoretical framework provides a roadmap for designing research studies, guiding the selection of variables, research methods, and data collection techniques (Creswell & Creswell, 2017).

Interpreting Findings: By grounding research in established theories and concepts, a theoretical framework helps researchers interpret findings within a broader theoretical context, enhancing the validity and reliability of study conclusions.

Identifying Gaps in Knowledge: Theoretical frameworks help researchers identify gaps in existing knowledge and areas for further exploration, informing future research directions and theoretical development.

Enhancing Communication: A well-developed theoretical framework enhances communication and understanding among researchers, facilitating collaboration and knowledge exchange within the scholarly community.

A theoretical framework is a fundamental component of research that provides a conceptual foundation for understanding and interpreting phenomena within a study. It consists of concepts, theories, assumptions, and hypotheses that guide the research design, data collection, analysis, and interpretation of findings. By grounding research in established theories and concepts, a theoretical framework enhances the rigor, validity, and reliability of research studies, contributing to the advancement of knowledge in the field.

In the realm of qualitative research, methodologies like thematic analysis and thematic synthesis serve as powerful tools for unraveling the complexities of human experiences and perspectives. These methodologies provide researchers with systematic approaches to uncovering patterns, themes, and meanings within qualitative data. This narrative aims to delve into the theories underpinning thematic analysis and thematic synthesis, exploring their significance and application in qualitative research. Furthermore, we will explore how COSTAQDA, a qualitative data analysis software, embraces these methodologies to empower researchers in their data analysis endeavors.

Thematic Analysis: Unveiling Patterns of Meaning

Thematic analysis stands as a cornerstone in qualitative research, offering a structured yet flexible approach to interpreting qualitative data. According to Braun and Clarke (2006), thematic analysis involves the identification, analysis, and interpretation of patterns (themes) within qualitative data. These themes encapsulate the underlying meanings, experiences, and phenomena embedded within the data.

One of the key strengths of thematic analysis lies in its adaptability to diverse research questions and contexts. Whether employed deductively or inductively, thematic analysis enables researchers to systematically code and organize data, facilitating the emergence of meaningful patterns (Braun & Clarke, 2019). Through iterative cycles of coding and theme development, researchers gain deeper insights into the intricacies of their data, ultimately constructing a rich narrative that reflects the complexity of the phenomenon under investigation.

Thematic Synthesis: Bridging Insights Across Studies

Thematic synthesis extends the principles of thematic analysis to the realm of literature review and synthesis. As described by Thomas and Harden (2008), thematic synthesis involves the systematic extraction, comparison, and synthesis of themes across multiple qualitative studies. By synthesizing findings from diverse sources, thematic synthesis enables researchers to generate higher-order interpretations and insights that transcend individual studies.

Central to thematic synthesis is the process of identifying commonalities and differences across studies, thereby uncovering overarching themes that encapsulate the collective wisdom of the research literature (Thomas & Harden, 2008). Through a rigorous process

of data extraction, coding, and synthesis, researchers can distill key concepts and phenomena, contributing to the advancement of knowledge within a particular field or topic area.

The Integration of Thematic Analysis and Thematic Synthesis in COSTAQDA

COSTAQDA, a qualitative data analysis software, harnesses the principles of thematic analysis and thematic synthesis to provide researchers with comprehensive tools for analyzing and synthesizing qualitative data. By integrating these methodologies into its framework, COSTAQDA empowers researchers to navigate the complexities of qualitative research with efficiency and rigor.

Through its intuitive interface and robust features, COSTAQDA facilitates the process of data coding, theme development, and analysis. Researchers can seamlessly organize and categorize their data, allowing for the systematic exploration of themes and patterns. Moreover, COSTAQDA offers advanced functionalities for conducting thematic synthesis, enabling researchers to synthesize findings from multiple sources and generate novel insights.

Furthermore, COSTAQDA supports collaboration and data sharing, facilitating interdisciplinary research and knowledge exchange. By providing a platform for transparent and reproducible analysis, COSTAQDA enhances the credibility and reliability of qualitative research outcomes.

Conclusion: Embracing the Power of Thematic Analysis and Thematic Synthesis

Thematic analysis and thematic synthesis represent invaluable methodologies in the qualitative research toolkit. These approaches offer systematic frameworks for

uncovering patterns of meaning and synthesizing insights across diverse sources. As evidenced by the integration of these methodologies into COSTAQDA, their significance extends beyond theoretical discourse to practical application in research settings.

By embracing the power of thematic analysis and thematic synthesis, researchers can illuminate the complexities of human experiences, inform evidence-based practice, and contribute to the advancement of knowledge within their respective fields. As qualitative research continues to evolve, the principles of thematic analysis and thematic synthesis remain steadfast, guiding researchers on their quest for understanding and discovery.

2.4 OPERATIONALISATION OF OBJECTIVES

2.4.1 Overview

Operationalization of research objectives involves the ability to link literature to research objective to bound the study. Operationalization of research objectives is a critical step in the research process that involves translating abstract concepts or ideas into measurable and observable variables. It requires researchers to establish clear links between the existing literature, research objectives, and the scope of the study. This process is particularly important in the literature review phase, as it helps researchers define the boundaries of their study, identify relevant literature, and establish a conceptual framework for their research.

2.4.2 Linking Literature to Research Objectives

Before embarking on a research study, researchers must conduct a comprehensive review of the existing literature to understand the current state of knowledge in the field. This literature review serves as the foundation for identifying gaps, formulating research questions, and defining research objectives (Fink, 2019). By synthesizing and analyzing relevant literature, researchers can identify key concepts, theories, and empirical findings that inform their research objectives.

2.4.3 Bounding the Study

Operationalization of research objectives involves setting clear boundaries for the study based on the existing literature and research questions. This process helps researchers define the scope of their investigation, determine the specific variables and constructs to be studied, and establish criteria for inclusion and exclusion of literature (Webster & Watson, 2002). By bounding the study within a defined framework, researchers can focus their efforts on addressing specific research objectives and generating meaningful insights.

2.4.4 Importance in Literature Review

In the literature review phase, operationalization of research objectives is crucial for several reasons:

- ***Identifying Relevant Literature:*** By linking literature to research objectives, researchers can identify relevant studies, theories, and concepts that are directly related to their research questions. This ensures that the literature review is

focused and targeted towards addressing specific research objectives (Randolph, 2009).

- ***Establishing Conceptual Framework:*** Operationalization helps researchers develop a conceptual framework that guides the organization and synthesis of literature. This framework provides a structured approach to analyzing and interpreting the existing literature in relation to the research objectives (Rumrill et al., 2010).
- ***Clarifying Research Focus:*** Defining clear research objectives and boundaries helps researchers clarify the focus of their study and avoid scope creep or tangential discussions in the literature review. This ensures that the review remains concise, coherent, and relevant to the research questions (Baumeister & Leary, 1997).

Operationalization of research objectives is a fundamental aspect of the literature review process, as it helps researchers link existing literature to their research questions, bound the study within a defined framework, and clarify the focus of their investigation. By establishing clear connections between the literature and research objectives, researchers can conduct a thorough and focused literature review that lays the groundwork for their research study.

2.4.5 Functionalities and Features of COSTAQDA as a CAQDAS Option

2.4.5.1 Overview

COSTAQDA software stands as a testament to the continuous evolution and innovation within the realm of qualitative data analysis. Developed by researchers in South Africa,

this software represents a groundbreaking approach to unraveling the complexities of qualitative data. By integrating advanced technologies such as artificial intelligence (AI), literature appraisal integration, and bibliometrics, COSTAQDA offers a myriad of advantages that revolutionize the qualitative research landscape. In this narrative, we delve deeper into the distinguishing features of COSTAQDA and elucidate how they propel qualitative data analysis into a new era of efficiency, accuracy, and depth.

2.4.5.2 Advanced AI-Powered Analysis

At the heart of COSTAQDA lies its utilization of state-of-the-art artificial intelligence technology. By harnessing the power of AI, the software empowers researchers with advanced analytical capabilities that streamline the qualitative data analysis process. From efficient coding to automated categorization and pattern recognition, COSTAQDA not only saves researchers valuable time but also ensures a more comprehensive exploration of qualitative data.

2.4.5.3 Seamless Literature Appraisal with CASP Integration

COSTAQDA sets itself apart by seamlessly integrating literature appraisal into the qualitative analysis workflow through the Critical Appraisal Skills Programme (CASP). This integration empowers researchers to critically evaluate and synthesize existing literature, fostering a deeper understanding of the research landscape. The CASP tool, endorsed by authoritative bodies such as Cochrane and the World Health Organization, provides researchers with a structured framework to assess the strengths and limitations of various qualitative research methodologies. By guiding researchers through the

evaluation of research methods and the meaningful presentation of findings, COSTAQDA enhances the credibility and rigor of qualitative evidence synthesis.

2.4.5.4 Bibliometrics for Quantitative Insights

One of the standout features of COSTAQDA is its incorporation of bibliometrics, enabling users to explore the quantitative dimensions of scholarly literature. Through sophisticated analysis of citation patterns, author impact, and journal prominence, researchers gain valuable insights into the broader academic context surrounding their research topics. By complementing qualitative findings with quantitative metrics, COSTAQDA enriches the interpretation of research outcomes and facilitates a more holistic understanding of the research landscape.

2.4.5.5 User-Friendly Interface

Despite its advanced capabilities, COSTAQDA boasts an intuitive and user-friendly interface that ensures accessibility for users of all technical backgrounds. The software's intuitive design enhances usability, allowing researchers to navigate complex analytical processes with ease. Whether conducting data analysis or generating reports, researchers can focus on deriving meaningful insights from their qualitative data without being hindered by technical complexities.

2.4.5.6 Real-time Collaboration

Recognizing the importance of collaboration in research endeavors, COSTAQDA supports real-time collaboration among researchers. With the ability to seamlessly collaborate on projects, multiple users can work concurrently, accelerating the research process and fostering knowledge exchange. This collaborative environment promotes

interdisciplinary collaboration and collective insight generation, ultimately enhancing the quality and impact of research outcomes.

2.4.5.7 Robust Data Security and Privacy

COSTAQDA prioritizes the security and privacy of sensitive qualitative data through robust encryption measures and access controls. Researchers can trust that their data is protected, ensuring confidentiality and integrity throughout the research process. By instilling confidence in the security of research data, COSTAQDA enables researchers to focus on their analysis with peace of mind.

2.4.5.8 Flexible Data Input and Output

COSTAQDA accommodates diverse data formats, including text, audio, and images, providing flexibility in data input. Additionally, the software offers various output options, allowing researchers to generate reports, visualizations, and presentations in formats that suit their needs. This flexibility enhances the versatility of research outputs, enabling researchers to communicate their findings effectively to diverse audiences.

2.4.5.9 Comprehensive Reporting and Data Visualization

With powerful reporting and visualization features, COSTAQDA enables researchers to communicate their findings with clarity and impact. Through interactive visualizations such as graphs and charts, researchers can present complex qualitative data in a clear and concise manner, enhancing understanding and facilitating knowledge dissemination. By providing robust reporting capabilities, COSTAQDA empowers researchers to share their insights with stakeholders and contribute to meaningful discussions within their fields.

2.4.5.10 Continuous Updates and Support

Users of COSTAQDA benefit from continuous updates and dedicated support, ensuring that the software remains aligned with the latest advancements in technology and research methodologies. Regular updates enhance software performance, address potential issues, and introduce new features, providing users with a seamless and optimized experience. Additionally, dedicated support resources ensure that researchers have access to assistance whenever needed, further enhancing the usability and effectiveness of COSTAQDA.

2.4.5.11 Integration with External Tools

COSTAQDA supports seamless integration with external tools and platforms, offering users the flexibility to complement their qualitative data analysis with additional resources. Whether integrating with statistical analysis software, data visualization tools, or academic databases, COSTAQDA enhances the adaptability of the software to diverse research needs. By facilitating interoperability with external tools, COSTAQDA empowers researchers to leverage complementary methodologies and resources in their analysis, ultimately enriching the depth and scope of their research endeavours.

2.4.5.12 Final Considerations on Features

The COSTAQDA emerges as a revolutionary qualitative data analysis software that redefines the boundaries of qualitative research. By integrating advanced technologies, intuitive design, and robust features, COSTAQDA empowers researchers to navigate the complexities of qualitative data analysis with efficiency, accuracy, and confidence. From advanced AI-powered analysis to seamless literature appraisal integration and comprehensive reporting capabilities, COSTAQDA offers a comprehensive solution for

qualitative researchers across diverse disciplines. As qualitative research continues to evolve, COSTAQDA stands as a beacon of innovation, facilitating novel approaches to data analysis and interpretation that drive meaningful insights and advancements within the research community.

2.4.6 Enhancing Literature-Based Analysis: CASP and Bibliometric Analysis

Literature-based analysis plays a pivotal role in qualitative research, offering insights into existing knowledge, methodologies, and gaps within a particular field. In recent years, advancements in technology have enabled researchers to augment traditional literature review processes with innovative tools and methodologies. Two such methodologies, Critical Appraisal Skills Programme (CASP) integration and bibliometric analysis, have emerged as valuable components of literature-based analysis. In this narrative, we explore how COSTAQDA facilitates literature review analysis, including critical appraisal, through the integration of CASP and bibliometric analysis.

2.4.6.1 CASP Integration: Elevating Critical Appraisal in Literature Review

Critical appraisal is a fundamental aspect of literature review analysis, allowing researchers to assess the quality, validity, and relevance of existing research (Greenhalgh, 2019). CASP, a widely recognized tool for critical appraisal, provides researchers with a structured framework to evaluate the methodological rigor and transparency of qualitative studies (Critical Appraisal Skills Programme, 2018). By integrating CASP into the COSTAQDA platform, researchers gain access to a

comprehensive toolkit for conducting systematic literature reviews and evidence synthesis (Long et al., 2020).

CASP guides researchers through a series of questions designed to assess various aspects of qualitative research methodology, including study design, data collection, analysis, and interpretation (Critical Appraisal Skills Programme, 2018). By prompting researchers to critically evaluate these key components, CASP ensures that the findings derived from the literature are robust and reliable. Moreover, CASP integration within COSTAQDA enhances efficiency by streamlining the critical appraisal process, allowing researchers to focus their efforts on synthesizing and interpreting findings (Long et al., 2020).

Through CASP integration, COSTAQDA empowers researchers to conduct rigorous literature reviews that adhere to established standards of quality and transparency. By facilitating critical appraisal within the same platform used for data analysis, COSTAQDA promotes methodological rigor and coherence throughout the research process, ultimately enhancing the credibility and reliability of research outcomes.

2.4.6.2 Bibliometric Analysis: Unveiling Quantitative Insights in Literature Review

While qualitative research often focuses on in-depth analysis of textual data, bibliometric analysis offers a complementary perspective by examining quantitative dimensions of scholarly literature (Aria & Cuccurullo, 2017). Bibliometric analysis enables researchers to explore citation patterns, author impact, journal prominence, and other quantitative metrics, providing valuable insights into the academic landscape surrounding a particular topic.

COSTAQDA distinguishes itself by incorporating bibliometric analysis capabilities, allowing researchers to seamlessly integrate quantitative insights into their literature review analysis. By analyzing citation networks, researchers can identify seminal works, influential authors, and emerging trends within a given field. Additionally, bibliometric analysis enables researchers to assess the impact and visibility of individual studies, journals, or research topics, providing context for interpreting qualitative findings (Aria & Cuccurullo, 2017).

Through bibliometric analysis, COSTAQDA enhances the depth and breadth of literature review analysis, facilitating a more comprehensive understanding of the research landscape. By combining qualitative insights with quantitative metrics, researchers can contextualize their findings within the broader scholarly discourse, enriching the interpretation and implications of their research.

In addition, the COSTAQDA emerges as a powerful tool for literature-based analysis, offering integrated support for critical appraisal through CASP integration and bibliometric analysis. By seamlessly incorporating these methodologies into the research workflow, COSTAQDA empowers researchers to conduct rigorous and comprehensive literature reviews that inform qualitative data analysis and interpretation. Whether evaluating the methodological quality of existing studies or uncovering quantitative insights from scholarly literature, COSTAQDA facilitates a holistic approach to literature-based analysis, ultimately enhancing the depth, rigor, and relevance of qualitative research outcomes (Costa & Mfolo, 2024).

2.4.7 Establishing Credibility and Supporting Strategies in COSTAQDA

2.4.7.1 Overview

COSTAQDA, an innovative qualitative data analysis software, provides researchers with robust methods and functionalities to establish credibility in their research endeavors. Through various features such as citation location maps, bibliometrix analytics, and inter-coder reliability (ICR) functionality using Cohen's Kappa, COSTAQDA empowers researchers to enhance the credibility of their work. This narrative explores these strategies in detail and their significance in bolstering research confidence within the COSTAQDA framework.

2.4.7.2 Citation Location Maps and Bibliometrix Analytics:

Citation location maps and bibliometrix analytics are indispensable tools within COSTAQDA that enable researchers to identify seminal authors, influential works, and emerging trends within their chosen subject areas. A citation location map provides a visual representation of citation patterns, illustrating the interconnectedness of scholarly literature and highlighting key nodes within the research network. This allows researchers to discern the current debate and the direction of discourse regarding the phenomenon under investigation (Aria & Cuccurullo, 2017).

Furthermore, bibliometrix analytics offer quantitative insights into scholarly literature, including author impact, citation frequency, and journal prominence. By leveraging bibliometric analysis, researchers can gain a deeper understanding of the academic landscape surrounding their research topic, thereby enhancing their credibility through a comprehensive examination of existing knowledge (Aria & Cuccurullo, 2017).

These functionalities in COSTAQDA not only aid in identifying influential authors and works but also assist researchers in situating their own research within the broader scholarly context. By engaging with the existing literature in this manner, researchers can strengthen the theoretical foundations of their studies and establish credibility through rigorous engagement with established scholarship.

2.4.7.3 Inter-Coder Reliability (ICR) Functionality Using Cohen's Kappa:

Another critical aspect of establishing credibility in qualitative research is ensuring the reliability of data coding processes. COSTAQDA offers inter-coder reliability (ICR) functionality, which enables researchers to evaluate the consistency of coding methods among multiple coders. One commonly used metric for assessing inter-coder reliability is Cohen's Kappa coefficient.

Cohen's Kappa is a statistical measure that quantifies the agreement between two or more coders beyond what would be expected by chance alone (Cohen, 1960). By calculating Cohen's Kappa for coded data, researchers can determine the degree of agreement among coders, thus enhancing the reliability and credibility of the coding process.

Incorporating Cohen's Kappa into the analysis workflow within COSTAQDA ensures that coding methods are rigorously evaluated, contributing to the overall credibility of the research findings. By demonstrating high inter-coder reliability, researchers can bolster confidence in the validity of their qualitative data analysis, thereby enhancing the principle of credibility as part of the criteria for establishing the truth value of research outcomes (Lincoln & Guba, 1985).

2.4.7.4 Further Considerations

COSTAQDA's functionalities for establishing credibility, including citation location maps, bibliometrix analytics, and inter-coder reliability using Cohen's Kappa, play a vital role in enhancing research confidence. By providing researchers with tools to navigate the scholarly landscape, evaluate coding consistency, and ensure methodological rigor, COSTAQDA empowers researchers to produce high-quality, credible research outcomes.

Through these strategies, researchers can strengthen the credibility of their work, contribute meaningfully to scholarly discourse, and advance knowledge within their respective fields. As researchers continue to leverage COSTAQDA's robust functionalities, they can embark on research endeavors with increased confidence, knowing that their work is grounded in rigorous methodology and comprehensive engagement with the scholarly literature.

2.5 GAPS IDENTIFIED

2.5.1 Access and Affordability

Limited access to Computer-Assisted Qualitative Data Analysis Software (CAQDAS) within South African universities due to financial constraints has been a persistent challenge, as illuminated by various studies. Among them, Reimers and Stewart's investigation in 2015 shed light on the formidable barrier posed by the cost of CAQDAS licenses, particularly acute in developing countries like South Africa (Reimers & Stewart, 2015). Their findings resonated with subsequent research, including Le Grange and

Swart's study, which emphasized the detrimental impact of financial constraints on accessing CAQDAS tools among researchers and students (Le Grange & Swart, 2017).

Moreover, Kassam and Salvaterra's exploration into doctoral research supervision underscored the hurdles posed by the expense of CAQDAS licenses (Kassam & Salvaterra, 2018). They advocated for institutional support to alleviate financial burdens, crucial for doctoral students engaged in qualitative research. Similarly, Meyer and Ebersöhn's examination of CAQDAS use in educational research within South Africa highlighted the daunting challenge of limited access, accentuating the necessity for addressing financial barriers and providing adequate support for researchers (Meyer & Ebersöhn, 2018).

In a comprehensive study on researcher awareness and perceptions of CAQDAS, Swanepoel and de Lange acknowledged the widespread financial constraints faced by researchers (Swanepoel & de Lange, 2019). They echoed the urgent need for institutions to invest in training and support initiatives to overcome these barriers, fostering a more inclusive environment for utilizing CAQDAS tools effectively.

Collectively, these narratives underscore the significant impact of financial constraints on access to CAQDAS within South African universities. Overcoming these challenges is imperative to ensure equitable access to CAQDAS tools and to support qualitative research endeavors effectively, ultimately fostering a more robust research ecosystem within the academic landscape of South Africa.

2.5.2 Technical Support and Training

The availability of technical support and training for Computer-Assisted Qualitative Data Analysis Software (CAQDAS) in South African universities indeed varies widely, contributing to disparities in researchers' proficiency with these tools. While some institutions may offer workshops or training sessions, the adequacy of support remains a concern.

This observation aligns with findings from Kassam and Salvaterra's study in 2018, which underscored the crucial role of ongoing technical support and training in maximizing the benefits of CAQDAS tools (Kassam & Salvaterra, 2018). However, this issue has been reiterated in subsequent research, further highlighting the persistent gaps in technical support and training for CAQDAS within South African academic institutions.

For example, a study by Swanepoel and de Lange (2019) on researcher awareness and perceptions of CAQDAS in South Africa found that while some researchers may have access to training opportunities, the level of support provided may be insufficient to meet the diverse needs of users (Swanepoel & de Lange, 2019). Similarly, Le Grange and Swart (2017) emphasized the importance of comprehensive training initiatives to equip researchers and students with the necessary skills to effectively utilize CAQDAS tools in their research endeavors (Le Grange & Swart, 2017).

Moreover, Meyer and Ebersöhn (2018) highlighted the need for ongoing technical support to address the challenges encountered by researchers when using CAQDAS in educational research contexts in South Africa (Meyer & Ebersöhn, 2018). They emphasized the importance of tailored support mechanisms to cater to the specific needs

and skill levels of users, thereby enhancing the overall effectiveness of CAQDAS utilization.

In light of these findings, it is evident that while some efforts have been made to provide technical support and training for CAQDAS in South African universities, significant gaps persist. Addressing these gaps requires a concerted effort from academic institutions to prioritize ongoing technical support and training initiatives, tailored to the needs of diverse user groups, to maximize the benefits of CAQDAS tools in qualitative research endeavors.

2.5.3 Compatibility and Localization

The lack of localization of CAQDAS software to suit the specific needs and contexts of South African researchers has been noted as a gap. Research by Dzobo and Segalo (2020) highlighted the importance of adapting software to local languages, data formats, and research practices to enhance usability and effectiveness.

2.5.4 Integration into Curriculum

Inconsistencies in the integration of Computer-Assisted Qualitative Data Analysis Software (CAQDAS) into academic curricula within South African universities have indeed been observed, raising concerns about the readiness of students for post-graduation research endeavors. Le Grange and Swart's study in 2017 shed light on this issue, emphasizing the imperative for greater integration of CAQDAS tools into coursework to equip students with the necessary skills for their future research endeavors (Le Grange & Swart, 2017).

The study by Le Grange and Swart underscores the importance of incorporating CAQDAS into academic curricula to ensure that students are adequately prepared to

utilize these tools in their research practice. However, their findings suggest that such integration may be lacking or inconsistent across different programs and institutions within South African universities.

Moreover, the limited integration of CAQDAS into academic curricula may contribute to a gap in students' preparedness for post-graduation research endeavors. Without exposure to CAQDAS tools and training in their use, students may face challenges in conducting qualitative data analysis efficiently and effectively in their future research projects.

To address this gap, Le Grange and Swart advocate for greater emphasis on integrating CAQDAS tools into coursework across various disciplines within South African universities (Le Grange & Swart, 2017). This would involve incorporating hands-on training and practical exercises using CAQDAS software into relevant courses, thereby providing students with the opportunity to develop proficiency in these tools.

By enhancing the integration of CAQDAS into academic curricula, South African universities can better prepare their students for post-graduation research endeavors. This includes equipping them with the necessary skills and competencies to navigate the complexities of qualitative data analysis using CAQDAS tools, thereby enhancing the quality and rigor of their research outputs.

2.5.5 Awareness and Perception

Misconceptions about CAQDAS and its utility among researchers and students in South African universities have been documented. Research by Swanepoel and de Lange (2019) found that some individuals perceive CAQDAS as overly complex or unnecessary for their research needs, highlighting the need for increased awareness and education.

2.5.6 Ethical Considerations

Ethical considerations related to the use of CAQDAS in qualitative research, including data privacy and informed consent, have been recognized as important issues. Research by O'Connor et al. (2016) emphasized the need for researchers to adhere to ethical guidelines and ensure that data management practices align with ethical principles when using CAQDAS.

Addressing these gaps requires collaborative efforts from universities, research institutions, software developers, and funding agencies. By promoting equitable access, providing robust training and support, localizing software solutions, integrating CAQDAS into curricula, raising awareness, and ensuring ethical research practices, South African universities can harness the potential of CAQDAS to enhance qualitative research endeavors and contribute to knowledge generation and dissemination in diverse fields.

2.7 CONCLUSION

This is the conclusion of Chapter Two. This chapter has provided a comprehensive review of the existing literature relevant to the research topic. Through an exploration of key concepts, theories, and empirical studies, this chapter has offered valuable insights into the current state of knowledge in the field. The literature review has served to contextualize the research problem, identify gaps in existing research, and establish a foundation for the study's theoretical framework and research objectives.

By synthesizing and analyzing diverse sources of literature, this chapter has contributed to a deeper understanding of the research topic and its broader implications. Additionally, the literature review has helped to highlight areas of consensus and contention within the field, shedding light on unresolved questions and areas in need of further investigation.

Moving forward, the insights gained from the literature review will inform the design and methodology of the research study. By building upon the existing body of knowledge and addressing identified gaps, the study aims to make a meaningful contribution to the field. Overall, Chapter Two has laid the groundwork for the subsequent chapters of the thesis, providing a solid theoretical and empirical foundation upon which the research will be conducted.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 INTRODUCTION

3.2 RESEARCH PARADAGM

3.2.1 Critical Realism

Critical realism is a research paradigm that admits the ontological existence of an external reality, while also acknowledging that our comprehension of this reality is influenced by our social and historical circumstances (Bhaskar, 2013). Archer (2013) highlights the significance of social structures and power dynamics in influencing social phenomena. The objective of critical realism is to reveal the fundamental causal mechanisms that give rise to observed patterns by beyond superficial observations and taking into account the underlying structures and processes (Bhaskar, 2013).

3.2.2 Positivism

Positivism, as a research paradigm, has its roots in the natural sciences and places significant emphasis on employing scientific methodologies for the collection and analysis of data (Bryman, 2016). The assertion is made that there exists a singular reality that can be objectively viewed and measured, without being influenced by the subjective interpretation of the researcher (Creswell, 2014). Positivism is an epistemological

approach that aims to uncover universally applicable truths pertaining to the social realm by use of empirical observations and rigorous data analysis (Bryman, 2016).

3.2.3 Interpretivism

The study paradigm known as interpretivism posits that social reality is formed by the subjective interpretations and meanings that individuals attribute to their experiences (Denzin & Lincoln, 2018). Creswell (2014) highlights the significance of comprehending the perspectives and opinions of research participants as a means to acquire valuable insights into their lived experiences. The primary objective of interpretivism is to reveal the subjective interpretations that individuals assign to social phenomena through the utilization of comprehensive qualitative analysis and data interpretation (Denzin & Lincoln, 2018).

3.2.4 Pragmatism

Pragmatism is a research paradigm that adopts a pragmatic stance towards research, prioritizing practicality and effectiveness in addressing real-world issues (Creswell, 2014). Tashakkori and Teddlie (2010) acknowledge the significance of employing both qualitative and quantitative methodologies in research, while also highlighting the crucial role of contextual factors in influencing study findings. Pragmatism endeavors to integrate theoretical perspectives with practical implementation, with the objective of generating knowledge that is applicable and can effectively tackle real-world challenges (Creswell, 2014).

3.2.5 Justification for chosen paradigm

In the study titled "The Impact of COSTAQDA Features on Enhancing Qualitative Data Analysis for Reliable Outcomes Across Different Designs – A Qualitative Evidence Synthesis," interpretivism can be justified as a suitable research paradigm for several reasons:

- a) ***Emphasis on understanding subjective meanings:*** Interpretivism recognizes the importance of understanding the subjective meanings that individuals assign to their experiences. In this study, the focus is on exploring the impact of COSTAQDA features on enhancing qualitative data analysis. By adopting an interpretivist lens, the researchers can delve into the perspectives and interpretations of researchers and participants regarding the use of these features, gaining insights into their subjective experiences and understandings of the phenomenon.

- b) ***Contextual understanding:*** Interpretivism acknowledges the significance of the social and historical context in shaping social phenomena. In this study, the researchers are investigating the impact of COSTAQDA features on qualitative data analysis across different designs. By adopting an interpretivist approach, researchers can consider the contextual factors that may influence the use and effectiveness of these features in various research designs. This understanding of context can contribute to a more comprehensive analysis and interpretation of the findings (Archer, 2013).

c) **Qualitative nature of the study:** Qualitative evidence synthesis involves the systematic review and synthesis of qualitative research studies. Interpretivism aligns well with qualitative research approaches, as it emphasizes in-depth understanding, exploration, and interpretation of qualitative data. By adopting an interpretivist paradigm, the researchers can effectively analyze and synthesize qualitative data from different studies, considering the nuances, perspectives, and contextual factors that influence the outcomes (Bryman, 2016).

d) **Reflexivity and researcher subjectivity:** Interpretivism recognizes the role of the researcher in shaping the research process and acknowledges the potential influence of their subjectivity. In this study, the researchers are examining the impact of COSTAQDA features on qualitative data analysis. By adopting an interpretivist paradigm, researchers can reflect on their own perspectives, biases, and assumptions, and consider how these may have influenced the research process and findings. This reflexivity can contribute to a more transparent and rigorous analysis (Denzin & Lincoln, 2018).

Overall, by adopting interpretivism as a research paradigm in this study, the researchers can gain a deeper understanding of the subjective meanings, contextual factors, and researcher subjectivity related to the impact of COSTAQDA features on enhancing qualitative data analysis.

3.3 RESEARCH APPROACH

3.3.1 Overview

In embarking upon the investigation titled "The Impact of COSTAQDA Features on Enhancing Qualitative Data Analysis for Reliable Outcomes Across Different Designs," the research team sets out to explore the multifaceted influence of COSTAQDA software on qualitative data analysis. Recognizing the growing significance of qualitative methodologies in various fields, this study aims to shed light on how the features of COSTAQDA contribute to the reliability and robustness of qualitative research outcomes (Dey, 1999). By delving into this inquiry, the research endeavors to offer valuable insights that can inform both researchers and practitioners about the optimal utilization of COSTAQDA in qualitative research endeavors.

3.3.2 Study Selection

Guided by stringent criteria, the study selection process unfolds as a meticulous endeavor to curate a comprehensive corpus of literature relevant to the research objective (Booth et al., 2016). Leveraging systematic search strategies, the research team scours an array of electronic databases, including PubMed, PsycINFO, Scopus, and Web of Science, employing carefully crafted search terms tailored to capture studies exploring the nexus between COSTAQDA features and qualitative data analysis (Higgins & Green, 2011). Additionally, the team embarks on a manual search, meticulously sifting through the annals of relevant journals and scrutinizing the reference lists of identified studies to ensure the inclusion of all pertinent sources.

3.3.3 Data Extraction

With a keen eye for detail, the data extraction phase unfolds as a systematic process aimed at distilling key insights from the identified literature (Thomas & Harden, 2008). Employing a structured data extraction form, the research team meticulously captures pertinent information, ranging from study characteristics and participant demographics to the nuanced intricacies of COSTAQDA features examined and qualitative data analysis methodologies employed (Booth et al., 2016). This phase serves as a crucial juncture where the raw material of the literature is distilled into digestible morsels, setting the stage for the subsequent synthesis process.

3.3.4 Synthesis Methods

Steering through the labyrinthine maze of qualitative data, the synthesis phase emerges as a journey of discovery and sense-making. Drawing upon established synthesis methods such as thematic synthesis and meta-ethnography, the research team embarks on a journey of exploration, systematically identifying overarching themes and discerning patterns across the synthesized literature (Thomas & Harden, 2008). This iterative process of synthesis, characterized by constant comparison and refinement, serves as the crucible where the disparate threads of qualitative evidence coalesce into a coherent narrative, offering profound insights into the impact of COSTAQDA features on qualitative data analysis.

3.3.5 Quality Appraisal

Ensuring the integrity and rigor of the synthesized evidence, the quality appraisal phase stands as a bastion against methodological shortcomings and epistemic pitfalls. Armed

with the Critical Appraisal Skills Programme (CASP) checklist, the research team meticulously scrutinizes the methodological rigor, transparency, and credibility of the included studies (Critical Appraisal Skills Programme, 2018). Only studies deemed methodologically robust earn the privilege of contributing to the synthesis, safeguarding the integrity and validity of the synthesized findings. The Critical Appraisal Skills Programme (CASP) is a widely recognized tool utilized for assessing the quality and relevance of research studies, particularly in evidence-based practice and healthcare research (Atkins et al., 1998). Originating in the early 1990s by a consortium of healthcare professionals in the United Kingdom, CASP offers a systematic framework for evaluating the trustworthiness, relevance, and applicability of research evidence to inform decision-making (Taylor et al., 2007).

CASP provides a range of appraisal tools tailored to different study designs, including randomized controlled trials, cohort studies, qualitative research, and more (Cooke et al., 2012). These tools consist of a series of questions designed to guide the appraiser through key aspects of study quality and methodology (Ritchie et al., 2013), covering elements such as study design, participant selection, data collection methods, analysis techniques, results interpretation, and overall study findings.

Utilizing CASP facilitates a structured approach to critically analyzing research literature, enabling researchers and practitioners to assess the strengths and limitations of individual studies (Munn et al., 2018). By systematically evaluating factors such as the validity of study design, appropriateness of methodology, rigor of data analysis, and relevance of findings to real-world contexts, CASP empowers users to make informed

judgments about the trustworthiness and applicability of research evidence (Pearson et al., 2005).

Numerous studies and publications have highlighted the value of CASP in promoting evidence-based practice and enhancing research appraisal skills among healthcare professionals, researchers, and students (Wong et al., 2013). For instance, Taylor et al. (2007) demonstrated the effectiveness of CASP workshops in improving critical appraisal skills among nursing students. Similarly, Atkins et al. (1998) explored the utility of CASP in evaluating qualitative research studies and emphasized its role in enhancing the quality and consistency of research appraisal within the healthcare field.

Given the above, the Critical Appraisal Skills Programme (CASP) offers a structured and systematic approach to appraising research evidence, providing a valuable toolkit for evaluating the quality, relevance, and applicability of studies to be included as units of analysis in this investigation.

The Critical Appraisal Skills Programme (CASP) offers various checklists tailored to different study designs, each encompassing its own set of appraisal criteria. Below, I present a general overview of key appraisal criteria commonly found across several CASP checklists, particularly relevant for evaluating qualitative studies, randomized controlled trials (RCTs), and systematic reviews. This synthesis aims to capture the essence of what CASP encourages users to consider when appraising studies. The following table represents key quality criteria used in CASP and the value it will add to this study.

Table 3.1 CASP

#	Criteria	Description
1	Clear Aim	Is the study's aim or research question clearly stated and is it appropriate?
2	Methodology	Is the methodology appropriate for the research question and is it clearly explained?
3	Design	Is the study design suitable for the research question and is it clearly described?
4	Recruitment	Were the participants appropriately recruited and is the recruitment process clearly described?
5	Data Collection	Were the data collected in a way that addressed the research question and is the process clearly described?
6	Relationship Between Researcher and Participants	Has the relationship between researchers and participants been adequately considered and addressed?
7	Ethical Considerations	Were ethical issues considered and addressed, and is there evidence of ethical approval?
8	Data Analysis	Was the data analysis conducted rigorously and is it clearly described?
9	Findings	Are the findings clearly presented, and do they seem credible and justified by the data?
10	Value of the Research	Is the research valuable and relevant to its field, and are its implications clearly discussed?

3.3.6 Ethical Considerations

With ethical integrity as a guiding principle, the research team ensures that the study adheres to ethical norms and standards. Recognizing that the study involves the synthesis of existing literature and does not entail direct interaction with human participants, the research team affirms that ethical approval is not required for the study.

3.3.7 ENTREQ Reporting

To The Enhancing Transparency in Reporting the Synthesis of Qualitative Research (ENTREQ) statement, developed by Tong et al. in 2012, is designed to promote

transparent and comprehensive reporting of systematic reviews or syntheses of qualitative research. The ENTREQ guidelines provide a framework that helps researchers to clearly report the methodology, findings, and interpretations of qualitative evidence syntheses, which is crucial for ensuring the credibility, reproducibility, and utilization of the research outcomes. In embarking on our qualitative evidence synthesis, the adoption of the Enhancing Transparency in Reporting the Synthesis of Qualitative Research (ENTREQ) guidelines stands as a pivotal commitment. This decision steers our research journey towards a realm where clarity, depth, and utility converge, ensuring our findings resonate meaningfully with researchers, policymakers, and practitioners alike.

The essence of ENTREQ lies in its structured framework, which weaves a narrative of meticulous detail and unwavering clarity through every phase of our study. From the initial design to the nuanced analysis of data, ENTREQ serves as our guiding beacon, illuminating the path to comprehensive reporting. This intricate tapestry of methodology, findings, and interpretations becomes a transparent window into our research soul, inviting scrutiny, fostering understanding, and championing reproducibility.

As I delve into the myriad experiences and insights pertinent to our research question, ENTREQ's inclusive ethos encourages us to cast a wide net, capturing a diverse array of studies. This richness not only broadens our horizon but also deepens the relevance and applicability of our synthesis. Each selected study, carefully chosen and meticulously appraised, contributes a unique thread to the complex mosaic of our findings, ensuring a multifaceted perspective that echoes the real-world intricacies it seeks to decipher.

Transparency, a cornerstone of ENTREQ, transforms our methodology into an open book. This transparency is not merely about visibility but about fostering an environment

of accountability and integrity. By laying bare our criteria for inclusion, our analytical lens, and our interpretative compass, we invite fellow researchers to walk through our process, challenge our assumptions, and perhaps, replicate our journey, thus reinforcing the fabric of trust that underpins scientific inquiry.

The true measure of our study's value, however, lies in its utility to those beyond the academic sphere. ENTREQ ensures that the synthesis does not end as an academic exercise but transcends into actionable insights that inform practice and shape policy. The clarity and relevance of our findings, underpinned by ENTREQ's rigorous standards, aim to spark dialogue, inspire change, and influence decision-making in tangible, impactful ways.

Moreover, ENTREQ nudges us towards a reflective dialogue with our own findings, urging us to place them within the broader tapestry of existing knowledge. This introspective journey not only enriches our study but also fosters a culture of humility and curiosity, where learning and growth are perpetual.

In essence, our adherence to the ENTREQ guidelines is more than a methodological choice; it is a narrative of commitment to excellence, transparency, and relevance. As we navigate the complex waters of qualitative evidence synthesis, ENTREQ is both our compass and our anchor, guiding us towards a destination where our research not only illuminates the academic discourse but also enlightens the very practices and policies it seeks to inform.

The ENTREQ statement encompasses several key elements across five domains:

Introduction: This includes the rationale for the synthesis and its objectives. The introduction should clearly state why the synthesis was conducted and what it aims to achieve.

Table 3.2 ENTREQ

Domain	Indicative Activities	
Methods	Protocol and Registration	Indicating if there was a protocol, where it was registered, and any deviations from the protocol.
	Rationale for the Review Methodology	Explaining why certain methods were chosen for synthesizing qualitative evidence.
	Searching and Selecting Studies	Describing how studies were identified, screened, and selected for inclusion, including search strategies, databases, and inclusion/exclusion criteria
	Appraisal of Study Quality	Detailing how the quality or validity of the included studies was assessed.
	Synthesis of Findings	Outlining the methods used to synthesize findings from the included studies, such as thematic synthesis, meta-ethnography, or framework synthesis.
Results	<i>Study Selection and Characteristics</i>	Presenting the number of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions.
	<i>Study Quality and Risk of Bias</i>	Summarizing the results of the quality appraisal and any impact on the synthesis
	<i>Results of Individual Studies</i>	Describing the findings from each included study.
	<i>Synthesis of Results</i>	Presenting the synthesized findings across studies, including any themes, patterns, or relationships identified.
Discussion	This involves discussing the findings in the context of existing literature, their implications for practice and policy, and any limitations of the synthesis itself.	
Conclusions	Providing a summary of the evidence, its implications, and suggestions for future research.	

3.4 CONCLUSION

In Chapter Three, we have delved into the research methodology to be employed in this study, focusing on the qualitative evidence synthesis (QES) protocol. By discussing research paradigms and emphasizing the research approach, we have outlined the framework for aligning the study with the ENTREQ methodology.

Throughout this chapter, we have underscored the importance of methodological rigor and transparency in qualitative research. By adopting the ENTREQ framework, we aim to ensure systematic and comprehensive synthesis of qualitative evidence, thus contributing to the reliability and credibility of the study outcomes.

The discussion has highlighted the significance of aligning the research methodology with established guidelines and frameworks. Through adherence to rigorous methodological standards, we strive to enhance the trustworthiness and validity of the study findings.

Looking ahead, Chapter Three lays the groundwork for the empirical phase of the study, providing a clear roadmap for data collection, analysis, and synthesis. By adhering to the principles of the ENTREQ methodology, we aim to produce reliable and dependable knowledge that can inform evidence-based decision-making and policy formulation.

In conclusion, Chapter Three sets the stage for the culmination of this research endeavor, outlining the methodological approach to be employed and emphasizing the commitment to methodological rigor and transparency in qualitative evidence synthesis. Through adherence to established guidelines and frameworks, we endeavor to contribute to the advancement of knowledge in the field of qualitative research and its application in addressing complex societal challenges.

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