

Research Methodology

Introduction to Research Methodology

In simple terms, methodology can be defined as, giving a clear cut idea on what methods or process the researcher is going to use in his or her research to achieve research objectives. In order to plan for the whole research process at a right point of time and to advance the **research work in the right direction, carefully chosen research methodology** is very critical. In other words; what is Research methodology can be answered as it maps out the whole research work and gives credibility to whole effort of the researcher.

More over methodology guides the researcher to involve and to be active in his or her particular field of enquiry.

Right from selecting the topic and carrying out the whole research work till recommendations; research methodology drives the researcher and keeps him on the right track. The entire research plan is based on the concept of right methodology.

Further, through methodology the external environment constitutes the research by giving an in depth idea on setting the right research objective, followed by literature point of view, based on that chosen analysis through interviews or questionnaires findings will be obtained and finally concluded message by this research.

On the other hand from the methodology, the internal environment constitutes by understanding and identifying the right type of research, strategy, philosophy, time horizon, approaches, followed by right procedures and techniques based on his or her research work. Research methodology acts as the nerve center because the entire research is bounded by it and to perform a good research work, the internal and external environment has to follow the right **methodology** process.

Research Definition

Research is a careful and detailed study into a specific problem, concern, or issue using the scientific method. It's the adult form of the science fair projects back in elementary school, where you try and learn something by performing an experiment. This is best accomplished by turning the issue into a question, with the intent of the research to answer the question.

Research can be about anything, and we hear about all different types of research in the news. Cancer research has 'Breakthrough Cancer-Killing Treatment Has No Side Effects in Mice,' and 'Baby Born with HIV Cured.' Each of these began with an issue or a problem (such as cancer or HIV), and they had a question, like 'Does medication X reduce cancerous tissue or HIV infections?'

Definitions of Research Methodology

The process used to collect information and data for the purpose of making business decisions. The methodology may include publication research, interviews, surveys and other research techniques, and could include both present and historical information.

Objectives Of Research

The objective of research is to find answers to the questions by applying scientific procedures. In other words, the main aim of research is to find out the truth which is hidden and has not yet been discovered. Although every research study has its own specific objectives, the research objectives may be broadly grouped as follows:

1. To gain familiarity with new insights into a phenomenon (i.e., formulative research studies);
2. To accurately portray the characteristics of a particular individual, group, or a situation (i.e., descriptive research studies);
3. To analyse the frequency with which something occurs (i.e., diagnostic research studies);
and

4. To examine the hypothesis of a causal relationship between two variables (i.e., hypothesis-testing research studies).

Types Of Research

Qualitative

This type of research methods involves describing in details specific situation using research tools like interviews, surveys, and Observations. Qualitative Research is primarily exploratory research. It is used to gain an understanding of underlying reasons, opinions, and motivations. It provides insights into the problem or helps to develop ideas or hypotheses for potential quantitative research. Qualitative Research is also used to uncover trends in thought and opinions, and dive deeper into the problem. Qualitative data collection methods vary using unstructured or semi-structured techniques. Some common methods include focus groups (group discussions), individual interviews, and participation/observations. The sample size is typically small, and respondents are selected to fulfill a given quota.

Quantitative

This type of research methods requires quantifiable data involving numerical and statistical explanations. Quantitative Research is used to quantify the problem by way of generating numerical data or data that can be transformed into useable statistics. It is used to quantify attitudes, opinions, behaviors, and other defined variables – and generalize results from a larger sample population. Quantitative Research uses measurable data to formulate facts and uncover patterns in research. Quantitative data collection methods are much more structured than Qualitative data collection methods. Quantitative data collection methods include various forms of surveys – online surveys, paper surveys, mobile surveys and kiosk surveys, face-to-face interviews, telephone interviews, longitudinal studies, website interceptors, online polls, and systematic observations.

Correlation/Regression Analysis

This research method involves determining the strength of the relationship between two or more variables (e.g. are violent video games correlated with aggression in children).

Meta-Analysis

This research method is useful for finding out the average impact of several different studies on a hypothesis.

Qualities Of A Researcher

It is important for a researcher to possess certain qualities to conduct research. First and foremost, he being a scientist should be firmly committed to the 'articles of faith' of the scientific methods of research. This implies that a researcher should be a social science person in the truest sense. Sir Michael Foster cited by (Wilkinson and Bhandarkar, 1979) identified a few distinct qualities of a scientist. According to him, a true research scientist should possess the following qualities:

(1) First of all, the nature of a researcher must be of the temperament that vibrates in unison with the theme which he is searching. Hence, the seeker of knowledge must be truthful with truthfulness of nature, which is much more important, much more exacting than what is sometimes known as truthfulness. The truthfulness relates to the desire for accuracy of observation and precision of statement. Ensuring facts is the principle rule of science, which is not an easy matter. The difficulty may arise due to untrained eye, which fails to see anything beyond what it has the power of seeing and sometimes even less than that. This may also be due to the lack of discipline in the method of science. An unscientific individual often remains satisfied with the expressions like approximately, almost, or nearly, which is never what nature is. A real research cannot see two things which differ, however minutely, as the same.

(2) A researcher must possess an alert mind. Nature is constantly changing and revealing itself through various ways. A scientific researcher must be keen and watchful to notice such changes, no matter how small or insignificant they may appear. Such receptivity has to be cultivated

slowly and patiently over time by the researcher through practice. An individual who is ignorant or not alert and receptive during his research will not make a good researcher.

In this context, Cohen and Negal cited by (Selltiz et al, 1965; Wilkinson and Bhandarkar, 1979) state that “the ability to perceive in some brute experience the occasion of a problem is not a common talent among men... it is a mark of scientific genius to be sensitive to difficulties where less gifted people pass by untroubled by doubt”.

(3) Scientific enquiry is pre-eminently an intellectual effort. It requires the moral quality of courage, which reflects the courage of a steadfast endurance. The process of conducting research is not an easy task. There are occasions when a research scientist might feel defeated or completely lost. This is the stage when a researcher would need immense courage and the sense of conviction. The researcher must learn the art of enduring intellectual hardships. In the words of Darwin, “It’s dogged that does it”.

In order to cultivate the afore-mentioned three qualities of a researcher, a fourth one may be added. This is the quality of making statements cautiously. According to Huxley, the assertion that outstrips the evidence is not only a blunder but a crime (Thompson, 1975). A researcher should cultivate the habit of reserving judgment when the required data are insufficient.

Research Process

Dissertation markers expect the explanation of research process to be included in Methodology chapter. A typical research process comprises the following stages:

1. Selecting the research area. You are expected to state that you have selected the research area due to professional and personal interests in the area and this statement must be true.
2. Formulating research aim, objectives and research questions or developing hypotheses. The choice between the formulation of research questions and the development of hypotheses depends on your research approach as it is discussed further below in more details. Appropriate research aims and objectives or hypotheses usually result from

several attempts and revisions and these need to be mentioned in Methodology chapter. It is critically important to get your research questions or hypotheses confirmed by your supervisor before moving forward with the work.

3. Conducting the literature review. It can be mentioned that the literature has proved to be the longest stage in the research process and that you have utilized a wide range of secondary data sources such as books, newspapers, magazines, journals, online articles etc.
4. Selecting methods of data collection. Specific data collection method(s) need to be selected on the basis of critically analyzing advantages and disadvantages associated with several alternative data collection methods. In studies involving primary data collection, in-depth discussions of advantages and disadvantages of selected primary data collection method(s) need to be included in methodology.
5. Collecting the primary data. Primary data collection needs to be preceded by a great level of preparation and pilot data collection may be required in case of questionnaires. Primary data collection is not a compulsory stage for all dissertations and you will skip this stage if you are conducting a desk-based research.
6. Data analysis. Analysis of data plays an important role in the achievement of research aim and objectives. Data analysis methods vary between secondary and primary studies, as well as, between qualitative and quantitative studies. Data analysis is discussed in Chapter 6 in great details.
7. Reaching conclusions. Conclusions relate to the level of achievement of research aims and objectives. In this final part of your dissertation you will have to justify why you think that research aims and objectives have been achieved.
8. Completing the research. Following all of the stages described above, and organizing separate chapters into one file leads to the completion of the first draft. The first draft of your dissertation needs to be prepared at least one month before the submission deadline.

This is because you will need to have sufficient amount of time to address feedback of your supervisor.

Features of Research Methodology

1. Eye Observation – In an accurate sense, observation involves the use of the eyes rather than the use of the ears and the voice. An experienced worker never believes in hearsay he only trusts if he has observed that with his own eyes or if the report is a first hand evidence of his eyes. So it can be said that observation done with the help of the eyes acts as a most trustworthy medium for making an observation.
2. Aim – Observations which act on scientific grounds are brought in use by the scientists or the researchers with some or the other aim to achieve something. Such scientists make their observations in a very minute and a detailed manner which helps them in achieving specific goals. These goals can include discovery of something, verification of the hypothesis etc.
3. Planning – The value of an observation in an operation is only if it is done properly – in a planned manner as, if it is done in a careless sense then the chance of making such an observation again may come or not. Hence, observation should be carried out in a very phased and a planned manner in order to get in depth understanding of an activity.
4. Recording – The various operations that we perform and the results that we obtain should be remembered but a known fact is that memory is very deceptive in nature. With the passage of time things tend to get out of mind, so it is very important to keep a record of such activities. One very common method to keep a track of these activities is to write down the various impressions, but now a days a tape or in some cases a video camera is used for the recording purposes.

One of the major advantages of the recording done by a tape or a video camera is that the chances of going wrong i.e. committing any mistake are very less or almost negative. In tape, actual words can be recorded which results in zero chance of committing an error.

5. Physical and mental activity – Sense organs have a very critical role to play in the observation process. During the observation researcher or an investigator has to use his sense organs for seeing and hearing things and then has to keep in mind the whole set of observations for an in depth analysis of the matter later on.

Advantages of Research Methodology

1. Very direct method for collecting data or information – best for the study of human behavior.
2. Data collected is very accurate in nature and also very reliable.
3. Improves precision of the research results.
4. Problem of depending on respondents is decreased.
5. Helps in understanding the verbal response more efficiently.
6. By using good and modern gadgets – observations can be made continuously and also for a larger duration of time period.
7. Observation is less demanding in nature, which makes it less bias in working abilities.
8. By observation, one can identify a problem by making an in depth analysis of the problems.

Disadvantages of Research Methodology

1. Problems of the past cannot be studied by means of observation.
2. Having no other option one has to depend on the documents available.
3. Observations like the controlled observations require some especial instruments or tools for effective working, which are very much costly.
4. One cannot study opinions by this means.
5. Attitudes cannot be studied with the help of observations.
6. Sampling cannot be brought into use.
7. Observation involves a lot of time as one has to wait for an event to happen to study that particular event.
8. The actual presence of the observer himself Vis a Vis the event to occur is almost unknown,

which acts as a major disadvantage of observation.

9. Complete answer to any problem or any issue cannot be obtained by observation alone.

Research Methodology Multiple Choice Questions (MCQ)

Q1 Which of the following is not an essential element of report writing?

- a. Research Methodology
- b. Reference
- c. Conclusion
- d. None of these

Q2 Testing hypothesis is a _____

- a. Inferential statistics
- b. Descriptive statistics
- c. Data preparation
- d. Data analysis

Q3 Is it possible to apply projective techniques for exploratory investigation?

- a. Yes
- b. No

Q4 What is the purpose of doing research?

- a. To identify problem
- b. To find the solution
- c. Both a and b
- d. None of these

Q5 Which method can be applicable for collecting qualitative data?

- a. Artifacts (Visual)
- b. People
- c. Media products (Textual, Visual and sensory)

d. All of these

Q6 Which of the following is non-probability sampling?

- a. Snowball
- b. Random
- c. Cluster
- d. Stratified

Q7 In group interview their are _____

- a. One interviewer and one interviewee
- b. More than one interviewer and one interviewee
- c. One interviewer and more than one interviewee
- d. More than One interviewer and more than one interviewee

Q8 Which of the following are associated with behavioral observation?

- a. Non-verbal analysis
- b. Linguistic analysis
- c. Spatial analysis
- d. All of these

Q9 Uniting various qualitative methods with quantitative methods can be called as.....

- a. Coalesce
- b. Triangulation
- c. Bipartite
- d. Impassive

Q10 Multistage sampling is a _____

- a. Probability sampling
- b. Non-Probability sampling

Answer Key:

1-d

2-a

3-a

4-c

5-d

6-a

7-c

8-d

9-b

10-a

REFERENCES

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