

Review Article

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Overview of Various Types of Qualitative Research Design and Importance of ATLAS.ti Tool

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ABSTRACT

The article explores qualitative research types, highlighting its focus on subjective understanding and context through methodologies like interviews and focus groups. Key attributes include exploratory nature, smaller sample sizes, and a contextual approach, making it suitable for understanding user needs, in contrast to quantitative research. Qualitative research designs include various approaches: Narrative Research focuses on personal stories, while Phenomenology investigates how individuals perceive phenomena. Grounded Theory systematically analyzes data to create theories, and Ethnography examines cultural behaviors through immersion in specific groups. Case Studies entail an in-depth analysis of specific cases. It presents ATLAS.ti, a Computer-Assisted Qualitative Data Analysis Software that supports various methodologies, enhances team collaboration, and aids in organizing qualitative data.

Common data sources utilized in ATLAS.ti include interview transcripts, focus group discussions, open-ended survey responses, observation field notes, and multimedia files such as audio, video, and images. ATLAS.ti offers systematic coding, AI-enhanced analysis, and advanced visualization tools, facilitating comprehensive qualitative research across diverse data types. By detailing basic activities at each stage of the process and including screenshots, the paper aims to create an accessible resource for other researchers utilizing ATLAS.ti.

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Introduction

The research design establishes a framework for a study, with the choice of research approach influencing how relevant information is gathered. This process entails several interconnected decisions. The research methodology and design outline the study's process, including data sources and collection methods. It provides a strategic framework from problem formulation to validation, as well as a foundational model for researchers. This flow helps new researchers understand research methodology and processes, from problem statement to findings [1].

Qualitative research design uses non-numerical data such as words and images to investigate subjective aspects such as experiences and beliefs. Data collection techniques include direct observations, interviews, and focus groups. Grounded theory and thematic analysis are two examples of analytical methods. One example is the use of focus groups to investigate women farmers' attitudes toward climate change. This research is prevalent in fields such as sociology, linguistics, and anthropology, and it frequently employs inductive reasoning to answer "why" or "how" questions while providing comprehensive context [2].

Interpretivism emphasizes the subjective nature of reality and the significance of comprehending human experiences. It promotes

research paradigms that involve community engagement. Ontology (existence), epistemology (knowledge acquisition), axiology (ethical and aesthetic values), and methodology (applied methods) are all important components [3].

The interpretive paradigm emphasizes subjective human experiences and the idea that reality is socially constructed. It acknowledges multiple subjective realities, guided by cultural relativism, in which individual perceptions are shaped by cultural norms and values. This paradigm favors qualitative methods such as interviews and ethnography for capturing detailed perspectives and emphasizes the importance of researcher self-awareness of biases. Findings are presented descriptively in order to reflect real-world situations while acknowledging the values inherent in the research process [4].

Smit and Scherman provide an overview of ATLAS.ti's capabilities in qualitative data analysis, highlighting a gap regarding the lack of practical guidance for researchers. While the literature covers technical aspects of ATLAS.ti and CAQDAS tools, there is a scarcity of experience-based accounts for navigating the full qualitative analysis process. Soratto et al. also discuss ATLAS.ti's functionalities. ATLAS.ti is noted for enhancing the organization and analysis of qualitative data, though novice researchers often struggle with its technical aspects, leading to underutilization [5].

Objective of the Study

The study explores the qualitative research methods and their types to provide an overview of the research onion framework. It aims to enhance understanding of effective research strategy design in alignment with scientific objectives and uses of ATLAS.ti.

Methodology

This paper draws on secondary data sources such as research papers, journal articles, online journals, and survey reports, as well as descriptive and analytical meta-analyses, desk reviews, and content analysis methods.

Overview of Qualitative Research Design and their Types

The selection of an appropriate research design is critical for any research project, as it dictates the entire study process, from data collection to the interpretation of findings. Researchers must choose a design that aligns with their specific research objectives and the characteristics of the phenomenon under investigation [6].

A research design is essential for systematic investigation and interpretation. Research designs are broadly divided into qualitative and quantitative types. Qualitative research is subjective and exploratory, examining relationships between data and observations through methods like open-ended interviews. Quantitative research is objective, utilizing statistical approaches to establish cause-and-effect relationships between variables via methods such as surveys and experiments [2].

Qualitative research is a method of gathering non-numerical data to better understand how people perceive and interpret their social environments. Qualitative research designs include phenomenology, ethnography, grounded theory, case study, narrative research, action research and historical research. It uses a variety of data collection techniques, including observations, interviews, and case studies, and document reviews. Sampling techniques are purposive, criterion, convenience, and snowball sampling, along with extreme case and typical case sampling for targeted or average participant selection. It is widely used in social sciences such as psychology, education, and anthropology. This approach is useful for gaining insights into problems and developing new theories, as it frequently produces subjective data that does not reinforce cultural judgments [7].

ATLAS.ti is qualitative data analysis software that accommodates various data types, including documents, audio, video, and images. It supports file formats such as .docx, .pdf, .txt, .wav, .mp3, .mp4, and .avi, and allows for result visualization through tree diagrams. Available for free to lecturers and students, ATLAS.ti is installed in campus study halls and PC rooms, and can also be downloaded at home using a Radboud University license code.

Ethnography Study

Ethnography is the systematic study of people and cultures, with a focus on cultural phenomena as perceived by the participants. As a qualitative research method, it entails observing and interacting with participants in their natural settings. Initially popular in anthropology, it is now used in a variety of social sciences. Key methods include interviews, participant observation, and surveys, with a strong emphasis on the researcher's ability to engage with target audiences.

Natural setting, immersive, embodied and sensory engagement as data, prolong engagement, holism, emic perspective (understanding through people's own categories etc as the key points of ethnographic study.

Ethnography, as a qualitative research method, has several advantages, including the ability to capture the complexities of group behaviors and their interrelationships, providing context that other methods lack. It provides deep insights into group experiences and guides future research directions. However, ethnography has drawbacks: it is time-consuming and requires skilled researchers to establish trust with participants. There is a risk of bias influencing study design and data interpretation, as well as difficulties in managing varying data quantities, which can lead to incorrect conclusions or inefficient processing [8].

ATLAS.ti is a powerful tool for ethnography, enabling researchers to manage diverse, multi-modal data such as field notes, audio, video, and photos. Key applications include organizing data by context and time, iterative coding, multimedia integration, and visualizing thematic connections through network editor. The software facilitates field note management, offers AI-powered analysis for rapid insights, and supports collaborative research efforts, allowing multiple researchers to contribute effectively to projects.

Phenomenological Approach

The phenomenological approach seeks to understand phenomena through the perceptions of actors in a given situation, employing qualitative methods such as interviews and participant observation. It focuses on individual experiences, setting aside conventional assumptions to investigate subjective knowledge and interpretation. This method is useful for understanding motivations and questioning conventional wisdom. While phenomenology overlaps with other qualitative methods such as ethnography and hermeneutics, its primary goal is to describe rather than explain phenomena without preconceived notions. However, contemporary researchers argue against the possibility of bias-free research, emphasizing the importance of acknowledging the researcher's role in interpreting results [9].

The analysis of phenomenological research highlights the challenges posed by the volume of disorganized data such as interview notes and transcripts. Typically, the analysis process is chaotic, as data does not easily fit into categories. To manage this, the researcher reads through the materials to identify key themes before organizing these findings using mind maps or notes. This structured approach helps in interrogating the texts and ensuring all pertinent points are captured, with additional details integrated as necessary, as noted by [10]. The phenomenological research study evaluates both approaches, discussing their historical-philosophical foundations, methodological implications, and their suitability for research on lived experiences, as well as comparing them to other qualitative strategies, providing a comprehensive overview of phenomenological research.

Grounded Theory

Grounded theory methods, first introduced by Barney Glaser and Anselm Strauss in 1967, provide a systematic approach to qualitative research that addresses the limitations of quantitative paradigms. Its goal is to develop theoretical explanations for real-world processes through iterative data collection, coding, and refinement. This method is especially useful for investigating topics with few existing theories, making it useful in fields such as health, education, and psychology. Grounded theory focuses on lived experiences and requires flexibility in data collection, but it is not appropriate for confirming established theories or using fixed datasets. The core principles of various grounded theory approaches, such as classical, Straussian, and constructivist, are shared, but the theory construction and data management differ [11].

In grounded theory is developed through iterative data collection and analysis, much like a snowball gaining mass. It starts with preliminary observations and inquiries, and each cycle of analysis deepens insights. You move from particular observations to abstract explanations, developing codes and categories into a coherent theory, by continuously comparing new data with preexisting insights.

Real-time data collection and analysis are combined in grounded theory, a qualitative research method that allows researchers to modify their interviewing techniques as new information becomes available. This adaptable strategy makes it possible to gradually change the research focus as it approaches theoretical saturation, the point at which new information is consistent with what is already known. Grounded theory is distinguished by its structured methodology, which starts with broad questions and refines understanding through iterative comparisons, improving research outcomes and increasing engagement with data [12].

Researchers prefer grounded theory because it produces effective theories, despite the fact that it requires a significant amount of time and methodological rigor. Traditional tools such as sticky notes and spreadsheets are insufficient for large-scale projects due to issues with coding complexity and collaboration. Grounded theory requires tools that allow for seamless reorganizations, collaborative comparisons, integrated memo-writing, flexible data handling, and clear audit trails to improve theoretical insights as the research evolves.

Grounded theory is distinguished by its iterative process, which emphasizes constant comparison of data, codes, and categories, resulting in a dynamic research environment. Central concepts include the constant comparison method, which reveals patterns and contradictions; theoretical sampling, in which insights influence participant selection; and theoretical saturation, which occurs when new data no longer yields new insights. This approach transforms qualitative coding into a robust system that informs subsequent data collection and theoretical development, aided by tools such as Delve, which allow for contextual memo writing to track evolving theories [12].

Grounded theory is crucial in coding within qualitative data analysis software, particularly Atlas.ti, which is influenced by grounded theory methodologies. Coding is more than just label attachment; it is the dimensionalization of data, revealing conditions, consequences, and interactions. While grounded theory focuses on theory development and detailed coding processes, it is not strictly necessary for software use. My research used open, axial, and selective coding as described by Strauss and Corbin, demonstrating the incorporation of grounded theory principles even when they did not fully align with its tenets. This approach aided in the nuanced data analysis process [13].

Participatory Rural Appraisal (PRA)

Participatory Rural Appraisal (PRA) is a methodology used by non-governmental organizations (NGOs) and development agencies to engage rural communities in project planning and management. PRA is influenced by activist adult education, particularly Paulo Freire, and seeks to empower local communities for effective development. The concept evolved from Robert Chambers' rapid rural appraisal (RRA) in the early 1980s, gaining traction after its first international conference in 1985, and becoming widely adopted, along with the related participatory learning and action (PLA), by the mid-1990s [14].

Social Mapping

Social mapping is a visual method for depicting the relative location of households and the distribution of various demographic groups within a community. It is used to represent community layout, infrastructure, demographics, ethno-linguistic diversity, health trends, and wealth distribution. The tool provides information about community structure, socioeconomic situations, and the geographic distribution of social groups. Participatory household categorization is a key component, and data sampling is required. Implementation takes approximately 1.5 to 2 hours. Costs range depending on the number of communities and geographical coverage. While effective in smaller communities, the process can become more complicated in larger settings, necessitating tool adaptation.

Social mapping is the process of creating a community resource map through collaborative discussions among local analysts. It takes two to three hours and requires materials such as markers, paper, or natural objects, as well as a trained facilitator. The process includes selecting local analysts, introducing discussion objectives, and creating a social map depicting various community features. Analysts use symbols for various social categories to identify key landmarks and institutions, as well as distribute resources on maps. Finally, the completed map provides a foundation for further analysis and discussion of community structures, resource access, and social dynamics [15].

Historical Research

Historical research design is a systematic method for studying the past that involves gathering, analyzing, and interpreting primary (eyewitness, artifacts) and secondary (books, articles) sources in order to understand past events, trends, and their impact on the present. The process focuses on source reliability and context through critical evaluation, data collection (archives, interviews), analysis, and synthesis to form a coherent, evidence-based historical narrative.

Historical research design has several advantages, including flexibility, unobtrusive observation in natural settings, the ability to derive meaningful insights from the past, and the potential to predict the future using historical analysis. An example of such design is using primary and secondary sources, such as historical documents and archives, to research past events, allowing for generalizations and lessons learned. The historical research process involves gathering data from multiple sources, formulating a hypothesis, analyzing source materials and data, and synthesizing findings [7].

Action Research

Action research is a dual-purpose method that first defined by Kurt Lewin first defined action research as a method that simultaneously investigates and addresses issues in 1944. This interactive approach, which is common in the social sciences and education, emphasizes reflection and connects theoretical knowledge to practical applications. It's also known as an action or inquiry cycle. Action research differs from traditional research in that it focuses on developing actionable processes to solve immediate problems and improve systems, rather than adding to existing knowledge. It is formative and iterative, in contrast to traditional research, which seeks to advance knowledge, draw statistical conclusions, and derive findings from theoretical frameworks. Thus, action research is practical in nature, whereas traditional research emphasizes statistical reliability and generalizability, making it ideal for implementing systemic change.

There are two types of action research: participatory and practical. Participatory research treats participants as co-researchers, empowering those who are directly affected by the results. Practical research focuses on conducting research and addressing specific problems. Both types aim to improve future practitioners' abilities. There are three types of action research models: operational, collaboration, and critical reflection. Operational research uses a spiral, collaboration uses community-based networks, and critical reflection contextualizes systemic processes [16].

Case Studies

Case studies are a focused method of qualitative research that examines specific instances such as individuals, groups, organizations, or events. They collect extensive data to produce findings that are applicable to broader contexts. For example, a marketing manager may examine a manufacturing company's transition to a new ERP system in order to identify improvements and efficiencies gained, such as smoother logistics. Effective case studies require a variety of data sources, including user interviews and stakeholder feedback, and should be narratively structured, beginning with the problem, progressing to the solution, and demonstrating measurable outcomes. They can be useful for both internal training and external stakeholder communication.

Narrative Research

Narrative research is a qualitative methodology that examines stories to better understand people, cultures, and societies. It emerged in the 1980s during a "narrative turn" in social sciences, shifting the emphasis from objective knowledge to subjective and contextual understanding, and is based on social constructionism. Key figures such as Elliot Mischler and others helped to shape this shift by emphasizing the role of narratives in shaping identity and experience. As Roland Barthes noted, narrative is fundamental to human existence, and no society can exist without it. According to Jeong-Hee Kim (2016), narratives play an important role in preserving sacred knowledge, which encompasses traditions such as personal identity and social justice, and they predate narrative inquiry in Western social science. Researchers, particularly those working in indigenous communities, must recognize the importance of these narratives and not prioritize Western methodologies [17].

Data Collection Method

Observation

Observation is a systematic method for collecting data about phenomena using the senses or instruments, which is required in the scientific method for hypothesis formation. It can be structured or unstructured, used in natural or controlled environments, and collects both qualitative and quantitative information. Observation, which is applicable in fields such as science, psychology, and business, is regarded as a key learning tool second only to direct practice (Kothari, 2004).

Non-participant observation is a research method involving distance observation of subjects with no engagement in their activities. It allows documentation of behaviors in natural settings, enhancing objectivity and perspective on group dynamics. However, it also poses challenges, including potential neglect of subjective meanings and difficulties in understanding contextual intricacies of behaviors.

Interview

Interviews as a primary data collection method in qualitative research. According to Oakley, these interviews have a framework that records, challenges, and reinforces practices and standards.

Most qualitative research interviews are either semi-structured, lightly structured, or in-depth, while unstructured interviews are recommended for long-term fieldwork, allowing respondents to express themselves freely and at their own pace (Corbin & Morse, 2003).

The pioneers of ethnography used unstructured interviews with a conversational style rather than a formal question-and-answer format. These interviews gather information through observations and field notes while engaging with participants. Non-directive interviews seek in-depth information without asking predetermined questions, whereas focused interviews keep the respondent focused on the main topic. Informal, conversational interviews use spontaneously generated questions, demonstrating an unplanned approach.

Semi-structured interviews are in-depth interviews that use pre-set open-ended questions and are widely used in healthcare research. These interviews, which typically last 30 minutes to more than an hour, can be conducted with individuals or groups and are guided by a semi-structured interview guide that outlines core and associated questions. This method aids in systematically exploring respondents' insights while remaining focused. Although recording interviews is preferred for accuracy, handwritten notes are considered less reliable. Recorded content enables researchers to focus on dialogue while ensuring verbatim transcription of the interviews (Jamshed, Shazia ,2014).

Focus Group Discussion

The term "Focus Group Discussion" (FGD) refers to a group formed for discussion within research, usually with a set number of participants as required by the study. FGDs are widely recognized as an effective qualitative research tool, particularly in sociology and marketing, and they are increasingly being used in educational research to improve data collection in quantitative studies. They help researchers understand participants' feelings, attitudes, and reactions to specific research questions through controlled discussions moderated by a trained facilitator. The moderator asks carefully crafted questions to encourage dialogue and elicit valuable insights, enriching the research process (Powell & Single ,1996).

Focus Group Discussions (FGDs) are structured conversations facilitated by a trained Moderator in a small group setting. The Moderator facilitates the discussion by asking targeted questions and encouraging participants to share their thoughts and insights on a specific topic. In contrast to simple interviews, FGDs require significant skill and discipline from the Moderator to ensure an organized discussion that promotes participant openness. They provide a non-threatening environment in which participants can express their true feelings and perceptions, resulting in rich qualitative data for research. The collected data, which may include recordings and observations, is then analyzed to reach unbiased conclusions and insights about the study (Sachdeva Shabina et.al.,2024).

Data Analysis Method

Content Analysis

Content analysis is a research method that identifies specific words, themes, or concepts in qualitative data, allowing researchers to quantify and interpret their presence and meaning. It can be used on texts like news articles to assess bias and draw conclusions about the author's intent, audience, and cultural context.

Content analysis is a research method that identifies patterns in recorded communication by collecting systematic data from texts, whether written, oral, or visual. It can be quantitative, measuring the occurrence of words and themes, or qualitative, emphasizing interpretation and comprehension. Researchers use content analysis to determine the purpose, messages, and effects of communication. Applications include marketing and psychology, where it helps identify correlations, biases, and communication differences while also analyzing audience responses.

Content analysis has advantages such as unobtrusive data collection, transparency and replicability, and high flexibility. However, it also has disadvantages, including reductiveness, subjective interpretation leading to bias, and time-intensive manual coding. Despite its value as a research tool, these factors must be considered (Amy Luo , 2019).

Thematic analysis

Thematic analysis is a flexible research method that identifies recurring topics, ideas, or patterns in data, allowing for the exploration of communication phenomena with limited prior knowledge. It enables the analysis of individual or multiple texts in order to gain a better understanding of communication dynamics. The process entails iteratively reading data to identify themes, which can arise from repeated expressions in interviews and have both explicit and implicit meanings. Analysts must be open to new themes while ensuring alignment with research questions, which will eventually reveal underlying communication processes and areas for improvement [18].

Thematic analysis is a qualitative research method that identifies patterns in data sets. It is adaptable and can accommodate a variety of theoretical frameworks, making it useful to researchers with varying levels of experience. The analysis proceeds in a systematic manner, beginning with familiarization with the data, then coding for themes, grouping codes into broader themes, refining these themes, and establishing relationships, which are frequently visualized using thematic maps. The final step is to create a formal report that details the themes and their significance. While adaptable and user-friendly, thematic analysis presents challenges in terms of subjectivity and bias, as researcher interpretations can influence results.

Thematic analysis is a systematic research process that begins with familiarization with the data through repeated readings. It involves coding the data by identifying and grouping similar themes, followed by discerning potential themes under broader categories. Researchers then review these themes for logical consistency, assign meanings, and define them to create a narrative from the data. Finally, a report is produced to document these themes, their examples, and significance. While thematic analysis is flexible and user-friendly, it may introduce subjectivity and bias due to the influence of the researcher on data selection, coding, and theme definition [19].

Textual Analysis

Textual analysis is an essential method for interpreting large amounts of data in the digital age. It examines a variety of text forms, including books, web articles, and social media, to reveal complex meanings and perspectives. This practice examines both explicit and implicit messages, providing a systematic approach to understanding how language reflects and shapes cultural contexts and meanings.

Textual analysis is a research method that critically examines written, spoken, or visual messages, with a focus on deconstructing texts to reveal underlying themes, messages, and symbols. Its goal is to uncover hidden structures and intricate relationships within a text, allowing for a more comprehensive understanding of content in relation to larger socio-cultural, historical, and political contexts.

Textual analysis is essential in many fields, allowing for a better understanding of complex texts. Textual evidence is used by scholars in the social sciences to better understand human behavior and societal trends. In business and marketing, it is used to analyze consumer feedback and market trends to help make decisions. Media and communication studies use it to assess media content and audience reception. In literature, critics use it to discover hidden meanings and themes. Overall, textual analysis is an important research tool for improving our understanding of a text-rich world.

Textual analysis is a comprehensive research method that provides in-depth insights into various texts by interpreting their language, context, and audience impact. It includes not only written text, but also spoken words, images, symbols, and multimedia. The process is divided into four stages: descriptive (summarization and context understanding), analytical (interpreting meanings and patterns), interpretive (discovering underlying messages), and evaluative (comparing the text to specific criteria). Textual analysis also investigates creator intent, audience response, and cultural context, revealing power dynamics and ideologies like gender roles and sociopolitical biases. In the business world, it aids in tracking customer sentiments and brand perceptions via various communication channels [20].

Discourse Analysis

Discourse Analysis is a research method that investigates language and communication in social contexts, with a focus on how it is used in everyday situations to convey meaning and express power dynamics. It examines both spoken and written texts to see how language reflects and influences social norms, power structures, and identities. This method is useful in a variety of fields, including linguistics, sociology, education, and, increasingly, Diversity, Equity, and Inclusion initiatives.

Discourse Analysis is essential for Understanding the presumptions and ideologies ingrained in communication—especially in Diversity, Equity, and Inclusion (DEI) initiatives—requires discourse analysis. It looks at how language can either support or contradict social injustices and draws attention to biases in corporate communications, political speeches, and the media. A corporate diversity statement, for example, might seem encouraging but contain ambiguous language that hides a lack of sincere dedication to inclusivity. Discourse analysis helps organizations improve their messaging and make sure that it aligns with their DEI goals by identifying patterns in language use. This promotes equitable outcomes and more inclusive discussions about social identities like race, gender, and disability. Discourse analysis is a critical tool for improving communication, especially in Diversity, Equity, and Inclusion (DEI) initiatives. It reveals how language reflects and influences social power dynamics, offering insights into addressing inequality and promoting inclusion [21].

Assumptions in social constructionist theory are based on a framework that emphasizes knowledge's historical, social, and cultural context. Gergen identifies four key assumptions: skepticism about assumed realities, the socially sustained nature of

knowledge, the belief that descriptions serve social functions, and a rejection of essentialist viewpoints in favor of questioning realism. Social constructionists acknowledge the existence of reality, but argue that it is constructed through discourse that varies with time and culture. Understanding concepts like depression entails investigating how people linguistically frame their experiences, which are influenced by historical and cultural contexts. Finally, language plays an important role in shaping perception and social action within this context [22].

Uses of ATLAS.ti in Tool Qualitative Research

Data analysis in qualitative research is a nonlinear, iterative process that begins with the transcription of data from interviews and notes into documents. This data can be analyzed manually or through software such as Atlas.ti. The analysis entails breaking down the text to organize, reduce, and describe the data, with a focus on rigorous and systematic methodologies. According to Schwandt and Alasuutari, qualitative analysis is more concerned with meaning than statistical relationships. Several authors, including Tesch and Dey, have articulated the principles that underpin qualitative analysis processes [23].

ATLAS.ti is a leading Computer-Assisted Qualitative Data Analysis Software (CAQDAS) that helps researchers organize, analyze, and interpret unstructured data like text and multimedia. It is used throughout the research lifecycle for effective project management, with features such as data management in various formats, inductive and deductive coding capabilities, thematic analysis, AI-powered tools for automatic summaries and code suggestions, visualization networks for connecting data elements, and collaboration features for team projects. This makes ATLAS.ti useful in academic, social science, and market research applications [24].

ATLAS.ti provides several benefits, including efficient handling of large data sets, which reduces workload and time compared to manual analysis. It increases flexibility and transparency by systematically documenting the analysis process. The software also excels at multimedia support, allowing for the analysis of video, audio, and image data. It is thought to outperform competitors in terms of visual mapping capabilities, particularly in the creation of semantic networks. Furthermore, ATLAS.ti runs on multiple platforms, including Windows, Mac, and web browsers, giving researchers more options [25].

ATLAS.ti's disadvantages include a steep learning curve that can be intimidating for beginners, high subscription costs that may not be justified for smaller studies, and performance issues when dealing with large projects, which can result in slowdowns and system errors. Furthermore, automation features necessitate close monitoring and ethical considerations, as they cannot replace in-depth interpretive research. Users also report inconsistencies when transferring projects from desktop to web versions [26].

The Pros and Cons of the Qualitative Research Methods

Qualitative research emphasizes experiential understanding and seeks to capture people's feelings and perspectives, posing distinct challenges when compared to quantitative approaches. Qualitative research explores open-ended questions about how and why, providing depth and context, whereas quantitative research allows for rapid data analysis and statistical presentation of findings. Qualitative research offers profound insights into human behavior, contextual understanding of complex issues, flexibility in data collection, and the ability to identify trends and

patterns that quantitative data may not reveal. However, it has flaws, such as potential bias in interpretation, time-consuming data collection and analysis, difficulties in generalizing findings to larger populations, and difficulties in replicating studies. Its value stems from its ability to delve into the depth and complexity of human experiences, capturing emotions, motivations, and cultural contexts that quantitative methods frequently overlook.

Pros

- Qualitative research methods enable insights that are beyond the constraints of quantitative approaches, as unexpected responses can provide valuable contextual information that numerical data may not convey.
- Qualitative research provides a flexible approach that allows researchers to quickly adapt questions, change settings, or modify variables to improve response quality when useful insights are not captured.
- Qualitative data capture enables researchers to explore areas of interest based on intuition, allowing them to identify where valuable information may be located.
- Qualitative research allows for targeted data collection by focusing on specific groups and key points within an organization. This approach can speed up data capture and reduce costs, as it accounts for all processes and participants needed to compare productivity effectively.

Cons

- Sample size presents significant challenges in accurately inferring the views of a larger population, as evidenced by the disparity between a sample of 5 employees out of 200, raising concerns about the findings' representativeness.
- Self-selection bias occurs when employees volunteer to share their opinions in surveys or focus groups, resulting in non-representative outcomes. This bias stems from the tendency for only those willing to express their opinions to participate, which can limit the relevance of the feedback to the entire department. Quantitative data collection is unaffected by whether an individual volunteered or not.
- The process of assembling a group for qualitative data collection differs from everyday work norms and culture, potentially affecting participants in unexpected ways.
- Effective data collection requires asking the right questions, especially in qualitative research where "how" and "why" questions provide critical insights. Each research method has strengths and weaknesses, and qualitative research is especially useful when combined with quantitative data. Together, they provide a more complete understanding of organizational dynamics (Tim Vaughan ,2021).

Conclusions

Qualitative research conclusions are subjective, influenced by the researcher's in-depth analysis of respondent attitudes, reasoning for their responses, and psychological motivations. Qualitative research offers profound insights into human behavior, contextual understanding of complex issues, flexibility in data collection, and the ability to identify trends and patterns that quantitative data may not reveal [27-33]. However, it has flaws, such as potential bias in interpretation, time-consuming data collection and analysis, difficulties in generalizing findings to larger populations, and difficulties in replicating studies. Its value stems from its ability to delve into the depth and complexity of human experiences, capturing emotions, motivations, and cultural contexts that quantitative methods frequently overlook.

Qualitative research designs seek to understand human behavior through context and meaning rather than statistical generalization. Phenomenology (exploring lived experiences), is the study of how people live their lives in relation to specific phenomena. Ethnography is the study of a group's behavior by immersing oneself in its daily activities. (cultural immersion). Grounded Theory: Creating a theory based on empirical observations obtained through inductive data collection. (developing theories from data). Case Study: A detailed examination of an individual, group, event, or organization. (in-depth analysis). Narrative research (storytelling) is the examination of individuals' stories in order to gain insight into their life experiences. Action research entails collaborating with participants to solve practical problems and promote social change. (collaborative problem solving) are some of the most common types. Interviews, focus groups, observations, and document/artifact reviews are all common data collection methods in qualitative research, and they are frequently used together. Qualitative research conclusions are based on themes and patterns, theoretical frameworks, detailed descriptions, and interpretations of participants' perspectives.

ATLAS.ti is a robust tool designed for rigorous qualitative analysis of complex, multi-format projects involving text, video, and audio. It excels in powerful visualization and AI-assisted coding, although it presents a steep learning curve and comes with high costs. Overall, it enhances the efficiency and transparency of qualitative research, especially in team-based or multi-method contexts.

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