

Unit 5

Research in social science

#Concept of research in social science

Social Research is a method used by social scientists and researchers to learn about people and societies so that they can design products/services that cater to various needs of the people. Different socio-economic groups belonging to different parts of a country think differently. Various aspects of human behavior need to be addressed to understand their thoughts and feedback about the social world, which can be done using Social Research. Any topic can trigger social research – new feature, new market trend or an upgrade in old technology.

Social Research is conducted by following a systematic plan of action which includes qualitative and quantitative observation methods.

- Qualitative methods rely on direct communication with members of a market, observation, text analysis. The results of this method are focused more on being accurate rather than generalizing to the entire population.
- Quantitative methods use statistical analysis techniques to evaluate data collected via surveys, polls or questionnaires.

Social Research contains elements of both these methods to analyze a range of social occurrences such as an investigation of historical sites, census of the country, detailed analysis of research conducted to understand reasons for increased reports of molestation in the country etc.

A survey to monitor happiness in a respondent population is one of the most widely used applications of social research. The happiness survey template can be used by researchers and organizations to gauge how happy a respondent is and the things that can be done to increase happiness in that respondent.

Types of Social Research

There are four main types of Social Research: Qualitative and Quantitative Research, Primary and Secondary Research.

Qualitative Research:

Qualitative Research is defined as a method to collect data via open-ended and conversational discussions. There are five main qualitative research methods- ethnographic research, focus groups, one-on-one online interview, content analysis and case study research. Usually, participants are not taken out of their ecosystem for qualitative data collection to gather

information in real-time which helps in building trust. Researchers depend on multiple methods to gather qualitative data for complex issues.

Quantitative Research:

Quantitative Research is an extremely informative source of data collection conducted via mediums such as surveys, polls, and questionnaires. The gathered data can be analyzed to conclude numerical or statistical results. There are four distinct quantitative research methods: survey research, correlational research, causal-comparative research and experimental research. This research is carried out on a sample that is representative of the target market usually using close-ended questions and data is presented in tables, charts, graphs etc.

For example, A survey can be conducted to understand Climate change awareness among the general population. Such a survey will give in-depth information about people's perception about climate change and also the behaviors that impact positive behavior. Such a questionnaire will enable the researcher to understand what needs to be done to create more awareness among the public.

Primary Research:

Primary Research is conducted by the researchers themselves. There are a list of questions that a researcher intends to ask which need to be customized according to the target market. These questions are sent to the respondents via surveys, polls or questionnaires so that analyzing them becomes convenient for the researcher. Since data is collected first-hand, it's highly accurate according to the requirement of research.

For example: There are tens of thousands of deaths and injuries related to gun violence in the United States. We keep hearing about people carrying weapons attacking general public in the news. There is quite a debate in the American public as to understand if possession of guns is the cause to this. Institutions related to public health or governmental organizations are carrying out studies to find the cause. A lot of policies are also influenced by the opinion of the general population and gun control policies are no different. Hence a gun control questionnaire can be carried out to gather data to understand what people think about gun violence, gun control, factors and effects of possession of firearms. Such a survey can help these institutions to make valid reforms on the basis of the data gathered.

Secondary Research:

Secondary Research is a method where information has already been collected by research organizations or marketers. Newspapers, online communities, reports, audio-visual evidence etc. fall under the category of secondary data. After identifying the topic of research and research sources, a researcher can collect existing information available from the noted sources. They can then combine all the information to compare and analyze it to derive conclusions.

Understanding the concept of research methods:

Surveys:

A survey is conducted by sending a set of pre-decided questions to a sample of individuals from a target market. This will lead to a collection of information and feedback from individuals that belong to various backgrounds, ethnicities, age-groups etc. Surveys can be conducted via online and offline mediums. Due to the improvement in technological mediums and their reach, online mediums have flourished and there is an increase in the number of people depending on online survey software to conduct regular surveys and polls.

There are various types of social research surveys: Longitudinal, Cross-sectional, Correlational Research. Longitudinal and Cross-sectional social research surveys are observational methods while Correlational is a non-experimental research method. Longitudinal social research surveys are conducted with the same sample over a course of time while Cross-sectional surveys are conducted with different samples.

For example: It has been observed in recent times, that there is an increase in the number of divorces, or failed relationships. The number of couples visiting marriage counselors or psychiatrists is increasing. Sometimes it gets tricky to understand what is the cause for a relationship falling apart. A screening process to understand an overview of the relationship can be an easy method. A marriage counselor can use a relationship survey to understand the chemistry in a relationship, the factors that influence the health of a relationship, the challenges faced in a relationship and expectations in a relationship. Such a survey can be very useful to deduce various findings in a patient and treatment can be done accordingly.

Another example for the use of surveys can be to gather information on the awareness of disasters and disaster management programs. A lot of institutions like the UN or the local disaster management team try to keep their communities prepared for disasters. Possessing knowledge about this is crucial in disaster prone areas and is a good type of knowledge that can help everyone. In such a case, a survey can enable these institutions to understand what are the areas that can be promoted more and what regions need what kind of training. Hence a disaster management survey can be conducted to understand public's knowledge about the impact of disasters on communities, and the measures they undertake to respond to disasters and how can the risk be reduced.

Experiments:

An experimental research is conducted by researchers to observe the change in one variable on another, i.e. to establish the cause and effects of a variable. In experiments, there is a theory which needs to be proved or disproved by careful observation and analysis. An efficient experiment will be successful in building a cause-effect relationship while proving, rejecting or disproving a theory. Laboratory and field experiments are preferred by researchers.

Interviews:

The technique of garnering opinions and feedback by asking selected questions face-to-face, via telephone or online mediums is called interview research. There are formal and informal interviews – formal interviews are the ones which are organized by the researcher with structured open-ended and closed-ended questions and format while informal interviews are the ones which are more of conversations with the participants and are extremely flexible to collect as much information as possible.

Examples of interviews in social research are sociological studies that are conducted to understand how religious people are. To this effect, a Church survey can be used by a pastor or priest to understand from the laity the reasons they attend Church and if it meets their spiritual needs.

Observation:

In observational research, a researcher is expected to be involved in the daily life of all the participants to understand their routine, their decision-making skills, their capability to handle pressure and their overall likes and dislikes. These factors are recorded and careful observations are made to decide factors such as whether a change in law will impact their lifestyle or whether a new feature will be accepted by individuals.

#Techniques and tools :

#Interview:

An interview is essentially a structured conversation where one participant asks questions, and the other provides answers.^[1] In common parlance, the word "interview" refers to a one-on-one conversation between an *interviewer* and an *interviewee*. The interviewer asks questions to which the interviewee responds, usually so information is offered by the interviewee to interviewer -- and that information may be used or provided to other audiences, whether in real time or later. This feature is common to many types of interviews -- a job interview or interview with a witness to an event may have no other audience present at the time, but the answers will be later provided to others in the employment or investigative process.

The "information" or answers may also be transferred in both directions in a tradition interview.

Interviews usually take place face-to-face and in person, although modern communications technologies such as the Internet have enabled conversations to happen in which parties are separated geographically, such as with videoconferencing software,^[2] and telephone interviews can happen without visual contact. Interviews almost always involve spoken conversation between two or more parties, although in some instances a "conversation" can happen between two persons who type questions and answers back and forth.

Characteristics of an Interview

Interviews encompass unique characteristics that distinguish them from other types of communication. In what follows, we examine five characteristics of interviews:

- (1) goal-driven,
- (2) question–answer,
- (3) structured,
- (4) controlled, and
- (5) unbalanced.

Goal-Driven Interviews

These interview are generally more goal-driven than other types of communication, especially those taking place between two people. All communication achieves something beyond the simple exchange of symbols, but these achievements and creations are not always purposeful and intended. Interviews have a clear purpose, a goal to be achieved. Information may be desired, a problem may need to be resolved, persuasion may be desired, someone may need assistance with a personal problem, or an employer may be seeking the best person for a job opening and a potential employee may be looking for a good employer.

Question–Answer

Another characteristic of interviews is the question–answer nature of the transaction. The majority of an interview consists of one person (sometimes more than one) asking Chapter 15 n Interviewing 369 questions and another person answering those questions. Everyday communication includes occasional questions and answers—especially if people are getting to know one another—but not to the extent of an interview. Furthermore, in most everyday communication, it is not usually the case that one person is in charge of asking the questions while the other person is in charge of answering them.

Structured

Interviews also tend to be more structured than other types of communication. Whereas a casual interaction between two people may happen spontaneously and have no clear focus, interviews involve planning and preparation and also tend to have a clear sequence. Certain actions are expected during an interview in order to reach the clearly defined goal discussed previously. We write more about the planning and sequence of interviews later in the chapter.

Controlled

Interviews are generally controlled by an interviewer, who is responsible for moving the interview toward its intended goal. The amount of control exerted during an interview depends on this goal,

which is achieved in part by the questions asked and the communication environment established. Once again, this—specifically whether an interview is characterized as directive or nondirective—is a topic we discuss in more detail later in the chapter.

Unbalanced

A final characteristic of interviews is that the time spent talking by an interviewee and an interviewer is usually unbalanced. Typically, an interviewer will speak for 30% of the time, and an interviewee will speak for 70% of the time. Of course, the type of interview will dictate exactly how much time each party spends talking, but more often than not, an interviewee will talk more and an interviewer will talk less.

Techniques :

When choosing to interview as a method for conducting qualitative research, it is important to be tactful and sensitive in your approach. Interviewer and researcher, Irving Seidman, devotes an entire chapter of his book, *Interviewing as Qualitative Research*, to the import of proper interviewing technique and interviewer etiquette. Some of the fundamentals of his technique are summarized below:

Listening:

According to Seidman, this is both the hardest as well as the most important skill in interviewing. Furthermore, interviewers must be prepared to listen on three different levels: they must listen to what the participant is actually saying, they must listen to the “inner voice”[2] or subtext of what the participant is communicating, and they must also listen to the process and flow of the interview so as to remain aware of how tired or bored the participant is as well as logistics such as how much time has already passed and how many questions still remain.[2] The listening skills required in an interview require more focus and attention to detail than what is typical in normal conversation. Therefore it is often helpful for interviewers to take notes while the participant responds to questions or to tape-record the interviews themselves to as to be able to more accurately transcribe them later.

Ask questions (to follow up and to clarify):

While an interviewer generally enters each interview with a predetermined, standardized set of questions, it is important that they also ask follow-up questions throughout the process. Such questions might encourage a participant to elaborate upon something poignant that they’ve shared and are important in acquiring a more comprehensive understanding of the subject matter. Additionally, it is important that an interviewer ask clarifying questions when they are confused. If the narrative, details, or chronology of a participant’s responses become unclear, it is often appropriate for the interviewer to ask them to re-explain these aspects of their story so as to keep their transcriptions accurate.

Be respectful of boundaries:

Seidman explains this tactic as “Explore, don’t probe,”[2] It is essential that while the participant is being interviewed they are being encouraged to explore their experiences in a manner that is sensitive and respectful. They should not be “probed” in such a way that makes them feel

uncomfortable or like a specimen in lab. If too much time is spent dwelling on minute details or if too many follow-up questions are asked, it is possible that the participant will become defensive or unwilling to share. Thus, it is the interviewer's job to strike a balance between ambiguity and specificity in their question asking.

Be wary of leading questions:

Leading questions are questions which suggest or imply an answer. While they are often asked innocently they run the risk of altering the validity of the responses obtained as they discourage participants from using their own language to express their sentiments. Thus it is preferable that interviewers ask open-ended questions instead. For example, instead of asking "Did the experience make you feel sad?" - which is leading in nature - it would be better to ask "How did the experience make you feel" - as this suggests no expectation.

Don't interrupt:

Participants should feel comfortable and respected throughout the entire interview - thus interviewers should avoid interrupting participants whenever possible. While participants may digress in their responses and while the interviewer may lose interest in what they are saying at one point or another it is critical that they be tactful in their efforts to keep the participant on track and to return to the subject matter in question.

Make the participant feel comfortable:

Interviewing proposes an unusual dynamic in that it often requires the participant to divulge personal or emotional information in the presence of a complete stranger. Thus, many interviewers find it helpful to ask the participant to address them as if they were "someone else,"[2] such as a close friend or family member. This is often an effective method for tuning into the aforementioned "inner voice" of the participant and breaking down the more presentational barriers of the guarded "outer voice" which often prevails

Types of interviews

Informal, Conversational interview

No predetermined questions are asked, in order to remain as open and adaptable as possible to the interviewee's nature and priorities; during the interview the interviewer "goes with the flow".

General interview guide approach

Intended to ensure that the same general areas of information are collected from each interviewee; this provides more focus than the conversational approach, but still allows a degree of freedom and adaptability in getting the information from the interviewee.

Standardized, open-ended interview

The same openended questions are asked to all interviewees; this approach facilitates faster interviews that can be more easily analyzed and compared.

Closed, fixed-response interview

All interviewees are asked the same questions and asked to choose answers from among the same set of alternatives. This format is useful for those not practiced in interviewing. This type of interview is also referred to as structured.

Focus Group Discussion (FGD)

A focus group discussion involves gathering people from similar backgrounds or experiences together to discuss a specific topic of interest. It is a form of qualitative research where questions are asked about their perceptions attitudes, beliefs, opinion or ideas. In focus group discussion participants are free to talk with other group members; unlike other research methods it encourages discussions with other participants. It generally involves group interviewing in which a small group of usually 8 to 12 people. It is led by a moderator (interviewer) in a loosely structured discussion of various topics of interest.

The group's composition and the group discussion should be carefully planned to create a non-intimidating environment, so that participants feel free to talk openly and give honest opinions. Since participants are actively encouraged to not only express their own opinions, but also respond to other members and questions posed by the leader, focus groups offer a depth, nuance, and variety to the discussion that would not be available through surveys.

Additionally, as FGDs are structured and directed, but also expressive, they can yield a lot of information in a relatively short time. Therefore, FGDs are a good way to gather in-depth information about a community's thoughts and opinions on a topic. The course of the discussion is usually planned in advance and most moderators rely on an outline, or guide, to ensure that all topics of interest are covered.

Key Features of FGDs

- Involves organized discussion with a selected group of individuals to gain information about their views and experiences of a topic
- Particularly suited for obtaining several perspectives about the same topic
- Helps in gaining insights into people's shared understanding of everyday life and the ways in which individuals are influenced by others in a group situation
- The role of the moderator is very significant, as good levels of group leadership and interpersonal skill are required to moderate a group successfully.

Pros and Cons of Using FGDs

The advantages of focus group discussion are as follows:

- Free and open discussion among the respondents results in generation of new ideas that can be very useful for decision-making.
- A focus group is not static. The moderator can bring any changes in order to better facilitate the discussion during the group discussion. This dynamism allows better results in terms of information derived by a focus group.
- Expressions other than those in verbal form such as gestures and stimulated activities can provide researcher with useful insights.

Types of FGD:

Single Focus Group

This is what most people think about when asked about focus groups. It involves a single moderator asking questions and organically discussing a topic with a small group of respondents.

Mini Focus Group

In contrast to other types of focus groups, a mini focus group has only four or five respondents. A smaller group of people creates a more intimate environment for discussion and is particularly appropriate for sensitive issues.

Two-Way Focus Group

With this format, two focus groups (each with its own moderator) are formed with one group's members observing the other group's members as they answer questions and interact with one another. This can lead the observing group to additional insights.

Dual Moderator Focus Group

Two moderators collaborate in this type of focus group. One moderator is in charge of asking the questions and the other makes sure the questions are answered. It is easier for a single moderator to get distracted; having two moderators helps ensure that participants stay on task with their discussion.

Dueling Moderator Focus Group

Also with two moderators, this kind of focus group pits one moderator against another to explore opposing sides of an issue. By supporting alternate viewpoints, moderators can introduce discussion points that lead respondents to consider and draw new conclusions, prompting additional insight.

Respondent Moderator Focus Group

In order to limit unintentional bias, one or more of the focus group respondents temporarily assumes the role of moderator, asking questions of the group's other members. Sharing the moderator role helps encourage different reactions from each respondent, thus enriching the information ultimately gleaned.

Remote Focus Group

Using a teleconference or online format, a remote focus group can gather participants from locations that might otherwise be restricted. While this type of focus group is not as revealing as a face-to-face encounter because members are not able to respond to body language and communication tone, it can provide an opportunity for anonymity that appeals to some types of respondents. This makes it a good option for companies wanting to explore more personal topics or that have limited time and money to spend on the more in-depth focus group techniques.

Observation :

Observation is the active acquisition of information from a primary source. In living beings, observation employs the senses. In science, observation can also involve the perception and recording of data via the use of scientific instruments. The term may also refer to any data collected during the scientific activity. Observations can be qualitative, that is, only the absence or presence of a property is noted, or quantitative if a numerical value is attached to the observed phenomenon by counting or measuring.

Types:

1. Casual and Scientific observation –

An observation can be sometimes casual in nature or sometimes it may act scientifically. An observation with a casual approach involves observing the right thing at the right place and also at the right time by a matter of chance or by luck whereas a scientific observation involves the use of the tools of the measurement, but a very important point to be kept in mind here is that all the observations are not scientific in nature.

2. Natural Observation –

Natural observation involves observing the behaviour in a normal setting and in this type of observation, no efforts are made to bring any type of change in the behavior of the observed. Improvement in the collection of the information and improvement in the environment of making an observation can be done with the help of natural observations.

3. Subjective and Objective observation –

All the observations consist of the two main components, the subject and the object. The subject refers to the observer whereas the object refers to the activity or any type of operation that is being observed. Subjective observation involves the observation of the one's own immediate experience whereas the observations involving observer as an entity apart from the thing being observed, are referred to as the objective observation. Objective observation is also called as the retrospection.

4. Direct and Indirect observation –

With the help of the direct method of observation, one comes to know how the observer is physically present in which type of situation is he present and then this type of observation monitors what takes place. Indirect method of observation involves studies of mechanical recording or the recording by some of the other means like photographic or electronic. Direct observation is relatively more straight forward as compared to the indirect observation.

5. Participant and Non Participant observation –

Participation by the observers with the various types of operations of the group under study refers to the participant type of observation. In participant observation, the degree of the participation is largely affected by the nature of the study and it also depends on the type of the situation and also on its demands. But in the non participant type of observation, no participation of the observer in the activities of the group takes place and also there occurs no relationship between the researcher and the group.

6. Structured and Unstructured observation –

Structured observation works according to a plan and involves specific information of the units that are to be observed and also about the information that is to be recorded. The operations that are to be observed and the various features that are to be noted or recorded are decided well in advance. Such observations involve the use of especial instruments for the purpose of data collection that are also structured in nature. But in the case of the unstructured observation, its basics are diametrically against the structured observation. In such observation, observer has the freedom to note down what he or she feels is correct and relevant to the point of study and also this approach of observation is very suitable in the case of exploratory research.

7. Controlled and Non Controlled observation:

Controlled observations are the observations made under the influence of some of the external forces and such observations rarely lead to improvement in the precision of the research results.

But these observations can be very effective in the working if these are made to work in the coordination with mechanical synchronizing devices, film recording etc. Non controlled observations are made in the natural environment and reverse to the controlled observation these observations involve no influence or guidance of any type of external force.

Qualitative research method:

Qualitative Research: Definition

Qualitative research is defined as a market research method that focuses on obtaining data through open-ended and conversational communication.

This method is not only about “what” people think but also “why” they think so. For example, consider a convenience store looking to improve its patronage. A systematic observation concludes that the number of men visiting this store are more. One good method to determine why women were not visiting the store is to conduct an in-depth interview of potential customers in the category.

On successfully interviewing female customers, visiting the nearby stores and malls, and selecting them through random sampling, it was known that the store doesn't have enough items for women and so there were fewer women visiting the store, which was understood only by personally interacting with them and understanding why they didn't visit the store, because there were more male products than female ones.

Therefore, the qualitative research methods allow for in-depth and further probing and questioning of respondents based on their responses, where the interviewer/researcher also tries to understand their motivation and feelings. Understanding how your audience takes decision can help derive conclusion in market research.

Qualitative Research Methods with Examples

Qualitative research methods are designed in a manner that they help reveal the behavior and perception of a target audience with reference to a particular topic. There are different types of qualitative research methods like an in-depth interview, focus groups, ethnographic research, content analysis, case study research that are usually used.

The results of qualitative methods are more descriptive and the inferences can be drawn quite easily from the data that is obtained.

Qualitative research methods originated in the social and behavioral sciences. Today our world is more complicated and it is difficult to understand what people think and perceive. Qualitative research methods make it easier to understand that as it is more communicative and descriptive.

The following are the qualitative research methods that are frequently used:



1. One-on-One Interview: Conducting in-depth interviews is one of the most common qualitative research methods. It is a personal interview that is carried out with one respondent at a time. This is purely a conversational method and invites opportunities to get details in depth from the respondent.

One of the advantages of this method provides a great opportunity to gather precise data about what people believe and what their motivations are. If the researcher is well experienced asking the right questions can help him/her collect meaningful data. If they should need more information the researchers should ask such follow up questions that will help them collect more information.

These interviews can be performed face-to-face or on phone and usually can last between half an hour to two hours or even more. When the in-depth interview is conducted face to face it gives a better opportunity to read the body language of the respondents and match the responses.

2. Focus groups: A focus group is also one of the commonly used qualitative research methods, used in data collection. A focus group usually includes a limited number of respondents (6-10) from within your target market.

The main aim of the focus group is to find answers to the why what and how questions. One advantage of focus groups is, you don't necessarily need to interact with the group in person. Nowadays focus groups can be sent an online survey on various devices and responses can be collected at the click of a button.

Focus groups are an expensive method as compared to the other qualitative research methods. Typically they are used to explain complex processes. This method is very useful when it comes to market research on new products and testing new concepts.

3. Ethnographic research: Ethnographic research is the most in-depth observational method that studies people in their naturally occurring environment.

This method requires the researchers to adapt to the target audiences' environments which could be anywhere from an organization to a city or any remote location. Here geographical constraints can be an issue while collecting data.

This research design aims to understand the cultures, challenges, motivations, and settings that occur. Instead of relying on interviews and discussions, you experience the natural settings first hand.

This type of research method can last from a few days to a few years, as it involves in-depth observation and collecting data on those grounds. It's a challenging and a time-consuming method and solely depends on the expertise of the researcher to be able to analyze, observe and infer the data.

4. Case study research: The case study method has evolved over the past few years and developed as into a valuable qualitative research method. As the name suggests it is used for explaining an organization or an entity.

This type of research method is used within a number of areas like education, social sciences and similar. This method may look difficult to operate, however, it is one of the simplest ways of conducting research as it involves a deep dive and thorough understanding of the data collection methods and inferring the data.

5. Record keeping: This method makes use of the already existing reliable documents and similar sources of information as the data source. This data can be used in a new research. This is similar to going to a library. There one can go over books and other reference material to collect relevant data that can likely be used in the research.

6. Process of observation: Qualitative Observation is a process of research that uses subjective methodologies to gather systematic information or data. Since, the focus on qualitative observation is the research process of using subjective methodologies to gather information or data. The qualitative observation is primarily used to equate quality differences.

#Quantitative research methods:

Quantitative research is defined as a systematic investigation of phenomena by gathering quantifiable data and performing statistical, mathematical, or computational techniques. Quantitative research collects information from existing and potential customers using sampling methods and sending out online surveys, online polls, questionnaires, etc., the results of which can be depicted in the form of numerical. After careful understanding of these numbers to predict the future of a product or service and make changes accordingly.

An example of quantitative research is the survey conducted to understand the amount of time a doctor takes to tend to a patient when the patient walks into the hospital. A patient satisfaction survey template can be administered to ask questions like how much time did a doctor take to see a patient, how often does a patient walk into a hospital, and other such questions.

Quantitative research is mostly conducted in the social sciences using the statistical methods used above to collect quantitative data from the research study. In this research method, researchers and statisticians deploy mathematical frameworks and theories that pertain to the quantity under question.

Quantitative research templates are objective, elaborate, and many times, even investigational. The results achieved from this research method are logical, statistical, and unbiased. Data collection happened using a structured method and conducted on larger samples that represent the entire population.

Quantitative Research Methods: Types with Examples

As mentioned above, quantitative research is data-oriented. There are two methods to conduct quantitative research. They are:

Primary Quantitative Research Methods

There are four different types of primary quantitative research methods:

Primary quantitative research is the most widely used method of conducting market research. The distinct feature of primary research is that the researcher focuses on collecting data directly rather than depending on data collected from previously done research. Primary quantitative research can be broken down into three further distinctive tracks, as well as the process flow. They are:

Types of Studies

There are multiple types of primary quantitative research. They can be distinguished into the four following distinctive methods, which are:

1. Survey Research:

Survey Research is the most fundamental tool for all quantitative research methodologies and studies. Surveys used to ask questions to a sample of respondents, using various types such as online polls, online surveys, paper questionnaires, web-intercept surveys, etc. Every small and big organization intends to understand what their customers think about their products and services, how well are new features faring in the market and other such details.

There are two types of surveys, either of which can be chosen based on the time in-hand and the kind of data required:

Cross-sectional surveys: Cross-sectional surveys are observational surveys conducted in situations where the researcher intends to collect data from a sample of the target population at a given point in time. Researchers can evaluate various variables at a particular time. Data gathered using this type of survey is from people who depict similarity in all variables except the variables which is considered for research. Throughout the survey, this one variable will stay constant.

Longitudinal surveys: Longitudinal surveys are also observational surveys but, unlike cross-sectional surveys, longitudinal surveys are conducted across various time durations to observe a change in respondent behavior and thought-processes. This time can be days, months, years, or even decades. For instance, a researcher planning to analyze the change in buying habits of teenagers over 5 years will conduct longitudinal surveys.

2. Correlational Research:

A comparison between two entities is invariable. Correlation research is conducted to establish a relationship between two closely-knit entities and how one impacts the other and what are the changes that are eventually observed. This research method is carried out to give value to naturally occurring relationships, and a minimum of two different groups are required to conduct this quantitative research method successfully. Without assuming various aspects, a relationship between two groups or entities must be established.

Example of Correlational Research Questions:

- The relationship between stress and depression.
- The equation between fame and money.
- The relation between activities in a third-grade class and its students.

3. Causal-Comparative Research:

This research method mainly depends on the factor of comparison. Also called the quasi-experimental research, this quantitative research method is used by researchers to conclude cause-effect equation between two or more variables, where one variable is dependent on the other independent variable. The independent variable is established but not manipulated, and its impact on the dependent variable is observed. These variables or groups must be formed as they exist in the natural set up. As the dependent and independent variables will always exist in a group, it is advised that the conclusions are carefully established by keeping all the factors in mind.

Example of Causal-Comparative Research Questions:

- The impact of drugs on a teenager.
 - The effect of good education on a freshman.
 - The effect of substantial food provision in the villages of Africa.
4. **Experimental Research:** Also known as true experimentation, this research method is reliant on a theory. Experimental research, as the name suggests, is usually based on one or more theories. This theory has not been proven in the past and is merely a supposition. In experimental research, an analysis is done around proving or disproving the statement.
- Traditional research methods are more effective than modern techniques.
 - Systematic teaching schedules help children who find it hard to cope up with the course.
 - It is a boon to have responsible nursing staff for ailing parents.

Survey Distribution and Survey Data Collection

In the above, we have seen the process of building a survey along with the survey design to conduct primary quantitative research. Survey distribution to collect data is the other important aspect of the survey process. There are different ways of survey distribution. Some of the most commonly used methods are:

- Email: Sending a survey via email is the most widely used and most effective methods of survey distribution. The response rate is high in this method because the respondents are aware of your brand.
- Buy respondents: Another effective way to distribute a survey and conduct primary quantitative research is to use a sample. Since the respondents are knowledgeable and are on the panel by their own will, responses are much higher.
- Embed survey in a website: Embedding a survey in a website increases a high number of responses as the respondent is already in close proximity to the brand when the survey pops up.
- Social distribution: Using social media to distribute the survey aids in collecting higher number of responses from the people that are aware of the brand.
- QR code: You can print/publish this code in magazines, on signs, business cards, or on just about any object/medium.
- SMS survey: A quick and time-effective way of conducting a survey to collect a high number of responses is the SMS survey.
- API integration: You can use the API integration of the QuestionPro platform for potential respondents to take your survey.

Secondary Quantitative Research Methods

Secondary quantitative research or desk research is a research method that involves using already existing data or secondary data. Existing data is summarized and collated to increase the overall effectiveness of research.

This research method involves the collection of quantitative data from existing data sources like the internet, government resources, libraries, research reports, etc. Secondary quantitative research helps to validate the data that is collected from primary quantitative research as well as aid in strengthening or proving or disproving previously collected data.

Following are five popularly used secondary quantitative research methods:

1. **Data available on the internet:** With the high penetration of internet and mobile devices, it has become increasingly easy to conduct quantitative research using the internet. Information about most research topics is available online, and this aids in boosting the validity of primary quantitative data as well as proving the relevance on previously collected data.
2. **Government and non-government sources:** Secondary quantitative research can also be conducted with the help of government and non-government sources that deal with market research reports. This data is highly reliable and in-depth and hence, can be used to increase the validity of quantitative research.
3. **Public libraries:** Now a sparingly used method of conducting quantitative research, it is still a reliable source of information though. Public libraries have copies of important research that were conducted earlier. They are a storehouse of valuable information and documents from which information can be extracted.
4. **Educational institutions:** Educational institutions conduct in-depth research on multiple topics, and hence, the reports that they publish are an important source of validation in quantitative research.
5. **Commercial information sources:** Local newspapers, journals, magazines, radio, and TV stations are a great source to obtain data for secondary quantitative research. These commercial information sources have in-depth, first-hand information on economic developments, political agenda, market research, demographic segmentation, and similar subjects.

Mixed method in social research:

Mixed methods research is a methodology for conducting research that involves collecting, analysing and integrating quantitative (e.g., experiments, surveys) and qualitative (e.g., focus groups, interviews) research. This approach to research is used when this integration provides a better understanding of the research problem than either of each alone.

Quantitative data includes close-ended information such as that found to measure attitudes (e.g., rating scales), behaviours (e.g., observation checklists), and performance instruments. The analysis of this type of data consists of statistically analysing scores collected on instruments (e.g., questionnaires) or checklists to answer research questions or to test hypotheses.

Qualitative data consists of open-ended information that the researcher usually gathers through interviews, focus groups and observations. The analysis of the qualitative data (words, text or behaviours) typically follows the path of aggregating it into categories of information and presenting the diversity of ideas gathered during data collection.

By mixing both quantitative and qualitative research and data, the researcher gains in breadth and depth of understanding and corroboration, while offsetting the weaknesses inherent to using each approach by itself. One of the most advantageous characteristics of conducting mixed methods research is the possibility of triangulation, i.e., the use of several means (methods, data sources and researchers) to examine the same phenomenon. Triangulation allows one to identify aspects of a phenomenon more accurately by approaching it from different vantage points using different methods and techniques. Successful triangulation requires careful analysis of the type of information provided by each method, including its strengths and weaknesses.

When to use it?

Mixed methods research is particularly suited:

- When one wants to validate or corroborate the results obtained from other methods.
- When one needs to use one method to inform another method. For instance, when little is known about a topic and it is necessary to first learn about what variables to study through qualitative research, and then study those variables with a large sample of individuals using quantitative research.
- When one wants to continuously look at a research question from different angles, and clarify unexpected findings and/or potential contradictions.
- When one wants to elaborate, clarify, or build on findings from other methods. For instance, if a causal relationship has been established through experimental research but one wants to understand and explain the causal processes involved through qualitative research.

- When one wants to develop a theory about a phenomenon of interest and then test it. Usually, qualitative research is more suitable to build theory, while quantitative research provides a better way of testing theories.
- When one wants to generalize findings from qualitative research.

Advantages

The use of mixed method research provides a number of advantages, namely:

- Provides strengths that offset the weaknesses of both quantitative and qualitative research. For instance, quantitative research is weak in understanding the context or setting in which people behave, something that qualitative research makes up for. On the other hand, qualitative research is seen as deficient because of the potential for biased interpretations made by the researcher and the difficulty in generalizing findings to a large group. Quantitative research does not have these weaknesses. Thus, by using both types of research, the strengths of each approach can make up for the weaknesses of the other.
- Provides a more complete and comprehensive understanding of the research problem than either quantitative or qualitative approaches alone.
- Provides an approach for developing better, more context specific instruments. For instance, by using qualitative research it is possible to gather information about a certain topic or construct in order to develop an instrument with greater construct validity, i.e., that measures the construct that it intends to measure.
- Helps to explain findings or how causal processes work.

Disadvantages and limitations

Mixed method research has some disadvantages and limitations, namely:

- The research design can be very complex.
- Takes much more time and resources to plan and implement this type of research.
- It may be difficult to plan and implement one method by drawing on the findings of another.
- It may be unclear how to resolve discrepancies that arise in the interpretation of the findings.

Research Proposal and its components :

A research proposal is a document proposing a research project, generally in the sciences or academia, and generally constitutes a request for sponsorship of that research.^[1] Proposals are evaluated on the cost and potential impact of the proposed research, and on the soundness of the proposed plan for carrying it out.^[2] Research proposals generally address several key points:

- What research question(s) will be addressed, and how they will be addressed
- How much time and expense will be required for the research
- What prior research has been done on the topic
- How the results of the research will be evaluated
- How the research will benefit the sponsoring organization and other parties

Format or research process:

- a. Research title
- b. Abstract
- c. Introduction or background
- d. Statement of the problem
- e. Objectives
- f. Research questions
- g. Hypothesis (if required)
- h. Expected outcome
- i. Rational of the study
- j. Limitation of the study
- k. Literature review
- l. Theoretical framework(if required)
- m. Conceptual framework
- n. Research methods
 - i. Research design
 - ii. Sample size, technique
 - iii. Sampling tool and technique
 - iv. Data collection and procedure
 - v. Data analysis
- o. Time schedule (Gantt chart)
- p. Budget (if required)
- q. References

Identification of research problem :

Follow These 5 Steps to identify Your Research Problem

Step 1. Specify the Research Objectives

A clear statement defining your objectives will help you develop effective research.

It will help the decision makers evaluate the research questions your project should answer as well as the research methods your project will use to answer those questions. It's critical that you have manageable objectives. (Two or three clear goals will help to keep your research project focused and relevant.)

Step 2. Review the Environment or Context of the Research Problem

As a marketing researcher, you must work closely with your team of researchers in defining and testing environmental variables. This will help you determine whether the findings of your project will produce enough information to be worth the cost.

In order to do this, you have to identify the environmental variables that will affect the research project and begin formulating different methods to control these variables.

Step 3. Explore the Nature of the Problem

Research problems range from simple to complex, depending on the number of variables and the nature of their relationship. Sometimes the relationship between two variables is directly related to a problem or questions, and other times the relationship is entirely unimportant.

If you understand the nature of the research *problem as a researcher*, you will be able to better develop a solution to the problem.

To help you understand all dimensions, you might want to consider focus groups of consumers, salespeople, managers, or professionals to provide what is sometimes much-needed insight into a particular set of questions or problems.

Step 4. Define the Variable Relationships

Marketing plans often focus on creating a sequence of behaviors that occur over time, as in the adoption of a new package design, or the introduction of a new product.

Such programs create a commitment to follow some behavioral pattern or method in the future.

Studying such a process involves:

- Determining which variables affect the solution to the research problem.

- Determining the degree to which each variable can be controlled and used for the purposes of the company.
- Determining the functional relationships between the variables and which variables are critical to the solution of the research problem.

During the problem formulation stage, you will want to generate and consider as many courses of action and variable relationships as possible.

Step 5. The Consequences of Alternative Courses of Action

There are always consequences to any course of action used in one or more projects. Anticipating and communicating the possible outcomes of various courses of action is a primary responsibility in the research process.

Formulation of objectives:

A goal is general and long term overall desired outcome for a project. It is bigger in impact than an objective, is vague, has no specific time frame and is usually not measurable. Following the conception of scientific idea, the starting point should be to phrase the study objective. An objective is measurable and operational. It tells specific things you will accomplish in your project.

The objective should be as clearly and crisply stated as possible. Usually only one or at the most two objectives should be tackled in one study. If there are more than two objectives, then it may be appropriate to address the additional objectives through a separate study.

The objectives should be:

- Usually one or two
- Clearly spelled out
- Realistic and measurable
- Achievable in a reasonable frame of time
- Tailor the study design to achieve the objective(s)

Characteristics of Objectives:

1. Specific
precisely what you intend to accomplish

2. Important
Indicate the relevance/importance

3. Measurable
What you would do/measure

4. Practical
Solution to a problem

5. Realistic
6. Feasible
7. Evaluable

The objectives should be SMART.

- Specific
- Measurable
- Achievable
- Relevant
- Time bound

Research Design

Research design is defined as a framework of methods and techniques chosen by a researcher to combine various components of research in a reasonably logical manner so that the research problem is efficiently handled. It provides insights about “how” to conduct research using a particular methodology. Every researcher has a list of research questions which need to be assessed – this can be done with research design.

The sketch of how research should be conducted can be prepared using research design. Hence, the market research study will be carried out on the basis of research design.

The design of a research topic is used to explain the type of research (experimental, survey, correlational, semi-experimental, review) and also its sub-type (experimental design, research problem, descriptive case-study). There are three main sections of research design: Data collection, measurement, and analysis.

The type of research problem an organization is facing will determine the research design and not vice-versa. Variables, designated tools to gather information, how will the tools be used to collect and analyze data and other factors are decided in research design on the basis of a research technique is decided.

An impactful research design usually creates minimum bias in data and increases trust on the collected and analyzed research information. Research design which produces the least margin of error in experimental research can be touted as the best. The essential elements of research design are:

1. Accurate purpose statement of research design
2. Techniques to be implemented for collecting details for research
3. Method applied for analyzing collected details
4. Type of research methodology
5. Probable objections for research

6. Settings for research study
7. Timeline
8. Measurement of analysis

Research Design Characteristics

There are four key characteristics of research design:

Neutrality: The results projected in research design should be free from bias and neutral. Understand opinions about the final evaluated scores and conclusion from multiple individuals and consider those who agree with the derived results.

Reliability: If a research is conducted on a regular basis, the researcher involved expects similar results to be calculated every time. Research design should indicate how the research questions can be formed to ensure the standard of obtained results and this can happen only when the research design is reliable.

Validity: There are multiple measuring tools available for research design but valid measuring tools are those which help a researcher in gauging results according to the objective of research and nothing else. The questionnaire developed from this research design will be then valid.

Generalization: The outcome of research design should be applicable to a population and not just a restricted sample. Generalization is one of the key characteristics of research design.

Types of Research Design

A researcher must have a clear understanding of the various types of research design to select which type of research design to implement for a study. Research design can be broadly classified into quantitative and qualitative research design.

Qualitative Research Design: Qualitative research is implemented in cases where a relationship between collected data and observation is established on the basis of mathematical calculations. Theories related to a naturally existing phenomenon can be proved or disproved using mathematical calculations. Researchers rely on qualitative research design where they are expected to conclude “why” a particular theory exists along with “what” respondents have to say about it.

Quantitative Research Design: Quantitative research is implemented in cases where it is important for a researcher to have statistical conclusions to collect actionable insights. Numbers provide a better perspective to make important business decisions. Quantitative research design is important for the growth of any organization because any conclusion drawn on the basis of numbers and analysis will only prove to be effective for the business.

Further, research design can be divided into five types –

1. Descriptive Research Design: In a descriptive research design, a researcher is solely interested in describing the situation or case under his/her research study. It is a theory-based research design which is created by gather, analyze and presents collected data. By implementing an in-depth research design such as this, a researcher can provide insights into the why and how of research.

2. Experimental Research Design: Experimental research design is used to establish a relationship between the cause and effect of a situation. It is a causal research design where the effect caused by the independent variable on the dependent variable is observed. For example, the effect of an independent variable such as price on a dependent variable such as customer satisfaction or brand loyalty is monitored. It is a highly practical research design method as it contributes towards solving a problem at hand. The independent variables are manipulated to monitor the change it has on the dependent variable. It is often used in social sciences to observe human behavior by analyzing two groups – affect of one group on the other.

3. Correlational Research Design: Correlational research is a non-experimental research design technique which helps researchers to establish a relationship between two closely connected variables. Two different groups are required to conduct this research design method. There is no assumption while evaluating a relationship between two different variables and statistical analysis techniques are used to calculate the relationship between them.

Correlation between two variables is concluded using a correlation coefficient, whose value ranges between -1 and +1. If the correlation coefficient is towards +1, it indicates a positive relationship between the variables and -1 indicates a negative relationship between the two variables.

4. Diagnostic Research Design: In the diagnostic research design, a researcher is inclined towards evaluating the root cause of a specific topic. Elements that contribute towards a troublesome situation are evaluated in this research design method.

There are three parts of diagnostic research design:

- Inception of the issue
- Diagnosis of the issue
- Solution for the issue

5. Explanatory Research Design: In exploratory research design, the researcher's ideas and thoughts are key as it is primarily dependent on their personal inclination about a particular topic. Explanation about unexplored aspects of a subject is provided along with details about what, how and why related to the research questions.

Formulation of hypothesis :

A hypothesis is a tentative statement about the relationship between two or more variables. It is a specific, testable prediction about what you expect to happen in a study. For example, a study designed to look at the relationship between sleep deprivation and test performance might have a hypothesis that states, "This study is designed to assess the hypothesis that sleep-deprived people will perform worse on a test than individuals who are not sleep-deprived."

Let's take a closer look at how a hypothesis is used, formed, and tested in scientific research.

How Is a Hypothesis Used in the Scientific Method?

In the scientific method, whether it involves research in psychology, biology, or some other area, a hypothesis represents what the researchers think will happen in an experiment.¹

The scientific method involves the following steps:

1. Forming a question
2. Performing background research
3. Creating a hypothesis
4. Designing an experiment
5. Collecting data
6. Analyzing the results
7. Drawing conclusions
8. Communicating the results

The hypothesis is what the researchers predict the relationship between two or more variables, but it involves more than a guess. Most of the time, the hypothesis begins with a question which is then explored through background research. It is only at this point that researchers begin to develop a testable hypothesis.

In a study exploring the effects of a particular drug, the hypothesis might be that researchers expect the drug to have some type of effect on the symptoms of a specific illness. In psychology, the hypothesis might focus on how a certain aspect of the environment might influence a particular behavior.

Unless you are creating a study that is exploratory in nature, your hypothesis should always explain what you *expect* to happen during the course of your experiment or research.

Remember, a hypothesis does not have to be correct.¹ While the hypothesis predicts what the researchers expect to see, the goal of the research is to determine whether this guess is right or wrong. When conducting an experiment, researchers might explore a number of factors to determine which ones might contribute to the ultimate outcome.

In many cases, researchers may find that the results of an experiment *do not* support the original hypothesis. When writing up these results, the researchers might suggest other options that should be explored in future studies.

How Do Researchers Come up With a Hypothesis?

In many cases, researchers might draw a hypothesis from a specific theory or build on previous research. For example, prior research has shown that stress can impact the immune system. So a researcher might form a specific hypothesis that: "People with high-stress levels will be more likely to contract a common cold after being exposed to the virus than are people who have low-stress levels."

In other instances, researchers might look at commonly held beliefs or folk wisdom. "Birds of a feather flock together" is one example of folk wisdom that a psychologist might try to investigate. The researcher might pose a specific hypothesis that "People tend to select romantic partners who are similar to them in interests and educational level."

Elements of a Good Hypothesis

When trying to come up with a good hypothesis for your own research or experiments, ask yourself the following questions:

- Is your hypothesis based on your research on a topic?
- Can your hypothesis be tested?
- Does your hypothesis include independent and dependent variables?

Before you come up with a specific hypothesis, spend some time doing background research on your topic. Once you have completed a literature review, start thinking about potential questions you still have. Pay attention to the discussion section in the journal articles you read. Many authors will suggest questions that still need to be explored.

How to Form a Hypothesis

The first step of a psychological investigation is to identify an area of interest and develop a hypothesis that can then be tested. While a hypothesis is often described as a hunch or a guess, it is actually much more specific. A hypothesis can be defined as an educated guess about the relationship between two or more variables.

For example, a researcher might be interested in the relationship between study habits and test anxiety.

The researcher would propose a hypothesis about how these two variables are related, such as "Test anxiety decreases as a result of effective study habits."

In order to form a hypothesis, you should take these steps:

- Start by collecting as many observations about something as you can.
- Evaluate these observations and look for possible causes of the problem.
- Create a list of possible explanations that you might want to explore.
- After you have developed some possible hypotheses, it is important to think of ways that you could confirm or disprove each hypothesis through experimentation. This is known as falsifiability.

Sampling design :

A sample design is the framework, or road map, that serves as the basis for the selection of a survey sample and affects many other important aspects of a survey as well. In a broad context, survey researchers are interested in obtaining some type of information through a survey for some population, or universe, of interest. One must define a sampling frame that represents the population of interest, from which a sample is to be drawn

Types of sampling design in Research Methodology

There are different types of sample designs based on two factors viz., the representation basis and the element selection technique. On the representation basis, the sample may be probability sampling or it may be non-probability sampling. Probability sampling is based on the concept of random selection, whereas non-probability sampling is ‘non-random’ sampling. On element selection basis, the sample may be either unrestricted or restricted. When each sample element is drawn individually from the population at large, then the sample so drawn is known as ‘unrestricted sample’, whereas all other forms of sampling are covered under the term ‘restricted sampling’. The following chart exhibits the sample designs as explained above.

Thus, sample designs are basically of two types viz., non-probability sampling and probability sampling. We take up these two designs separately.

CHART SHOWING BASIC SAMPLING DESIGNS

Element selection technique ↓	Representation basis	
	Probability sampling	Non-probability sampling
Unrestricted sampling	Simple random sampling	Haphazard sampling or convenience sampling
Restricted sampling	Complex random sampling (such as cluster sampling, systematic sampling, stratified sampling etc.)	Purposive sampling (such as quota sampling, judgement sampling)

Non-probability sampling:

Non-probability sampling is that sampling procedure which does not afford any basis for estimating the probability that each item in the population has of being included in the sample. Non-probability sampling is also known by different names such as deliberate sampling, purposive sampling and judgement sampling. In this type of sampling, items for the sample are selected deliberately by the researcher; his choice concerning the items remains supreme. In other words, under non-probability sampling the organisers of the inquiry purposively choose the particular units of the universe for constituting a sample on the basis that the small mass that they so select out of a huge one will be typical or representative of the whole. For instance, if economic conditions of people living in a state are to be studied, a few towns and villages may be purposively selected for intensive study on the principle that they can be representative of the entire state. Thus, the judgement of the organisers of the study plays an important part in this sampling design.

Probability sampling:

Probability sampling is also known as 'random sampling' or 'chance sampling'. Under this sampling design, every item of the universe has an equal chance of inclusion in the sample. It is, so to say, a lottery method in which individual units are picked up from the whole group not deliberately but by some mechanical process. Here it is blind chance alone that determines whether one item or the other is selected. The results obtained from probability or random sampling can be assured in terms of probability i.e., we can measure the errors of estimation or the significance of results obtained from a random sample, and this fact brings out the superiority of random sampling design over the deliberate sampling design. Random sampling ensures the law of Statistical Regularity which states that if on an average the sample chosen is a random one, the sample will have the same composition and characteristics as the universe. This is the reason why random sampling is considered as the best technique of selecting a representative sample. In such a design, personal element has a great chance of entering into the selection of the sample. The investigator may select a sample which shall yield results favourable to his point of view and if that happens, the entire inquiry may get vitiated. Thus, there is always the danger of bias entering into this type

of sampling technique. But in the investigators are impartial, work without bias and have the necessary experience so as to take sound judgement, the results obtained from an analysis of deliberately selected sample may be tolerably reliable. However, in such a sampling, there is no assurance that every element has some specifiable chance of being included. Sampling error in this type of sampling cannot be estimated and the element of bias, great or small, is always there. As such this sampling design is rarely adopted in large inquiries of importance. However, in small inquiries and researches by individuals, this design may be adopted because of the relative advantage of time and money inherent in this method of sampling. *Quota sampling* is also an example of non-probability sampling. Under quota sampling the interviewers are simply given quotas to be filled from the different strata, with some restrictions on how they are to be filled. In other words, the actual selection of the items for the sample is left to the interviewer's discretion. This type of sampling is very convenient and is relatively inexpensive. But the samples so selected certainly do not possess the characteristic of random samples. Quota samples are essentially judgement samples and inferences drawn on their basis are not amenable to statistical treatment in a formal way.

Tools and methods of data collection :

Data collection is a methodical process of gathering and analyzing specific information to proffer solutions to relevant questions and evaluate the results. It focuses on finding out all there is to a particular subject matter. Data is collected to be further subjected to hypothesis testing which seeks to explain a phenomenon.

Types of Data Collection

Before broaching the subject of the various types of data collection. It is pertinent to note that data collection in itself falls under two broad categories; Primary data collection and secondary data collection.

Primary Data Collection

Primary data collection by definition is the gathering of raw data collected at the source. It is a process of collecting the original data collected by a researcher for a specific research purpose. It

could be further analyzed into two segments; qualitative research and quantitative data collection methods.

- Qualitative Research Method

The qualitative research methods of data collection does not involve the collection of data that involves numbers or a need to be deduced through a mathematical calculation, rather it is based on the non-quantifiable elements like the feeling or emotion of the researcher. An example of such a method is an open-ended questionnaire.



- Quantitative Method

Quantitative methods are presented in numbers and require a mathematical calculation to deduce. An example would be the use of a questionnaire with close-ended questions to arrive at figures to be calculated Mathematically. Also, methods of correlation and regression, mean, mode and median.



Secondary Data Collection

Secondary data collection, on the other hand, is referred to as the gathering of second-hand data collected by an individual who is not the original user. It is the process of collecting data that is already existing, be it already published books, journals and/or online portals. In terms of ease, it is much less expensive and easier to collect.

Your choice between Primary data collection and secondary data collection depend on the nature, scope and area of your research as well as its aims and objectives.

IMPORTANCE OF DATA COLLECTION

There are a bunch of underlying reasons for collecting data, especially for a researcher. Walking you through them, here are a few reasons;

- **Integrity of The Research**

A key reason for collecting data, be it through quantitative or qualitative methods is to ensure that the integrity of the research question is indeed maintained.

- **Reduce the likelihood of errors**

The correct use of appropriate data collection of methods reduces the likelihood of errors consistent with the results.

- **Decision Making**

To minimize the risk of errors in decision making, it is important that accurate data is collected so that the researcher doesn't make uninformed decisions.

- **Save Cost and Time**

Data collection saves the researcher time and funds that would otherwise be misspent without a deeper understanding of the topic or subject matter.

- **To support a need for a new idea, change and/or innovation**

To prove the need for a change in the norm or the introduction of new information that will be widely accepted, it is important to collect data as evidence to support these claims.

What is a Data Collection Tool?

Data collection tools refer to the devices/instruments used to collect data, such as a paper questionnaire or computer-assisted interviewing system. Case Studies, Checklists, Interviews, Observation sometimes, and Surveys or Questionnaires are all tools used to collect data.

Analysis and presentation of data:

Data presentation and analysis forms an integral part of all academic studies, commercial, industrial and marketing activities as well as professional practices. Presentation of data requires skills and understanding of data. It is necessary to make use of collected data which is considered to be raw data which must be processed to put for any application. Data analysis helps in the interpretation of data and take a decision or answer the research question. This can be done by using data processing tools and softwares. Data analysis starts with the collection of data followed by data processing by various data processing methods and sorting it. Processed data helps in obtaining information from it as the raw data is non-comprehensive in nature. Presenting the data includes the pictorial representation of the data by using graphs, charts, maps and other methods. These methods help in adding the visual aspect to data which makes it much more comfortable and quicker to understand. Various methods of data presentation can be used to present data and facts. Widely used format and data presentation techniques are mentioned below:

1. **As text** – Raw data with proper formatting, categorization, indentation is most extensively used and very effective way of presenting data. Such format is widely found in books, reports, research papers and in this article itself.
2. **In tabular form** – Tabular form is generally used to differentiate, categories, relate different datasets. It can be a simple pros & cons table, or a data with corresponding value such as annual GDP, a bank statement, monthly expenditure etc.
3. **In graphical Form** – Data can further be presented in a simpler and even easier form by means of using graphical form. The input for such graphical data can be another type of data itself or some raw data. For example, a bar graph & pie chart takes tabular data as input. The tabular data in such case is processed data itself but provides limited use. Converting such data or raw data into graphical form directly makes it quick and easier to interpret.

You can have a variety of data which can be used in presentations. Some of these types include :

- Time Series Data
- Bar Charts
- Combo Charts
- Pie Charts
- Tables
- Geo Map
- Scorecard
- Scatter Charts
- Bullet Charts
- Area Chart
- Text & Images

Steps for presenting and analyzing data:

1. Frame the objectives of the study and make a list of data to be collected and its format.
2. Collect/obtain data from primary or secondary sources.
3. Change the format of data, i.e., table, maps, graphs, etc. in the desired format
4. Sort data through grouping, discarding the extra data and deciding the required form to make data comprehensible
5. Make charts and graphs to help to add visual part and analyze trends.
6. Analyse trends and relate the information to fulfill the objectives.

Computer software on social science research :

SPSS is a widely used program for statistical analysis in social science. It is also used by market researchers, health researchers, survey companies, government, education researchers, marketing organizations, data miners,^[3] and others. The original SPSS manual (Nie, Bent & Hull, 1970)^[4] has been described as one of "sociology's most influential books" for allowing ordinary researchers to do their own statistical analysis.^[5] In addition to statistical analysis, data management (case selection, file reshaping, creating derived data) and data documentation (a metadata dictionary is stored in the datafile) are features of the base software.

Statistics included in the base software:

- **Descriptive statistics:** Cross tabulation, Frequencies, Descriptives, Explore, Descriptive Ratio Statistics
- **Bivariate statistics:** Means, t-test, ANOVA, Correlation (bivariate, partial, distances), Nonparametric tests, Bayesian
- **Prediction for numerical outcomes:** Linear regression
- **Prediction for identifying groups:** Factor analysis, cluster analysis (two-step, K-means, hierarchical), Discriminant
- Geo spatial analysis, simulation
- R extension (GUI), Python