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Lesson No.

2.1 : Quantitative Research Design

2.2 : Content Analysis

2.3 : Qualitative Research Design

Department website : www.pbidde.org

Quantitative research design

Objectives

After reading this lesson you should be able to -

- Understand quantitative research design and its characteristic
- Delineate the survey research method
- Understand the experimental research designs
- Differentiate between experimental research methods
- Importance of variables

Contents

- Introduction
- Quantitative research design - definition & characteristics
- Survey method – advantages & disadvantages, questionnaire, survey methods
- Experimental research – factors, components, types – pre experimental design, quasi, true experiment, & single subject experiment
- Variables – independent, dependent & control
- Groups – experimental & control group
- Self Assessment Questions
- References
- Further Readings

Research is Re –Searching or discovering something. It can be formal or informal. Opting certain structured way of discovering, following defined steps and procedures makes the research formal in nature. The two important types of research is quantitative and qualitative research. This chapter discusses quantitative research design and its methods for better understanding.

Introduction

Quantitative research is completely based on measurement of quantity or amount. It comes with a single reality i.e. can be measured by an instrument. The questioning in this method is static or standardized. The respondents are asked the

same question with no opportunity for follow up questions. The output or the result of quantitative research is definite and is in numbers or set of numbers.

Definitions

Aliaga and Gunderson (2000), describes quantitative research methods as: Quantitative research is 'Explaining phenomena by collecting numerical data that are analyzed using mathematically based methods (in particular statistics)'.
Hittleman and Simon (1997), Quantitative research makes use of questionnaires, surveys and experiments to gather data that is revised and tabulated in numbers, which allows the data to be

Characterized by the use of statistical analysis.

Characteristics

Some of the characteristics of quantitative research are:

1. Researcher begins the research with Test Hypotheses.
2. The research establishes relationships between measured variables.
3. Concepts are in the form of distinct variables
4. It is numerical and non descriptive
5. Measures are systematic before data collection and are standardized. example: questionnaire, sampling...
6. The researcher is an objective observer who doesn't participate nor influence the study
7. Data collected are usually in the form of numbers using precise measurement techniques
8. The results or analysis are presented in the form of tables, charts or graphs
9. It is conclusive and allows for free generalization
10. Replication is assumed as it uses standard procedures

Survey Method

Survey research, is one of the most sort after or popular methods in quantitative research design, extensively used to collect information, data from the samples drawn from the well defined population. According to Polit and Hungler (1999), survey is used to obtain information from groups of people (i.e. population). This method studies or collects data from large sample using tools such as questionnaire or interview. The samples selected are representation of the general population. There are two major types of surveys:

1. **Descriptive Survey:** This type of survey attempts to describe / document the current condition or attitudes. It studies 'what exists at the moment'. *Example:* a survey to find the success of Swach Bharat - A clean India campaign
2. **Analytical survey:** This type describes and explains why a situation exists usually examining two or more variables. This helps researcher to analyze the inter-relationship between the variables. *Example:* To find out how digital media and social media addiction is affecting the newspaper industry.

Advantages and Disadvantages**Advantages**

1. Problem is investigated in realistic situations
2. Large amount of data can be collected from larger population
3. Examine many variables and analyze the correlation among variables
4. Statistics is used for analyzing or interpreting the data
5. Surveys does not have geographical limitations
6. Cost of survey can be controlled by choosing the appropriate tool

Disadvantage

1. Independent variables cannot be manipulated
2. Inappropriate questions/ words can lead to bias in results
3. Sometimes surveys might end up with wrong respondents
4. Surveys might face unwilling participation of the samples

Questionnaire

A researcher doing survey must take utmost care in designing the questionnaire. The questionnaire should be based on the objective and goal of the research. The questions framed need to be precise, clear and communicate the exact meaning. Questions designed should never be ambiguous and misleading.

The questions framed are of two types:

1. **Close ended:** It is usually a multiple choice question i.e. the question comes with the list of choice from which the respondents have to select an answer. This usually creates general uniformity in response. It is also easy to quantify and analyze. The disadvantage of close ended questions is that the researcher might fail to include certain responses in the choice given.
2. **Open ended:** In this, the respondents enjoy complete freedom to express or answer the question. His response is not limited to the choice. The disadvantage open ended questions usually cause difficulty in quantifying or analysis of the response as lot of differences might exist in respondent's answers. These types of questions will of great help during pilot study based on which appropriate questionnaire can be designed.

Important components of the questionnaire:

1. Introduction: the researcher as to introduce the research goals and objectives to the respondents at the beginning of the questionnaire.
2. Instructions: instruct the respondents to complete the questionnaire and also clarify if they have any doubts while answering.
3. Question order: there need to be a flow or continuity in the question pattern. Logical organization of the question is very important for better understanding.
4. Layout: it is the physical appearance of the questionnaire. It should be neatly typed and clearly printed to attract respondents.

5. Length: short questions are easy to understand and help in completion. Longer questions might be difficult to understand and cause fatigue leading to less completion rates.
6. Pretest: After designing the questionnaire, the best way to understand the appropriateness of a questionnaire is to pretest it with small samples and refine it if required.

Methods to gather survey data

1. **Mail survey:** Sending the questionnaire to samples through mails. In this type, after mailing the questionnaire, the researcher has to monitor return rates and also send follow up mails. This method can cover wide geographic area at low cost. The disadvantage is the interviewer is absent to clear doubt. Usually the researcher never knows who answers the question.

2. **Telephone survey and personal interview:** Interviewer asks the question either directly or through telephone. Interviewer need to be neutral and never comment on the responses of the sample. Interviewers can clarify misunderstanding of the questionnaire.

Personal interview is one to one. The questions can be either structured or unstructured. Structured question are usually predetermined and easy to tabulate or analyze, whereas unstructured question tend to be broader and sometimes on spot as well.

3. **Group administration:** Here, group of respondents are gathered together and given individual copies of questionnaire. Group administration can take place in natural setting or field. As the sole purpose of respondents gathering is to answer questions, very few questions might be left blank. The method can be expensive as it incurs expenses relating inviting people, making arrangements, manpower and so on.

4. **Internet survey:** In this method, survey is conducted virtually through internet. The access of questionnaire is through email or online through links and submits it when finished. The advantage of internet survey is that it has no geographical limitation and the research can be conducted at low cost. The disadvantage is there is no actuality about who completes the questionnaire.

Survey research is a useful method of data collection. It is extensively used because of flexibility. Researcher need to select the appropriate survey method to collect information. Questionnaire design is the important step in survey research.

Certain problems with survey research is :

1. Subjects might be unable to recall information.
2. Lack of knowledge with regard to questions could create bias.
3. Subjects might purposefully deceive researcher through incorrect answers.
4. Respondents might give elaborate answers to single questions.

5. Subjects inability to express their feelings, perceptions, and beliefs as they cannot put them into words.

Experimental Research

Experimental research is one of the oldest methods of research. It aims in investigating the cause and effect relationship between variables.

Important factors of experimental research

1. **Cause and effect:** in this method the researcher helps to establish the cause and effect between two or more variables. The researcher here manipulates or controls the independent variable and measures the changes in the dependent variable. The experimental research clearly indicates or make sure that cause precedes the effect.
2. **Control:** control is the greatest advantage of this research. The researcher controls the variables (independent variables), subjects (experimental and control group) and even the environment (lab, temperature, lighting etc.).
3. **Replication:** is an important factor of experimental research. It allows people to replicate. If an experiment is repeated, it ensures original result.

Disadvantage

There are certain disadvantages of experimental research

1. **Researcher bias:** research bias might creep in as they have an expectation of certain preferred results from the subjects.
2. **Artificial:** experimental research is mostly conducted in the artificial nature of environment than natural setting.

Steps for conducting the experimental research

1. **Setting selection:** the researcher need to decide on whether the experiment is in lab or natural environment which is under the direct control of the researcher.
2. **Appropriate experimental design:** the researcher has to select the appropriate experimental design based on the hypotheses or the research questions.
3. **Variables:** Draw out independent variables and dependent variables. Independent variables are manipulated by the researcher and its effect on the dependent variable is measured.
4. **Random sample selection:** researcher need to randomly select the samples and assign them to experimental conditions.
5. **Conduct the pilot study:** prior the actual experiment, a pilot study or pre study with small sample is required as it helps the researcher to check the problems and correct them.
6. **Administer the experiment:** with the appropriate experiment design and respective manipulation, the researcher administers the experiment to the randomly selected sample that is representation of the population.

7. **Analyze and interpret the result:** the subjects score on the dependent variable is analyzed using appropriate statistical means and is interpreted for better understanding.

Components of experimental design

The experimental design has three important components

1. Pretest
2. Experiment
3. Posttest

Researcher decides the treatment to be administered to the group. The subjects are randomly assigned to the treatment group. The experiment may also include the control group to draw out the differences and compare the results pretest and posttest the treatment.

Types of experimental design

1. Pre-Experimental Design

Pre-experimental design has low degree of control from the researcher. This design fails to include a control group. They study a single group with no comparison with the non-treatment group. The types under pre experimental design are:

- i. **One – Shot Case Study:** Here one group is exposed to the treatment and posttest is given to observe or measure the effect of the treatment on the dependent variable. This study has only experimental group and no control group.

Example: Step 1 – treatment (Visual aid in teaching)

Step 2 – posttest (Learning outcome)

The experiment is conducted to see the effect of visual aid in learning among school kids. The randomly selected sample is taught using visual aids and posttest visual aid effect on learning outcome is measured.

- ii. **One Group Pretest/ Posttest:** This design includes pretest. A single group is tested before and after the treatment to measure the changes on the dependent variable.

Example: Step 1 – Pretest (students performance before digital class)

Step 2 – Treatment (introduction of digital class)

Step 3 – posttest (students performance after digital class)

Students' performance is measured before the introduction of digital class and after the digital class.

- iii. **The Static Group Comparison Study:** This design tries to introduce the control group. In static group study, two groups are chosen. One group is exposed to the treatment and the score after posttest are analyzed. The design lacks pretest for both the groups and score prior treatment is completely unknown to draw the difference or change on the dependent variable.

Example: Experimental group – Step 1: Treatment

Step 2: Posttest

Control group – Step 1: posttest

2. **True Experiment Design**

True experiment design actually shows the cause and effect relationship brilliantly. The design has higher degree of control. It has greater control over internal and external validity. The important characteristic of true experiment design is random assignment of samples for both the groups i.e. experimental and control group. The design has control group in its study, in order to compare the results or differences with the group exposed to treatment (experimental group). The design may be with or without pretest on randomly assigned groups.

True experiment design is classified as the below following designs.

i. **Pretest – Posttest Control Group:** The randomly assigned group are observed before and after the treatment. Here, only the experimental group receives the treatment.

	Experimental group	Control group
Step 1	Pretest	Pretest
Step 2	Treatment	No treatment
Step 3	Posttest	posttest

Example: Grade 5 students are randomly assigned into groups. They are tested for English vocabulary. Experiment group is given a special class on vocabulary building. Both the groups are post tested for measuring the difference.

ii. **Posttest Only Control Group:** The randomly assigned groups are post tested without any pretest. Only the experiment group receives the treatment.

	Experimental group	Control group
Step 1	Treatment	No treatment
Step 2	Posttest	posttest

Example: Grade 5 students are randomly assigned into groups. They are tested for English vocabulary. Experiment group is given a special class on vocabulary building (no pretest). Both the groups are post tested for measuring the difference.

iii. **Solomon Four Group** : The subjects are randomly assigned to one of four groups. Group 1 is tested before and after the treatment. Group 2 is tested before and after with no treatment. Group 3 is tested after receiving the treatment whereas group 4 is tested after receiving no treatment.

	Group 1 Experimental	Group 2 Control	Group 3 Experimental	Group 4 Control
Step 1	Pretest	Pretest	-	-
Step 2	Treatment	-	treatment	-
Step 3	Posttest	posttest	Posttest	Posttest

Example: Grade 5 students are randomly assigned into one of four groups. English vocabulary is measured in group 1 and 2 before treatment. Group 1 and 3 is given a special class on vocabulary building. After the treatment all four groups are post tested.

3. **Quasi experimental design**

Quasi experiment is almost near true experiment. It is not considered as true experiment as it does not allow randomization. Quasi means partial, similar, or somewhat. This quasi experimental design is usually conducted when true experiment cannot be done.

The classifications of quasi experiment design are:

i. **Non-Equivalent Control Group Design:** The subjects are not randomly assigned. The subjects are tested before and after the treatment. Here only one group receives the treatment.

	Group 1	Group 2
Step 1	Pretest	Pretest
Step 2	Treatment	No treatment
Step 3	Posttest	posttest

Example: Two twelfth grade classes are tested on understanding science before and after one of the class received science practical workshop.

ii. **Time Series:** In this one group is constantly pretested and post tested before and after the treatment. Series of tests are administered to the group.

Example: A twelfth grade class is given series of test to measure understanding science before science practical workshops. Series of tests are administered after the workshop is done.

iii. **Counter Balanced Design:** In this the treatments and the tests for both the groups need to be equal. The treatments and the test are given in different order for the groups.

Time	Group 1	Group 2
Week 1 - 4	Treatment - 1 Test - 1	Treatment - 2 Test - 2
Week 5 - 8	Treatment - 2 Test - 2	Treatment - 1 Test - 1

Example: Two classes of twelfth grade receive science practical workshop in laboratory and field. Class 1 have workshop in lab whereas class 2 have in field during weeks 1 to 4 and vice versa during weeks 5 to 8. Both the classes are tested after the treatment.

4. **Single Subject Experiment**

In this experiment, single subject or one subject is studied over a longer period of time. The simple single subject experiment is termed as ABA.

In ABA – A is the baseline (no treatment or control), B is the introduction of the treatment.

Example: a teenager social behavior with the family is recorded in stage A. In stage B, the teenager is introduced to treatment i.e. the teenager is exposed to social media and online games. Later study the difference back in the stage A to understand whether the treatment has caused any changes in social behavior of the teenager with the family.

Variable

A variable is a measurable characteristic that varies. It may change from group to group, person to person, or even within one person over time. The important variables are:

Independent variable: Is the variable the researcher has control over. It stands alone and doesn't change by other variables. The researcher manipulates this variable to see changes or effect on the dependent variable.

Dependent variable: As the sounds, it is dependent on the other variables. It is the variable which is affected or undergoes change by the manipulation of independent variable.

Control Variable: Is the variable that is required to be constant and unchanged.

Example: Newspaper reading affects the reading ability. In this Independent variable – Newspaper Reading, Dependent variable: reading ability, Control variable: IQ.

Experimental And Control Groups

Experimental group: Is the group of subjects who are deliberately exposed to treatment. This is the group that gets the independent variable which the researcher manipulates to study its affect on the dependent variable.

Control Group: Is the group which does not receive any treatment but acts as tool against which the test results of the experiment group are measured. It is used as a comparison tool to check the effect of independent variable on the results.

Self assessment questions:

1. Define quantitative research design and explain its characteristics.
2. What is survey research? Explain its methods.
3. Delineate the importance of a questionnaire.
4. What is experimental research design? Outline the steps for conducting the experimental research.
5. Explain the pre-experimental design and its classifications.
6. Describe true experiment research design and its classification.
7. Delineate the quasi experimental research design.
8. Define variables and its types.

Further readings:

Research Methodology: Methods and Techniques - C R Kothari
Mass Media Research – Wimmer & Dominick
Experimental Design in Behavioral Research – K.D.Broota
Doing Research in the Real World – David E. Gray

Content Analysis

Objectives

After reading this lesson you should be able to -

- Understand Content Analysis, Advantages & Disadvantages
- Differentiate between Descriptive and analytical survey
- Understand Sampling & Types of sampling - Probability & Non-Probability Sampling
- Understand the guidelines for making a good questionnaire

Contents

- Content Analysis - definitions, advantages and disadvantages
- Descriptive and Analytical Survey
- Sampling – Probability & Non-Probability Sampling
- Guidelines for making a Questionnaire
- Self Assessment Questions
- References
- FurtherReadings

Definitions

- ***Content analysis is a research methodology to analyze content in the form of written or recorded materials. This methodology is extensively used by media researchers to study the varied content in media.***
- ***In order to collect data from a sizeable population, survey methodology is increasingly used. For an effective survey, a good questionnaire is very important.***
- ***Sampling plays a predominant role in research methodology. An appropriate sampling will lead to reliable findings. The two important kinds of sampling are Probability and Non-probability sampling.***

Content Analysis

Content Analysis is a research method for studying the content with reference to its context, meanings and intentions behind the messages. Content analysis is used to study or analyze written or recorded materials. Written materials may be in the form of legislation regulations, public documents, newspapers, journal articles, case studies, answers for survey questions and letters. The recorded materials may be television programs, movies and photographs.

During the process of Content analysis, a researcher classifies the contents for study into different categories. This classification is called as 'Coding' where a researcher or a coder (a person who does coding) marks the texts for study with short alphanumeric codes.

Definitions

Weber, (1990) and Krippendorff, (1980) defines Content analysis as "it is a systematic research method for analyzing the textual information in a standardized way that allows evaluators to make inferences about that information".

Walizer and Wienir (1978) define Content Analysis as a "Research technique for making replicable and valid references from data to their context".

Kerlinger's (2000) defines "Content analysis is a method of studying and analyzing communication in a systematic, objective and quantitative manner for the purpose of measuring variables".

Uses of Content Analysis

1. Content Analysis allows for both quantitative and qualitative analysis
2. Provides insight into historical and cultural aspects over time.
3. Identifies developments over a period of time.
4. It acts as a reality check on various issues by drawing out comparison between the coverage and the real life scenario.
5. It can be used to study societal change.

Examples:

1. To study importance given for environment issues in Newspapers – Two National Daily Newspapers of a month are selected and articles on environment issues are considered as unit of analysis.
2. To describe the portrayal of women in TV commercials – TV commercials of five years (2000 – 2015) are considered and projection of women and their role in commercials are unit of analysis.

Advantages of Content Analysis

1. **Systematic:** Analysis of the content, inclusion and exclusion of content in this methodology is done with some explicit or applied rules. In sample selection each item need to have an equal chance to be included in analysis and choosing samples according to researcher's idea is eliminated.
2. **Objective:** As transcripts provide the complete record, the bias towards data collection is reduced. Personal bias should not enter into finding. Even if the study is replicated, it should yield the same results.
3. **Quantitative:** Quantification is important for precision in research which proves the research to be objective. It helps in analysis and interpretation of the data collected with accurate representation of the body of messages or texts.
4. **Generalizability:** The results obtained can be applied to similar situations.
5. **Study Large Volume of data:** Explicit rules of Content procedures allow the researchers to study vast or large volume of data.
6. **Safe Method:** If researcher finds the required portion missing or wrongly coded, he can return to the text for supplementing the missing part or recode it appropriately.

Disadvantages of Content Analysis

1. Its time consuming and labor intensive.
2. Inferences are limited to the context of the materials studied.
3. Lack of material may lead to an incomplete research or derail the research.
4. Need to analyze large quantity of data for accurate analysis.
5. For coding and categorizing one need to have good training.

Steps for Content Analysis

Research Question / Hypothesis: In order to reach the goal of the research, the researcher should clear about the research question /hypothesis. A review of literature would help in understanding the theoretical perspective and lead for appropriate research question formation.

1. Define the body of content: The researcher need to clearly define the framework of the content to be considered. He will have to define the time period and topic area as well. Example: If the content analysis is on 'Atrocities on women' – research need to define atrocity and its level considered for analysis.

2. Sample: Appropriate selection of sample is required. Sample selection is either based on the time period or content source.
3. Unit of analysis: Unit of analysis has to be clearly defined. Example: In written content, the unit might be a word, an article or theme. In TV programs, the unit for analysis might be a character, an act or the entire program.
4. Categories of content: Categories for content either have to be established prior data collection based on theoretical aspects or once the preliminary data is collected.
5. Coding: coding for the content is most time consuming. It is done by making the texts in alphanumeric format. Standardized sheets are used to ease coding.
6. Data analysis: If hypothesis is planned, then common inferential statistics are acceptable.
7. Interpretation: Interpretation is evident if the researchers are testing the hypotheses by measuring the relationship between the variables. An objective investigation makes the data reliable.

Conclusion

Content analysis is a popular method with systematic approach in data collection and sampling procedures which need to be objective in nature. Appropriate operational definitions and coding can make it more reliable. The emergence of internet has opened up news areas for researching the content. They include Face book pages, blogs, you tube videos, online newspapers etc. while the content online can be searched quickly and efficiently using search engines, it does has certain drawbacks. Constant changes of online contents, frequent new additions are certain challenges for online content analysis.

Descriptive and Analytical Surveys

Note: *In Chapter 3 – Quantitative Analysis, Survey method is discussed in detail. In this chapter, two categories of survey i.e. Descriptive and Analytical surveys are discussed for better understanding.*

Survey is a research methodology that allows for considerable amount data from a sizeable population. Fink (2000), describes Survey as “a system for collecting information, to describe, compare or explain knowledge, attitudes and behavior”.

The two categories of survey are:

1. Descriptive survey
2. Analytical survey

Descriptive Survey

Descriptive survey is a method used to explore perspective or attempts to document or describe the attitudes or condition at the current situation. It usually tries to investigate on what exists at the moment.

The characteristics

1. Uses inductive approach: understands meaning and perspectives after collecting data.
2. Used to measure characteristics of a particular population either at a fixed time or over time
3. Designed to study what happened rather than why it happened
4. It is often conducted to find out the attitudes, opinions and values.
5. It might also serve as the precursor for analytical survey.
6. It is used widely such as market /product survey, opinion poll, media research, voting etc.
7. It often uses open ended questions to explore perspectives.
8. Descriptive surveys are used to understand the social problems like poverty, crime health etc.
9. This survey can also act as the source for social action or policy change

Examples:

- a. How are online classes aiding the distance learning students for understanding the lessons?
- b. What kinds of programs are capturing the attention of women on television?
- c. How has alternative education change the aspects of learning among kids?

Analytical Survey

While descriptive survey describes 'what' situation exist it is analytical survey that attempts to describe and explain 'why' situation exist. Analytical survey characteristics are like that of experimental research. Here two or more variables are usually examined to investigate the research question or test hypothesis. It examines interrelationship between the variables to give inferences.

Characteristics:

1. Deductive in approach – Data is collected on the basis of research question and hypothesis.
2. Distinguish between Independent variable, dependent variable, and uncontrolled variables.
3. Sampling units are selected
4. Test associations between variables

5. Statistical analysis to draw inferences.

Examples:

- a. To study the impact of social networking sites on the socio-cultural behavior of youngsters.
- b. To study on topic – Cartoon watching in children is causing violent behavior.

Sample

A population is a group, a class of subjects, or phenomena. Sample is a subset of the population that represents the entire population. Sampling is a process of selecting the appropriate or suitable representatives of the population for the purpose of studying and determining the characteristics and parameters of the whole population.

Webster (1985) defines sample as “A sample is a finite part of a statistical population whose properties are studied to gain information about the whole”.

Importance of sampling:

1. Investigate the relationships between variable, sampling is required.
2. Sampling helps in accurate data collection.
3. In order to draw conclusion about population sampling is mandatory.
4. Inferential statistics helps to determine the characteristics of the population by directly observing the sample selected.

Types of sampling

- i. Probability sampling
- ii. Non Probability sampling

Probability Sampling

Probability sampling uses mathematical guidelines where each units selection is known. This method also allows researchers to calculate the errors present in sampling. Fink defines it as “every subject or unit has an equal chance of being selected from the population”. Henry defined probability sampling as “distinguishing characteristic that each unit in the population has a known, nonzero probability of being included in the sample”.

Types of probability sampling are:

1. **Simple Random Sampling:** it is also called straight random sampling. Here sample is selected by assigning numbers to each member in the population list and then use random table to draw out the members as the sample for study. A

representative group is easily obtained through this and detail knowledge of the population is not required.

Example: Writing each members name in a paper and putting them in a hat. Selecting the sample from the hat is random in nature where each member has an equal chance of being selected.

2. **Systematic random sampling:** The selection of sample from the population list is made by randomly selecting a beginning from the sequence list and choosing every nth name.

Example: in the population list of 100, randomly a beginning is selected and every 10th name is selected as the sample i.e. if the random beginning is 11 then every 10th number would be 11,21,31,41,51,.....as the sample for study.

3. **Stratified sampling:** In this kind, the sample is drawn from a homogenous subset i.e. from a population that has similar characteristics. The subset may include any variable like gender, age group, income group, individuals who watch particular TV programs etc. representation from a relevant variable is ensured. A researcher can draw comparison with other population. In stratified sampling the researcher need to have knowledge about the population.

Example: To study the social network sites addiction in youngster, the researcher might set the variable- 13 to 19 age group and samples are selected from this age group only.

4. **Cluster sampling:** Population members are divided into unique, non overlapping groups prior to sampling. These groups are called clusters because they are naturally occurring groups like schools, villages, geographical units etc.

Example: If a study is on teaching methods employed, then the researcher might choose two schools for study and draw comparison.

Non Probability Sampling

Non probability sampling does not follow the guidelines of mathematical probability. This sampling does not require representatives of the population.

Types of Non probability sampling

1. **Convenience sample:** Is also known as available sample. Here the sample is readily accessible subjects, elements or events. This sample is helpful in collecting exploratory information.

Example: For a survey on traffic problems, the researcher might just choose samples from a mall.

2. **Purposive sampling:** subjects or element with specific characteristics or qualities are selected. The subjects who fail to fall in this criterion are eliminated. This method is used frequently in mass media studies.

Example: If the study is on online newspapers, the sample chosen will be online readers.

3. **Snowball Sampling:** in this sampling, the researcher randomly contacts few qualified respondents and asks these people for names of friends, relatives or acquaintances they know who also qualify for the research.

Example: If the research is on sports training methods, the researcher might contact few sports coaches and ask for the contacts of other coaches and sports students for collection of data.

Sampling Error:

Sampling errors are the errors that result in selection of sample. There might be discrepancy between the sample selected and the true population. The usual errors that occur during selection of sample are:

- *Under Coverage* - The sample selected might not be large enough to represent the population.
- *Non Responsive* - The sample might be unwilling to participate or provide adequate data for the research.

Guidelines for a Good Questionnaire

Designing a questionnaire is an important step in survey research. It is a systematic technique of data collection in the process of research. A researcher needs to be cautious and take precautions while designing the questionnaire in order to meet the goal of research.

Guidelines for questionnaire design are as follows:

1. **Decide on the questions:** the researcher's first priority is to decide on the kind of questions to be asked for the respondents. The questions should be based on objective or goal of the research. It should act as a key link to the aim of research. The researcher need to check that each question formed leads the research in the right direction.

2. **Question types:** the researcher will have to decide on the question types according to the objective of the research. The question types are:

a. Open ended v/s Close ended questions:

Open ended questions give respondents complete freedom to answer without any restriction. It elicits replies of varying length and articulation. This type of question helps the researcher to judge individuals response.

Example: what is your opinion on online news portals?

Close ended questions comes with choice for respondents to choose. Their response limits to the options given by the researcher. They are easy to quantify but sometimes the researcher might fail to include the required option.

Example: Online news portal:

- Real time news
- Fast updating
- Easily accessible
- Provide links to stories
- Give feedback
- If others, specify

b. *Single v/s Multiple response:*

The researcher needs to decide whether he has to elicit single or multiple responses.

Example – Single Response

Do you read Newspapers every day - Yes/NO

Example – Multiple Responses

What are the elements you look for in Newspaper?

- Current Stories
- Feature Section
- Entertainment Stories
- Editorials
- Sports

c. *Ranked v/s Rated response*

A researcher has to decide whether to elicit ranking (order of importance) or ratings (level of importance).

Example – Ranking response

The best mass media (Rank 1-5, 1 being the best)

- Television
- Newspapers
- Radio
- Folk media
- Online media

Example – Rating response

New media is the best communication tool

- Totally agree
- Agree
- Neutral
- Disagree
- Totally disagree

3. **Question wordings:** Researcher need to be cautious while wording questions
 - a. Clear, concise and unambiguous,
 - b. Avoid double questions
 - c. Avoid questions that are negative
 - d. Ask for precise answers
 - e. Avoid leading questions
 - f. Avoid lengthier questions
4. **Layout and sequence:** The important elements in layout is:
 - a. Questionnaire with title is a good practice
 - b. Brief introductory statement is useful
 - c. Instructions for answering and completing the questionnaire is required
 - d. Need a consistent question pattern and answer choices to be placed neatly and attractively
 - e. Use standardized question types
 - f. Use good legible font , make good use of bold and italics
 - g. Logical sequence – group together questions that relate to similar areas
5. **Pretest:** After designing the questionnaire, a pretest is required to detect the problem that exist in the questionnaire and rectify it. This also helps in knowing the probable response rates, time frame and cost of data collection.

Self assessment questions:

1. Define Content Analysis and explain its advantages and disadvantages.
2. Delineate survey research. Explain descriptive and analytical surveys.
3. What is sampling. Explain its importance.
4. What is probability and Non probability sampling? Delineate.
5. Outline the guidelines for a good questionnaire.

Further readings:

Research Methodology: Methods and Techniques - **C R Kothari**

Mass Media Research – **Wimmer & Dominick**

Doing Research in the Real World – **David E. Gray**

Qualitative Research and Case Study application in Education –

Merriam,Sharan B

Focus Groups as Qualitative Research – **David L. Morgan**

Survey Research – **Penny S.Visser, Jon A.Krosnick, Paul J.Lavrakas**

Qualitative research design

Objectives

After reading this lesson you should be able to -

- Understand Qualitative research design and its features
- Elaborate Observation Research Approach
- Delineate the Focus Group Research
- Understand the Case Studies
- Understanding the Qualitative Research report writing
- Differentiate the Qualitative and Quantitative Approach

Contents

- Introduction
- Qualitative Research design - definition & characteristics
- Observation/Field Research Approach – advantages & disadvantages
- Focus group Approach – advantages & disadvantages
- Case Study Method
- Qualitative Research Report Writing
- Difference between Qualitative and Quantitative Analysis
- Self Assessment Questions
- References
- Further Readings
-

Qualitative research, as the name indicates gives utmost importance to the quality of information or data. Unlike quantitative that represents the data in numerical, tables and graphs, qualitative research presents data in the form of text, images, extended quotes and so on. This research indeed is a rich source of information that emphasizes human factors by getting closer to the people or events they study.

Introduction

Qualitative research is a process of inquiry by examining the cases or events in social phenomenon. It helps us to understand the individual's experiences and

actions in the social and cultural environment. This research dwells more with the feelings, opinions, behavior of individuals or groups as they occur naturally. The research usually tries to answer questions that start with why, how and in what way. For Example:

- Why a group's behavior is affected by certain events?
- In what way do an individual respond to the culture?

Qualitative research, mainly analyzes visual and verbal data to derive meanings of everyday experiences. The output or result is descriptive and presented in the form of texts, extended quotes, interviews, images, and categories.

Definitions

Burns and Grove (2003:356), Morse and Field (1996:1999), define qualitative research as "Qualitative research refers to inductive, holistic, emic, subjective and process oriented methods used to understand, interpret, describe and develop a theory on a phenomena or setting. Qualitative research is a systematic, subjective approach used to describe life experiences and give meaning".

Holloway (2005:4-6, 2005:47-56), "Qualitative research is characterized as developmental and dynamic, and does not use formal structures instruments. It involves the systematic collection and analysis of subjective, narrative data in an organized and intuitive fashion to identify the characteristics and the significance of human experience".

Characteristics

Some of the characteristics of Qualitative research are:

1. Qualitative research understands participant's perspective through opinions, feelings, experiences and behavior.
2. It is inductive in nature i.e. the researcher develops concepts, insights and understanding from the data collected.
3. Holistic perspective i.e. whole is always more than the sum
4. The case or events are described and understood as they occur naturally.
5. The researcher does not make any attempts to manipulate the variables or situation.
6. Concepts are usually in the form of themes, motifs and categories.
7. Data collection usually happens through interviews, observations, interactions. Multiple sources of data are preferred over single source.
8. Data collected is presented in the form of words, images, quotes from the documents than the numerical.
9. The researcher presents the complete picture by presenting multiple perspectives.
10. The research procedures are particular and replication is very rare.

Observation / Field Research Method

Observation or field research is a method used for data collection by observing the naturally ongoing behavior, event or situation in the chosen setting. Data collection throughout the process of observation helps and provides insight for the researcher to generate hypothesis and theories as well.

Marshall and Rossman define observation as “*The systematic description of events, behaviors and artifacts in the social setting chosen for the study*”.

Trochim, B 1999, defines field research as “*Field research can be considered as a broad approach to qualitative research or a method of gathering qualitative data. The essential idea is that the researcher goes ‘into the field’ to observe the phenomenon in its natural state. The field researcher typically takes extensive field notes which are subsequently coded and analyzed in a variety of ways*”.

Observation or Field research is categorized into two dimensions based on the degree or extent to which the researcher intrudes or controls the environment. The two types or dimension are:

a. Naturalistic Observation / Non Participant Observation

In Naturalistic or Non-Participant observation, the researcher is just an observer and does not intervene in the environment. He/She just study the behavior or events that occur naturally in the setting without an attempt to manipulate the variables.

In this type, the researcher can either be an overt or covert observer. If an overt observer, the researcher is identified in the study and those under observation are aware that they are being studied. If a covert observer, the researcher remains unidentified and those under observation are not aware of being studied.

For Example: Researcher studying a child’s behavior with different family members and strangers visiting home. He may not intervene in the environment but rather set up cameras and record behavior of the child.

b. Participant Observation

In participant observation, the researcher intervenes or participates in the environment or setting. He tends to be a part or member of groups with an aim of observing the attitudes, ongoing behavior or event which otherwise would not be accessible for study. Participant observation would definitely act as an appropriate approach if the topic demands unadulterated perspectives of participants. The major difficulty in this approach would be gaining access to the environment and gaining trust of the group being observed.

In this type, the researcher can either be an overt or covert participant. If an overt participant, the group being observed know the researcher. Here the researcher is not only an observer but a participant as well. If a covert participant, the researcher participates in the process of study but remains unidentified.

For Example: The researcher may join for work in an organization to study the male workers attitude towards the female workers.

Advantages of Observation/Field Research

1. Researcher can gather direct and detail information on the behavior of individuals or groups.
2. It is the first hand data and does not depend on others for reporting behavior.
3. Allows the researcher to be a part of the situation which helps rich and deeper understanding.
4. Provides an opportunity to observe many unanticipated behaviors.
5. Studied in natural setting
6. Inexpensive as the requirement would be minimal. For ex., Audio-video recorder, writing materials.

Disadvantages of Observation/Field Research

1. Time consuming
2. Solely relies on researchers pre conceived notion, perception observation and judgment.
3. Researcher's overt presence and participation may influence or affect the behavior to be observed.
4. Researcher's selective perception or bias might lead to questioning of data validity.
5. The researcher has little control over the situation or the behavior in natural setting.

Steps for Observation / Field Research

1. **Research setting & contact:** the researcher should choose the setting where the behavior occurs frequently and establish contact with the setting i.e. check on whether the setting is appropriate for observation. The setting or environment if public, then there would be no room for people to keep their behavior secret.
2. **Samples:** sample size need to be decided prior i.e. whether the sample is an individual or groups.

3. **Data collection:** collection of data using various tools like audio video recorder, taking field note and even using secondary source like documents, images, photos also to be gathered.
4. **Analysis of Data:** raw data collected is arranged based on themes, patterns or categories for understanding the behavior or a phenomenon.
5. **Pan to exit:** if the researcher is a participant observer, then he need to plan his exit accordingly without affecting or disturbing the group.

Observation or field research can also be done online by observing the posts, images, texts on screen. Data analysis is usually done by understanding the textual (emails, messages and emoticons), graphical representation (photos, videos, animation etc). Online observation does have a drawback as researcher cannot observe the non behavioral expressions.

Focus Group Method

Focus group or group interview is a research approach in which the researcher observes large amount of data through interaction or discussion with a group (usually with 6 to 12 people). The discussion with the group is lead by a moderator on the topic of interest under investigation in a limited period of time.

For Example: If a topic of study is on – How TV soaps are affecting women’s attitude towards other woman in family. So for the focus group method, women who watch TV soaps extensively are invited for discussion. The discussion is lead by the moderator with certain set of questions and interaction among women are recorded by the moderator

Morgan (1997) suggests that focus group can be either:

- a. **Self – Contained:** Focus group is one in which the focus group method is the only means of data collection. The data from the groups provide a sufficient answer to the research question and results stand on their own.
- b. **Supplementary:** Focus group is one in which the group discussion is the starting point or a source of follow-up data for a quantitative study.
- c. **Multi-method approach:** The Focus group results might be combined with participant observation, case studies and surveys. In this situation, the focus group is not used to supplement other techniques, but stands as the equal methodology.

The characteristics of the Focus Group:

1. Group of people selected for interaction and discussion need of have certain characteristics related to the topic for discussion. For example: If the discussion topic is on online gaming, the participants who are frequent online gamers are selected.

2. Moderator assumes great importance in focus group approach. He creates and manages the discussion.
3. Have focused discussion, the questions to be asked are predetermined and structured. But the moderator is free to depart from the structure if relevant information is presented by the participants.
4. Data in focus groups helps in understanding varied opinions and attitudes towards the topic.

Advantages of Focus Group

1. Produces concentrated amount of data on topic/ phenomenon.
2. Relies on discussion and interaction in group to gather data.
3. Flexible in questioning i.e. question design can undergo change during discussion.
4. Focus group responses are more complete. An individual's views can stimulate others to think in the same line.
5. A skilled moderator can even observe the non-verbal behavior and facial expressions of the participants during the interaction.
6. Can be used as preliminary information for further research.

Disadvantages of Focus Group

1. An unskilled moderator may not drive the discussion in the right direction.
2. Group leader of the focus group may impose his opinions on the group members.
3. Focus group selected may not be the actual representation of the population.
4. If moderator fails to lead the discussion, the data produced may not be useful.
5. As researchers create and direct the group which is less naturalistic.

Steps in Focus Group Approach

1. **Identify and define the problem:** Based on investigations, the researcher need to identify the exact problem and should be well defined in order to test the ideas, opinions, attitudes and so on.
2. **Samples:** samples selected should represent the right population and also possess the characteristics related to topic of interest.
3. **Number of Focus Groups:** the researcher need to decide on the no. of groups required for discussion on the topic.
4. **Prepare the Study materials:** the researcher need to recruit the participants, check for the setting and the recording facilities. Skilled moderator selection is also very important. Questionnaire and question designs are also required.

5. **Conduct the session:** Focus group discussion session to be conducted by the moderator in the preferred location.
6. **Analysis of Data:** The moderator /researcher would make a note on what has been discussed, the points rose in interactions, and the non-verbal expression to offer an interpretation of the subject's response.

At present times, with internet being the popular tool, Focus group discussions are also conducted online. Participants from multiple geographical areas can participate. The disadvantages of online focus groups are that the moderator would not be able to observe the facial expressions. The role of moderator is virtually eliminated. The moderator wouldn't be 100% sure of who types the answers. For online focus group one need to know how to read and type to be a part of discussion.

Case Study

Case study simply means concentrating on single phenomena, unit or a case. This method is usually chosen by a researcher for greater insight, discovery and interpretation on a case rather than just testing hypothesis.

Example: If a researcher has chosen a case study of Tata Foundation, he will understand the philosophy of the foundation through documents, observe various programs undertaken by the foundation, he may interview several people to understand the impact of the programs and also use various photos, articles, images as additional source to substantiate the study for analysis.

Merriam (1988-p.27) defines case study as "A qualitative case study is an intensive, holistic description and analysis of a single instance, phenomena or a social unit".

According to Merriam, Case Study is characterized as being:

1. **Particularistic:** Case Studies focus on a particular situation, event, and program/phenomenon and for what it might represent (from the real life problem).
2. **Descriptive:** The end product of the Case study is the rich description of the phenomena under study (complete literary description of complexities of the situation).
3. **Heuristic:** Case study sheds light on readers understanding of the phenomena under study. They can bring about the discovery of new meaning, confirm what is known.

Advantages of Case Study

1. Provides tremendous information/ data about an individual, event or organization.
2. Helps with ideas for further research.

3. Provides with wide variety of evidence.
4. Helps in in-depth understanding of a case, unit or an organization.

Disadvantages of Case Study

1. It is time consuming as the phenomenon needs to be studied in depth.
2. It lacks scientific rigor as it depends on the perceptions of the researcher.
3. Raises issue of reliability, validity and generalizability.
4. Pre conceived notion of the researcher might lead to biased data collection.

Steps for a Case Study approach

1. Frame work / design: In this stage, the researcher need to know what data or information to look for, what to ask and what to analyze.
2. A pilot study: A pre study to understand the lacking in the design and later refine the research design/ procedures prior to the study.
3. Data collection: varied sources can be used for data collection:
 - Documents, memos, letters, transcripts
 - Interview
 - Observation/participant observation
 - Physical artifacts
4. Data analysis: Analysis of data by arranging the data collected through various sources. It is usually done in the form of pattern matching, explanation building, and time series.

Research Report Writing

Research report is what presents the entire study in a formal manner following a strict format. The research report writing format is as follows:

1. **Introduction:** This section not just captures the attention of readers but is a very important segment providing overview of project, precise research questions, hypotheses, statement of problems, and significance of the study and why the study assumes importance.
2. **Literature review:** Literature review is study and evaluation of previous research. Literature review is used extensively to understand the questions that are left unanswered and the scope for further study in that particular area of research. Researchers using qualitative method do not write extensive literature review as it may unduly influence the researcher's perception towards the topic.
3. **Methods:** In methods we write about:

- **Methods** used for data collection, reason for choosing the method and its importance in particular study.
 - **Setting /environment:** Write about the setting chosen and how appropriate was the environment for the study
 - **Sample:** Participants/Respondents selected need to represent the set population. Size of sample is also important.
 - **Data Collection:** This segment explains the various sources used for data collection such as primary or secondary sources.
4. **Findings:** This is probably the longest section of a research report. This segment has statistical tabulations, graphs & charts. In qualitative report this section is usually a challenge for the researcher to write as he has to condense a lot of data into manageable size. The researcher needs to select vignettes, quotes, examples that are rich source of information for the findings. The researcher needs to strike balance between description and analysis.
 5. **Discussion:** This section includes implication or interpretation of the study as a whole.
 6. **Conclusion:** Is brief statements on the study or an overall summary.
 7. **References:** The list of references used for the study must be arranged in alphabetical order and be presented.
 8. **Appendices:** The additional information (Questionnaire, Background information, glossary etc.) for better understanding

Difference between Quantitative and Qualitative analysis

Sr.No.	Orientation	Quantitative	Qualitative
1.	Assumption/ View about the World	A single reality i.e. can be measured by an instrument	Multiple realities are observed
2.	Research Approach	Deductive in nature Procedures are established before study begins A hypothesis is formulated before research can begin	Inductive in nature Flexible, Changing strategies Design emerges as data are collected A hypothesis is not needed to begin the research
3.	Research Purpose	Establish relationship between measured variables	Understanding a social situation from participants perspective
4.	Research Study	Description, Explanation and Prediction	Descriptive, exploratory and discovery
5.	Nature of Reality	Objective (different observers agree on what is observed)	Subjective, personal and socially constructed
6.	Data Collected	Quantitative data is based on precise measurement Nature of data is variables	Qualitative data is interview, observation, case study ... Nature of data is words, images and categories
7.	Role of Researcher	The researcher is an objective observer who neither participates in nor influences what is being studied.	The researcher participates and avoids distancing from research or social setting.
8.	Result/Analysis	Identify statistical relationship	Search for patterns, themes and holistic feature.
9.	Generalisability	Universal context – free generalization	Detailed context based generalization
10.	Form of Report	Statistical report – correlations, comparisons of means, statistical findings.	Narrative report with contextual description and direct quotations from participants.

Self assessment questions:

1. Define Qualitative research design and explain its characteristics.
2. Delineate the Observation or Field Research with advantages and disadvantages.
3. Explain the Focus group method.
4. Elucidate the importance of Case Study method and steps to be followed for a case study.
5. Differentiate between qualitative and quantitative study.
6. Explain the qualitative research report writing format.

Further readings:

Research Methodology: Methods and Techniques - C R Kothari

Mass Media Research – Wimmer & Dominick

Doing Research in the Real World – David E. Gray

Qualitative Research and Case Study application in Education –
Merriam, Sharan B

Focus Groups as Qualitative Research – David L. Morgan

Terminologies

1. **Applied Research:** Applied research is used to find a solution for an immediate specific or practical problem and develop new technology.
2. **MCR :** Mass Communication Research
3. **References :** Reference is the detailed description of the document/sources you have used in your research paper or project.
4. **Bibliography :** It is a list of sources consulted or used in the making of research paper, article or essay.
5. **Null Hypothesis :** The null hypothesis (Ho) is a hypothesis which the researcher tries to reject, disprove or nullify.
6. **Primary Data :** Data observed or collected directly from first hand experience specifically for the purpose of your research project.
7. **Control Group :** A control group is a group in an experiment or study to which no treatment is administered and is used as a benchmark to measure how the other tested subjects do.
8. **Non-Probability Sampling :** Non-Probability Sampling is a sampling technique that does not give all the individuals in the population equal chances of being selected in the sample selection process.
9. **Participant Observation :** A data collection technique in which the researcher participates or intervenes in the setting or ongoing activities.
10. **Sample Size :** Number of observations in a statistical sample.
11. **Census :** An official count, number or survey, especially of a population.
12. **Hypothesis :** A supposition or proposed explanation made as a basis for reasoning, without any assumption of its truth for further investigation.
13. **Case Study :** An intensive analysis of an individual unit, case or community for in depth study.
14. **Fundamental Research :** Research carried out to deepen understanding or obtain new knowledge in specific research area without any direct practical use. Also known as Basic or Pure research.
15. **Empirical Research :** Research based on experimentation observation or quantitative measurement.
16. **Quota Sample :** A sample representative of a group taken from a stratified population.
17. **Stratified sampling :** Stratified sampling is a probability sampling technique where in the researcher divides the entire population into different subgroups then randomly selects the sample from the different groups.
18. **Review of Literature :** A Literature review is an evaluative report of information found in the literature related to selected area of study. It gives a theoretical base for the research.

19. **Focus Group** : Form of qualitative research in which a group of people are observed on a particular research topic by the researcher.
20. **Mixed Method** : Multimethod research includes the use of more than one method of data collection or research in a research study. Mixed methods research is more specific in that it includes the mixing of qualitative and quantitative data methods.
21. **Content Analysis** : A research techniques for evaluating and interpreting textual or qualitative data like documents, oral communication and graphics into quantitative data.
22. **Universe** : Universe or population represents the entire group of units which is focus of the study.
23. **Independent Variable** : An independent variable is a variable that causes or is a presumed will causes a change to other variables in the research conducted.
24. **Research Problem** : A research problem is a statement about an area of concern or a difficulty in theory that needs to be investigated for meaningful understanding.
25. **Random Sampling** : A sampling technique in which each sample has an equal chance of being chosen.

Other Terms

1. Control Variables
2. Pre-experimental designs
3. Pragmatic Worldview
4. Advocacy Worldview
5. Constructivist
6. Dependent Variable