



# Qualitative Research: Methodology, Data Analysis and Interpretation

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## Abstract

Research is a process of systematic inquiry that entails collection of data, documentation of critical information and analysis and interpretation of that data/information, in accordance with suitable methodologies set by specific professional fields and academic disciplines [12]. According to American Sociologist Carl Robert Babbie, 'Research is a systematic inquiry to describe, explain, predict and control the observed phenomenon. It involves inductive and deductive methods [11].

Inductive approaches, associated with qualitative research are methods to analyze an observed event. Deductive methods are more commonly associated with quantitative analysis and verify the observed event.

Research has three main purposes- **exploratory**- to explore into new problem areas that have not been explored before. **Descriptive** research focus on behavior of a sample population, describe, explain and validate the findings. **Explanatory** research is conducted to understand the impact of specific changes in existing standards.[7]

When the information or data is non-numerical, it is referred as qualitative research. It addresses the 'how' and 'why' research questions and helps in deeper understanding of experience, phenomena and context. It is useful in understanding the human experience [3]. The paper describes in detail meaning, key features, approaches, methodology, data collection methods, data analysis steps, advantages and disadvantages of qualitative research in detail.

**Key words** – Qualitative research, approaches, methodology, data analysis, types of data analysis

## INTRODUCTION-

**Research** focuses on finding and validating new ways to investigate and understand reality. To find out about various aspects of the natural, material, social and emotional world, various methods are adopted by individual researcher's. Qualitative research generally has a constructivist view of the world i.e. reality is in the way in which a researcher frames what s/he is looking for with the help of a theory and theoretical assumption. In qualitative research, there are multiple, relative dimensions of reality which can be capture using subjective, naturalistic methods.

### Qualitative Research

- Addresses questions about why & how and not what & how much?
- It involves collecting and analyzing non-numerical data (e.g. text, video or audio) to understand concepts, opinions or experiences [2].
- It is used to gather in depth insights into a problem, to generate new ideas for research.
- It is opposite of quantitative research (which involves collecting and analyzing numerical data for statistical analysis)
- It is commonly used in the Humanities and social science (anthropology, sociology, education, health sciences, history etc.) to understand how people experience the world.

### KEY FEATURES OF QUALITATIVE RESEARCH

Qualitative Research is

**Humanistic** – It focuses on the personal, subjective and experiential basis of knowledge and practice.

**Holistic** – Qualitative Research observes & understand the meaning of particular behaviours (in a given situation) and ways of doing things in a given context.

**Interpretive** – Researchers try to understand and make sense of what they see and hear (interpret) in a specific context. They do not merely want to describe, but explain elaborately.

**Reflexive** – Researcher's background, theoretical presuppositions effect and shape how the data gathered is interpreted. The questions asked, framing of research and presentation/analysis of data is shaped by the personal history and biography of researcher.

### METHODOLOGICAL APPROACHES of QUALATATIVE RESEARCH

Methods in qualitative research are generally in depth (detail) and open-ended.

- (i) Naturalistic – Qualitative Researchers try to study things, peoples, events, phenomena in natural settings.
- (ii) Flexible – To examine study and observe the same question, people, event or area, multiple methods are used.
- (iii) Iterative – The research questions or observations are repeated for a long time with the same sample or group. This is possible only when the researcher can access the same sample over the

course of a study. It is useful only when in the course of research, new questions arise and/or the researcher wants to go back and check some of the earlier collected data s/he has analyzed.[5]

(iv) Grounded Theory – Researchers collect rich data and develop theories. The meanings of people's social actions, interactions and experiences are uncovered and are grounded in participants own explanations or interpretations.

(v) Ethnography – Researchers immerse themselves in groups or organizations to understand their culture. Observations, interviews and documentary data is gathered to produce detailed and comprehensive accounts of different social phenomena.

(vi) Action Research – Researchers and participants collaboratively link theory to practice to drive social change. It is adopted by the researcher to solve the immediate problem which arises during the particular course of time.

(vii) Phenomenological Research – Researchers investigate a phenomenon or event by describing and interpreting participants lived experiences.

(viii) Narrative Research – Researchers examine how stories/narration are told to understand how participants perceive and make sense of their experiences.[2]

#### **DATA COLLECTION METHODS in QUALITATIVE RESEARCH-**

Qualitative Data is important in determining the particular frequency of traits or characteristics. It is about the emotions and perceptions of people. Qualitative data is also known as categorical data since it can be grouped according to categories. It is exploratory, involves in depth analysis and research.

Qualitative data collection methods go deeper in term of research and are mainly focused on gaining insights, reasoning and motivation [9].

Some of the most common data collection methods are-

(1) **Observations** – In this data collection method researcher records what s/he have seen, heard or encountered in detailed field notes. Besides taking notes, other documentation methods, such as video and audio recording, photography etc. can be used. Observation can be of two types-

Unstructured – An attempt is made to capture as much of the total reality observed.

Structured – The researcher while observing follows a check list of very specific items to observe-

(2) **Interviews** – In interview the researcher personally asks people questions in one to one conversations.

Interview may be-

(a) Narrative – it allows the informants to expand on their responses.

(b) KAP Questionnaire – Questions on knowledge, attitude, and practices are asked. The range of possible answers to the questions posed by the researcher/interviewer is predefined.

(3) **Focus Groups** – It includes asking questions and generating discussion among a group of people. The group is limited to 6-10 people and a moderator is assigned to moderate the ongoing discussion. [9].

(4) **Surveys** – Questionnaires with open ended questions are distributed to the informants to collect data.

(5) **Longitudinal Study** – In this, the data collection is done on the same data source for an extended period, for few years and in some cases for even decades, repeatedly.

(6) **Secondary Data-** Already existing reliable documents in the form of texts, images, audio or video recordings etc. are used in the new research.

### **QUALITATIVE DATA ANALYSIS –**

The process of gathering, structuring and interpreting qualitative data to understand what it represents, is called Qualitative Data Analysis. Qualitative data is the non-numeric information- interview transcripts, notes, video and audio recordings, images and text documents. Based upon the specific research objectives and the kind of data gathered by the researcher, data analysis can be done by the following analysis techniques-

**Content Analysis** – Refers to the process of categorizing verbal or behavioral data to classify, summarize and tabulate the data. In this common words, phrases and ideas in qualitative data are described and categorized. Content analysis is used to identify the patterns that emerge from text, by grouping content into words, concepts and themes. [10]. Thematic analysis (discovering repeated themes in a text) is a part of the content analysis.

**Narrative Analysis** – Is the reformulation and simplification of interview answers or documentation into small narrative, components to identify story like patterns. [8] Narrative analysis focusses on the stories people tell and language they use to make sense of them.

**Discourse Analysis** – is a method of analysis of naturally occurring task and all types of written text. It is used to get a thorough understanding of the political, cultural and power dynamics that exist in specific situations. It is used to study communication and how language is used to achieve effects in specific contexts.

**Framework Analysis** – is a more advanced method that includes ordered steps/stages such as coding, indexing, charting, mapping and interpretation. [8]. the main focus is on understanding patterns in themes and ideas.

**Grounded Theory** – is a useful approach when little is known about a subject. It starts with an analysis of a single case to formulate a theory. It is based on actual data. Then, additional cases can be examined to see if they are relevant and can add/contribute to the original theory.

## **STEPS OF QUALITATIVE DATA ANALYSIS**

Qualitative Data Analysis can be done manually or also automatically using modern qualitative data and thematic analysis software.

### **Step 1 – Preparing and Organizing Data**

The gathered qualitative data is unstructured so it needs to be organized in a single place systematically by converting all the data into a text format. The data can be either exported into a spreadsheet or manually type in the data or any of the computer assisted qualitative data analysis tools can be selected. To arrange and organized the data, the research objectives, questions need to be arranged the research objectives, questions need to be arranged in a table and then organize the data, based on the questions asked.

## Step 2 – Develop a data coding system

Coding is the best way to compress a tremendous amount of information collected. The coding of qualitative data simply mean categorizing and assigning properties and patterns to the collected data.[9] Coding is the process of labelling and organizing data in such a way that the researcher can identify themes in the data and the relationships between the themes. A code can be a word or a short phrase that represents a theme or an idea. Non-quantifiable elements such as events, behaviors, activities, meaning etc. can be coded.

There are three types of coding.

**Open coding** – The initial organization of raw data to try to make sense of it.

**Axial Coding** – Interconnecting and linking the categories of codes.

**Selective Coding** – Formulating the story through connecting the categories. Based on his/her initial ideas, the researcher establishes a set of codes to be applied to categorized data

**Step 3 To identify themes, patterns and relationships** – In qualitative research, analytical and critical thinking skills of researcher plays significant role in data analysis. A set of techniques can be used to identify common themes, patterns and relationships within the answers of sample group members in relation to codes that have been specified in the previous stage.

(i) Word and Phrase repetitions – Primary data is scanned for most commonly used words and phrases and also those words and phrases are identified which have been used by respondents with unusual emotions.

(ii) Primary and Secondary data compositions – The findings of interview/observation/focus group is compared with the findings of literature review and differences between them are discussed.

(iii) Search for missing information – The researcher discusses about the aspects which s/he expected the respondents to mention, but were not mentioned by them.

(iv) Metaphors and analogues – The primary research findings are compared to the phenomena from a different area and the similarities and differences are discusses.

**Step 4 – Data Validation** – It is one of the crucial steps of qualitative data analysis for successful research. Data validation is a recurring step that needs to be followed throughout the research process. The two sides to validate data are- accuracy of research design/method and reliability, the extent to which the methods produce accurate data consistently.

**Step 5 – Summarizing the data** – Researcher link the research findings to hypothesis or research aim and objectives. The data is systematically presented, concluded and the focus is on communicating the narrative, noteworthy quotations from the transcript in order to highlight major themes within findings and possible contradictions.

The report should state the method that the researcher has used to conduct the research studies, the positives, negatives and study limitations. In the report, the researcher, should also state the suggestions/inferences of her/his findings and any related areas for future research.

## ADVANTAGE OF QUALATATIVE RESEARCH

- **Natural Settings** – Qualitative research is done in real world context. It allows the respondents to be themselves during the research process. It helps in getting individualized and group-based value propositions simultaneously.
- **Generation of new ideas/content** – In qualitative research open ended response from respondents helps the researcher to uncover novel problems/opportunities. The qualitative research approach allows for genuine ideas to be collected from specific socio-economic demographics, which are then turned into data, used to create valuable content.
- **Flexibility** – There is flexibility in data collection and analysis, as there is no rigid structure to the qualitative research process. Researchers have the flexibility to follow up on any answer, to generate more depth and complexity to the data being collected.
- **Meaningful insights** – From in depth data gathered by qualitative research methodology, meaningful insight can be developed about the sample.
- **It incorporates the human experience** – The human experience causes different people to see the same event in different ways. In qualitative research, every perspective becomes important and conclusions have more accuracy. The participant's thoughts, ideas and past experiences are more trustworthy and accurate, as they are given enough time to think and address the questions appropriately.
- **Exploratory** – Researchers do not have preconceived and imaginative ideas of what the study will deliver.
- **Small Sample size** – To accommodate in depth questioning, the sample size is small in qualitative research. This process saves money and can produce faster results.

## Disadvantages of Qualitative Research

1. **Unreliability** – The qualitative research process provides research data from perspectives only, not statistical representation. Responses cannot be measured, only comparisons are possible. Uncontrolled factors can affect data.
2. **Subjectivity** – It relies upon the experience of the researcher. So interpretation of same data can vary.
3. **It can lose data** – In qualitative research, there is a level of trust present in the data collection process. Researchers that are unable to see/observe necessary data will lose it, lessening the accuracy of the results and false conclusions.

4. **Limited generalizability** – In qualitative research, the small sample size can be problematic as the data may be biased and non-representative of wider populations.
5. **Labor intensive** – As in qualitative research individual perspectives, responses are to be checked manually, multiple sessions/research periods may be required to gather all data, it requires a lot of time and labor of the researcher
6. **It can create misleading conclusions** – Small qualitative research sample including 80% population would ignore the perspectives of those in the other 20%. The conclusions generated through qualitative research cannot be applied to an entire demographic.
7. **Time consuming** – Collective qualitative data is time consuming. Interviewing individuals, observing a focus group takes a lot of time of the researcher.

## CONCLUSION-

According to Ritchie and Lewis (2003) qualitative research is a naturalistic, interpretative research is a naturalistic, interpretative approach concerned with understanding the meanings that people attach to action, decision, beliefs, values within their social world, and understanding the mental mapping process the respondents use to make sense of and interpret the world around them.[14]

Qualitative research is often used to answer 'how' and 'why', exploring why people behave in certain ways. This type of research is humanistic, holistic, interpretive, and reflexive, the methodological approaches are in depth and open ended – naturalistic, flexible, iterative, phenomenological, narrative, ethnographical grounded theory & action research.

Non-numerical data is collected in the form of text, maps, pictures, audio & video recordings by observation, interviews, focus groups, surveys, and longitudinal study. Data analysis of qualitative research is done by the techniques- content analysis, narrative analysis, discourse analysis, framework analysis, grounded theory. Data analysis of qualitative research can be done manually or also automatically using software. The steps of data analysis are- preparing and organizing data, developing a data coding system, identifying themes, patterns and relationships within the answers of sample group members, validating the data and summarizing it. Qualitative research methods are exploratory, seek the opinions, thoughts and feelings of respondents, generating valuable conversation around a subject. Rich, detailed data, in depth analysis, generate key themes and insights from the qualitative research. The article has presented the various aspects of qualitative research and it has been observed that this method allows the researcher to explore and better understand the complexity of a phenomena, as it deals with human mind, thoughts, perspectives, actions and behavior.

## References

1. Babatunde, Femi Akinyode, Tareef Hayat Khan, 'Step by Step approach for qualitative data analysis', International Journal of Built Environment and Sustainability, IJEBS5(3)/2018 163-174 website <http://ww.ijbes.utm.y>
2. Bhandari, Pritha, 'what is qualitative research? Methods & examples', [https://www.scribbr.com/methodology/qualitative research](https://www.scribbr.com/methodology/qualitative-research/), Published on June 19, 2020 retrieved on 27April, 2022.
3. Cleland, Jennifer Anne, 'The Qualitative orientation in medical education research'. Korean Journal of Medical education, 2017 June, 29(2) : 61-71, <http://kjme.kr/>
4. Dye Tyler, 'Qualitative Data analysis, step by step guide (Manual V/s Automatic) [http://getthematic.com/insights/qualitative data analysis](http://getthematic.com/insights/qualitative-data-analysis)
5. KielmanKarira, Cataldo Fabian, Seeley Janet, 'Introduction to Qualitative Research Methodology- A training manual' Department of International Development, UK. 8-10, [www.dfid.gov.uk/RUD/output/188391/default.aspx](http://www.dfid.gov.uk/RUD/output/188391/default.aspx)
6. Mohajan, Haradhan, 'Qualitative Research Methodology in Social Sciences & Related Subjects', MPRA, Journal of Economic Development & People, Vol. 7, Issue 01, 2018, pp. 23-48. <https://mpra.ub.uni-muenchen.de/85654>
7. PadmkarPriya, "Types of Research Methodology", <https://www.educba.com>
8. Noah Glenn, 'Data analysis for qualitative research : 6 step guide', <https://analystanwers.com/data-analysis-for-qualitative-research-6-step-guide/>
9. Surendran, Anup, "Qualitative Data- definition, types, analysis and examples". <https://www.questionpro.com/bl..>
10. "Qualitative Data Analysis" [https://research-methodology.net/research\\_methods /data analysis/qualitative-data-analysis](https://research-methodology.net/research_methods/data-analysis/qualitative-data-analysis)
11. 'What is research : definition, methods, types and examples" [www.questionpro.com](http://www.questionpro.com)
12. 'What is research' <https://www.hampshire.edu/dof>
13. Gaille Brandon, 'Advantages and Disadvantage of Qualitative Research', [brandongaille.com](http://brandongaille.com)
14. Rahman, M. 'Advantages and disadvantages of qualitative research' <https://howandwhat.net>, 6 may 2021