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2. A Study on the Techniques for Data Collection in Social Science Research

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Abstract:

The present study sets out to compare and contrast the usefulness of several distinct methods of data collection. The investigator has explored the globe in search of evidence about composition, history, and potential future developments. For research findings to be trusted, the data used must be complete and accurate. This paper offers a primer on the methods employed in social science studies. The process of collecting data that can be used to test hypotheses, answer research questions, and inform analyses is known in the academic world as data collection. One must be able to collect and analyze data efficiently if one pursues a career in the natural sciences, social sciences, arts, or economics. Collecting accurate data is essential for study in any subject area. Credible and convincing answers to the study issues require extensive data collection. Reliable data collection is vital regardless of the research location or the popularly understood meaning of the term "data" (quantitative, qualitative). Issues can be averted with the use of up-to-date data collection tools and clear, thorough instructions on how to use them. A structured strategy for data collection is essential for accurate forecasting. On top of that, a development program's long-term goal can be determined using this strategy in social science research.

Keywords:

Study, Techniques, Data Collection, Social Science, and Research.

2.1 Introduction:

Data collecting refers to routinely acquiring and measuring information to answer research questions, verify or reject hypotheses, and evaluate results. Irrespective of your chosen area of study, you will always have questions. While research methods can differ from one discipline to the next, a dedication to open and honest data collection is consistent. There is more to studying than just data collection. Proper data collection is vital for a thorough understanding of the issues and a reliable analysis of the study's results. Without sufficient information, it would be impossible to do any kind of research. Asking fundamental questions is a prerequisite for doing any investigation. Having faith in and standing by the results of a study requires using rigorous, objective methods of data collection (Sapsford & Jupp, 2006). *Study methods* are strategies and plans used to collect data. They cover a wide range, from basic concepts to specific techniques for gathering, organizing, and interpreting data. With this approach, a range of decisions can be taken; not all of them need to follow

the continuous path. They are here because they should be. It is crucial to give the evaluation process much thought. The study's design, ethical presumptions, and procedures for data collection, processing, and distribution should all be considered while making this choice. Gathering relevant data is the starting point for each research study. No matter how carefully you prepare, you will need more time or money to collect everything you need to analyze your study thoroughly. Collecting all the required data takes a lot of planning, work, time, patience, and determination. Before settling on sample size, it is important to determine what data is required for your work. Then, with the right equipment, data collection from the selected sample can continue. Once a study problem has been identified, and a study strategy or plan has been developed, the data collection procedure begins. The investigator should consider both primary and secondary data when deciding on the data collection method to use in social science research.

2.2 Meaning of Data:

Data is collected in various ways and is the foundation of data-driven research approaches. Data is any piece of information that may be expressed quantitatively. Even though numerical descriptions are the norm for data, more wholeness is always welcome. Today's display and application of data extend beyond raw numbers. In this paper, we will talk about the basic aspects of data. Data are a specific form of information collected by researchers and academics through surveys and interviews. Definitions like "data, plural of datum" highlight that "data" is a plural noun. Data or information is defined in a loose sense throughout the entire term. This begs the question, what is data? Think about the methods by which we organize and categorize data and understanding. We keep coming back to facts and information as we define knowledge.

2.3 Types of Data:

Data collection is the systematic and planned gathering and measurement of information on variables of interest to answer certain research questions, test hypotheses, and evaluate results. Data collecting is a common part of research in all academic fields, including the humanities, social sciences, economics, and natural and applied sciences. Data is a collection of details and numeric data that may be put together and evaluated to answer a research question or provide the foundation for more general inferences. Before creating their data collection procedures, researchers carefully consider the kind of data they aim to get. There are only really two forms of data.

2.3.1 Primary Data:

Primary data, in the context of data collection, is information other sources have not filtered. The public still needs access to primary data, which is likely more reliable, real, and impartial. Since humans may have altered secondary data sources, primary sources are preferable. One must first collect data before making use of statistics in any way. Avoid the mainstream media if you want to discover the real position of women in the United States today. It is necessary to rely on secondary resources without fundamental ones. Secondary data should not be used exclusively because of the high likelihood of human error. They are likely wrong, biased, and out of date. It might be difficult to collect primary data when there

is either a small population or a reluctance to participate in surveys. Primary data, which is data acquired directly from the source, is essential for any credible study. Investigators, in this case, will need to put in much work to collect this data because it is not yet easily accessible through database searches. There is more than just a data collecting approach to collecting primary data. This data has been the backbone of our investigation. The primary data are naturally unique because they are new and being used for the first time.

Advantages of Primary Data:

- The credibility of the data was enhanced through the independent, unique collection.
- Improving Direct Collection enhances data quality.
- Incorporated both quantitative and qualitative research methods.
- To collect secret information, one can utilize primary data.
- Primary data can be used as secondary data after processing.

Disadvantages of Primary Data:

- Information quality that respondents provide impacts reliability.
- Data may include biased.
- It is both time and money-consuming.
- Investigators need to gain more relevant expertise.
- Field research is needed.

2.3.2 Secondary Data:

All of the information used in this study comes from secondary sources rather than first-hand observations. Primary data collecting, often known as ground-up information gathering, may take considerable time. Therefore, additional data may be gathered using this approach. In addition to primary materials, there is also an abundance of excellent secondary resources to choose from. Due to the broad availability of low-cost digital media like the internet, collecting secondary data is easier than ever. Books are a fantastic resource for expanding one's knowledge.

There is no reason to believe them, as every piece of evidence points in the opposite direction. Please tell me the book's title, the publishing company's name, and the year it came out. It is essential to rely on contemporary accounts due to the rapidity with which new discoveries may be discovered as a result of science and research and technological improvement. It would be helpful for you to read a book on the subjects that have recently caught your attention. Before settling on a subject, do some background reading on your options. Make a decision and immerse yourself in the academic literature on that topic. Although books have a negative reputation, many people still use them as their primary source of knowledge. Journals/periodicals: In recent years, more and more weight has been given to studies that appear in respected peer-reviewed publications. Journal articles are more likely to be up-to-date than books since their editors craft pieces to cover specific topics rather than a broad variety of interconnected ones. Although daily newspapers are more reliable than monthly magazines, relying solely on one source for your news is still not a good idea.

On the other hand, newspapers are generally more trustworthy, and in some fields (such as politics), they may be the sole trustworthy source of data. There is no need for further data collection or compilation when secondary sources are used instead of primary ones. Acquired knowledge from seeing how others performed a task. We call "secondary data" information obtained from "primary data," but it is used for a different purpose. Secondary data refers to information that was gathered in a way other than "primary research." Because of its reduced cost and quicker processing time, digital information often replaces primary sources. Secondary data, which is information that has already been collected and has been the topic of data analysis by another entity, is the complete opposite of primary data.

Advantages of Secondary Data:

- These data can be easily managed.
- There continues to be a balance between time and money.
- Experts have already examined the available information.
- Used to interpret or update data already in existence.
- Helpful for authors, thinkers, and philosophers when developing fresh concepts.
- More investigation is needed.

Disadvantages of Secondary Data:

- There is no commonly accepted measure for validity.
- Need for expertise.
- Secondary data is less trustworthy and accurate than primary data.

2.4 The Notion of Data Collection:

Research is a vital and useful instrument for advancing human development. Ongoing data collection would still have resulted in much change (Pandey, P., & Pandey, M. M, 2021). Even though data collection is not new, as we shall see later, conditions have evolved. In formats that were not available a century ago, more data is now accessible. Modern data collection techniques must expand and change to keep up with recent technological advancements. Data collection is the systematic, scientific process of acquiring information on specific topics to analyze the information and subsequently handle problems.

All academic fields, including the humanities, social sciences, physical sciences, and business, require data collection as a necessary component of any study. It must be true and accurate regardless of the method used to collect it, which varies by sector. Any attempt to gather information should be directed at collecting accurate information that can be utilized to conduct in-depth data analysis and create a strong argument in favour of adopting a specific stance.

The fact that data collected is a key component of additional studies and can be done in several different methods should be clear at this point. For instance, we could watch the child, use tools to see how hard they hit something, look at the child's legal history, survey parents and teachers, talk to parents and teachers or give a child a scale to rate aggression to see how aggressive they are.

2.5 Techniques for Data Collection:

This paper aims to introduce students to the several techniques researchers employ while getting data. Investigations are carried out to describe better, explain, and or predict a wide range of events. The original study's ability to draw useful conclusions is very sensitive to the data quality. This paper introduces the many data collection strategies that can be used in social science studies. Taking in information and placing it to use are two sides of the same coin regarding learning. Comprehensive data collection and analysis are essential for solving study issues and providing a solid evaluation of research outcomes. When study outcome is consistent with one another, they are more likely to be accepted as true. A questionnaire is the first step in carrying out any study or investigation. Only from data obtained that reduces the possibility of bias may credible and reasonable conclusions are reached (Sapsford & Jupp, 2006). The methods for collecting primary and secondary data are different since primary data must be collected before secondary data can be compiled. We cover the various data collection methods and their benefits and drawbacks. Once the research problem has been created and properly stated, the research work naturally shifts to data collection.

2.6 Questionnaire Technique:

Data collection questionnaires might take the shape of questions or other prompts presented to participants. The majority of datasets are already structured, which simplifies statistical analysis. There is widespread agreement that Sir Francis Galton was the first to use a questionnaire (1822 - 1911). Suppose you need to learn how to conduct a survey. In that case, a questionnaire may be the best option because it is cheap, easy to distribute (unlike verbal or telephone surveys), and provides standardized answers that simplify data collection. As surveys in their own right, questionnaires are vulnerable to the same influences from question wording and organization as other survey methods. Types: The questions asked in a survey can be divided into two categories: those that assess independent variables and those that combine the results of several questions into a single composite score.

The former is more common in surveys, while the latter is more common in tests. Data can be gathered with the help of the questionnaire. Questions concerning the topic should be the starting point for any information-gathering effort. Individuals in the sample may be addressed in person or sent a questionnaire. The questionnaires are shipped out to respondents, and the responses are sent back in the same format. We will be able to do more research on this topic now that we have this questionnaire's findings. An essential aspect of every survey or study is a questionnaire, defined as "a data gathering device that elicits from a responder the responses or reactions to printed questions presented in a present order" (Schvaneveltd, 1992). Questionnaires are frequently used as the main data collection tool for surveys. Investigators who care about the quality of their data should consider the questions they formulate and the factors they use in surveys. The plan's end goal is to collect reliable data that can be used to learn more about the problem and put various explanations to the test. You should understand the topic much better now that you have read this. So, before deciding on the topics for the survey, the researcher needs to perform an extensive reading in the relevant fields.

Despite the mostly good responses, cover letters can sometimes make or break the credibility of your research. From the introduction, we learn who conducted the study and why. It is suggested that questionnaires be written in the first person and addressed directly to the respondent. More people will feel comfortable sharing information if they understand why, you need it. Please include a note of thanks and reassurance that the respondent's privacy will be protected to thank them for their time and that their answers will be kept confidential.

If respondents are assured of anonymity, they are more likely to answer questionnaires on their initiative. Stop placing respondents on the spot when designing a questionnaire. The survey's opening questions should be broad in scope but still, get at the data points that matter. It could be used as a template for your questionnaire. The scope of these inquiries could be broad or narrow.

The first 10 questions, for instance, are great for answering worries about the school's contents. In a survey, what sorts of questions should be asked? When it comes to this, opinions are divided. Every possible variant has its own set of benefits and drawbacks. If you ask Numen (1997), "the key question is not whatever shape is best".

Instead, it is the circumstances in which particular forms excel that should be highlighted. The best questions to pose in a study depend on a number of factors, including the research topic, the study population, etc. Open-ended questions and closed-ended questions are the two most common types of questionnaires:

Open Ended Questions: Respondents are more inclined to share their thoughts when asked an open-ended question. Participants are invited to share their thoughts from their unique perspectives. Open-ended questions are those posed by one party to another in which there is no predefined correct response. When conducting surveys, it is better to use open-ended questions so that respondents can provide in-depth comments highlighting their unique knowledge, expertise, and experiences. There is no correct conclusion to draw from the consideration of this subject. Responses to open-ended inquiries are more detailed and uninhibited. Open-ended inquiries are stronger and more accurate in contrast to their closed-ended equivalents. For example: Where is my wallet?

Close-ended Questions: Using closed-ended questions is typically more cost-effective when many respondents need to be surveyed. The investigator and their support staff can both benefit from this clarity. The survey is structured as yes/no questions, which could distort the results. When conducting interviews, additional questions might be asked to fill in the blanks left by the survey. Even the investigator needs help to choose the optimal action when confronted with a research question.

Constraints on one's freedom of action make it more difficult to accomplish one's goals. Due to too much data, respondents may be unable to provide accurate answers. When there is just one right way to answer a question, only that answer needs to be offered. When surveying with a restricted number of possible responses, close-ended questions and their variants are indispensable. All future survey and questionnaire data analysis methods build off these core techniques. For example: How can we improve your experience?

Characteristics of a Good Questionnaire:

- Pertains to a key subject.
- Only looks for information that still needs to be made available.
- The lowest amount of time, just enough to gather the data needed.
- Attractive, properly organized, and effectively printed or duplicated.
- The directions are clear and precise.
- Questions are simple and in no way suggest the desired response.
- The order of the questions, with more specific answers after more broad ones, makes physiological sense.
- Easier to calculate and interpret.

2.7 Interview Schedule:

A subject matter expert's thoughts, feelings, and opinions are observed and documented during an interview. More detailed information must be provided in the responses. This provides a deeper understanding of social issues than statistical approaches like surveys and questionnaires. Moreover, interviews are useful for acquiring data when a study addresses more delicate subjects about which the participants might feel uncomfortable speaking openly in a group setting (Gill, Stewart, Treasure, & Chadwick, 2008).

One of the most important methods for gathering data is the interview, which involves discussions between the subject and the researcher. Interviews are commonly employed in survey designs, descriptive and exploratory research, and both. Interviews can be conducted in various ways, from completely unstructured ones, where the subject is only allowed to react to direct questions, to ones that are tightly planned, where the subject is free to discuss anything (Fox, N. 2009).

People's experiences, as well as their underlying attitudes, convictions, and perceptions of reality, are frequently learned through interviews. Based on their structure, interviews can be split into three categories: structured interviews, semi-structured interviews, and interview data (Fontana & Frey, 2005). In social research, primary data can be gathered using various techniques. The two methods that are used the most frequently are interviews and a set schedule. They are related since interview techniques often follow set schedules and need time. An interview is a conversation where someone answers questions about themselves for a newspaper article, television program, or study.

In order to record any thoughts or comments, the investigator must penetrate the interviewer's environment. An *interview schedule* is a list containing structured questions that have been prepared to guide interviewers, researchers, and investigators in collecting information or data about a specific topic or issue. The interviewer will use the schedule, who will fill in the questions with the answers received during the interview. The structure and content of the interview questions will determine the range and flexibility of a subject's response. While some interviews aim to obtain direct, concise responses, others invite in-depth, extended comments. Organized, semi-structured, or unstructured interviews are the three types of interviews. Three types are feasible: structured, semi-structured, and unstructured. The level of structure employed in an interview will differ wildly.

2.7.1 Structured Interviews:

The interviewer can use a prepared interview to ask each participant the same questions in the same manner. It typically employs a quantitative approach to data processing and involves a carefully planned series of questions, much like a questionnaire. Many structured interviews not only have prepared questions and a range of possible responses. Pre-coded answers are necessary to allow for comparisons among all respondents. Each response is often noted or recorded on a questionnaire. Reduce the number of open-ended questions so that computer-processable data may be used for coding and content analysis more frequently and quickly.

A method of interviewing candidates in which an identical set of questions is asked of each one of them. A grading scale based on a candidate's responses is widely used in structured interviews. Studies claim that a structured interview's three most crucial elements are "employment, uniformity of the procedure, and organized usage of the data to evaluate the candidate" (Macan, 2009). Structured interviews of research scientists are with a specified location and predefined format. It seeks to ask identical questions to all respondents in the same order. Since there are often few options available to respondents, the interview is also known as a directed interview. Closed-ended, pre-coded, or fixed-choice questions are used in structured interviews.

2.7.2 Semi-Structured Interviews:

A question-and-answer session is a two-person encounter that occurs on a particular day in which one person serves as the interviewer and the other as the interviewee. Hence, a discussion between two persons about a topic or issue that interests them is an interview (Kvale, 1996). Despite having prepared themes or questions, semi-structured interviews differ from structured interviews because they are built around open-ended rather than closed-ended inquiries. Semi-structured interviews can be useful when more information is needed to produce a list of probable pre-codes or when many attitudes need to be acquired.

Semi-structured interviews take longer to complete than structured interviews due to the necessity for coding frames and the in-depth analysis of each session's content. The interviewer can choose to record the answers verbatim or on tape. Semi-structured interviews are a popular type of study design in the social sciences. The Hyman et al. (1954) semi-structured interview study, which Magaldi (2020) refers to as an "exploratory interview," is a widely used method in social science research. They continue by adding that all interview types—semi-structured, structured, and unstructured—frequently rely on a guide and are often centered on a primary issue that displays several patterns. Semi-structured interviews can be quite helpful for gathering a lot of attitudinal data when performing an investigative study or when there is not enough information to generate a list of potential which was before. However, since more effort must be made before comparing subject responses—which may occasionally be contradictory—interview data from open questions is more challenging to comprehend than interview data from closed questions. Semi-structured interviews that have undergone meticulous planning and execution are the outcome. After careful planning and preparation, the program must be implemented, and the interviews must be evaluated.

2.7.3 Unstructured Interviews:

Unstructured interviews, often known as qualitative interviews, are given that moniker because they have so little framework. In response to the interviewee's opening statement, the interviewer formulates follow-up questions to concentrate the discussion on a few, potentially only one or two themes. Despite the few topics covered, each one is carefully examined. Since the respondents' opinions are neither computed nor kept, it is essential to employ an analysis approach created expressly for in-depth interviews. To present a "rich picture," the case will be carefully studied through in-depth interviews with all relevant parties.

Unstructured interviews are a way to comprehend people's complicated behavior without using any a priori classification that would limit the area of the investigation (Punch, 1998). Since unstructured interviews often occur as a component of ongoing participant observation investigations, Patton (2002) recognized them as a logical step forward from classroom observations. He stated that they completely rely on the conversation topics that naturally keep coming up. Unstructured interviews are frequently utilized in this capacity despite a vast body of evidence suggesting they could be more effective. We looked at objections to the validity of unstructured interviews and the characteristics of unstructured interviews that lead to subpar prediction accuracy.

2.8 Observation Method:

In the social sciences, observation is a vital and accessible research method. The decision must be appropriate for the research topic and the scientific setting because the phrase contains several methods, tactics, and approaches that may be challenging to compare in terms of execution and desired outcomes. Most people base their daily social relationships on carefully observing the behaviours and surroundings of others. We observe encounters, assess them, judge them, and provide commentary. Observation is the detailed portrayal of events, behaviours, and objects in the social context chosen for the investigation (Marshall &Rossman, 1989).

The researcher can use the observational technique to summarise the situation by employing the five senses to explain the conditions (Erlandson, Harris, Skipper, & Allen, 1993). The researcher monitors participant behavior and study results. In order to thoroughly understand the incident under inquiry most objectively and accurately possible, the researcher employs the observational approach (De Walt & De Walt, 2002). Given the scientific approach's status, the observation should be conducted with attention, calm, and based on science, even though curiosity and interest may still be some of its most important components. The researcher can observe how students interact, keep an eye out for emotional and nonverbal cues, examine their conversational patterns, and monitor how much time they spend on various tasks using the observational technique (Schmuck, 1997). One of its characteristics is the impact of research questions on observations. The observations are, therefore, purposeful and intentional. The data are analysed using both quantitative and qualitative data analysis techniques. Observations of behaviour are routinely made and frequently recorded using an observation checklist, as opposed to everyday, casual, selective, and frequently incorrect observations.

2.9 Case Study Method:

Case studies give you a chance to research subjects in-depth and descriptively. Many concepts, including people, businesses, and industry sectors, are represented when there are few locations. They assist the researcher in creating a realistic setting that will permit an in-depth investigation by participating in participant interviews and seeing what transpires there. It is an empirical study that can examine various real-world situations where it is challenging to discern between them, and a thorough investigation is also required. Avoid making last-minute, hurried visits to finish this challenging assignment. For instance, psychologists frequently use the important information learned from these types of treatments to learn about the lives of their patients in order to choose the best course of action for treating their patients' problems (Frechtling, 2002; Taherdoost, 2021). Using the case study data-gathering method, individual entities or instances are described in depth, organized, evaluated, and presented narratively. In essence, the case study report is a narrative. A single person, family, society, workplace, class, school, organization, program, or any other institution could be the subject of the case. The first six months of a new supervisor's employment, the employees' reactions to their company being acquired by another company, or the community's response to a natural disaster are a few examples of social or natural events that could be the focus of a case study. It is used to collect data in various fields, including sociology, anthropology, psychology, education, and medicine, and it has a lot to offer in the way of important advancements. A full understanding of factors, events, and challenges is made possible by case studies through in-depth viewpoints and observation. Swiss developmental psychologist Jean Piaget conducted two studies before formulating his theories, one of which involved his children (Liebert, Poulos, & Strauss, 1974). Case studies can be used to examine the majority of public, corporate, social, and educational efforts. Government case studies, for instance, can be used to demonstrate how closely programe operations align with legislative objectives. Decision-makers will benefit from in-depth case studies explaining challenging initiatives' procedures and outcomes (Patton, 2002). Using case studies to learn more and fully comprehend the researched topics is a cutting-edge and exciting strategy used by specialists in quality management. They are highly adaptable and can be used for various technology-related jobs, from perfecting training curricula to conducting in-depth research. Last but not least, narrative or story-like case study articles have a large readership and are quite effective in influencing readers' perceptions.

2.10 Conclusion:

This paper examines in depth the various methods of data gathering, the typical problems that arise, and the ethical protections that must be in place before proceeding. Data collection techniques were connected directly, including questionnaires, interviews, observations, surveys, and case studies. Recent developments in research tools are discussed here. The definitions of primary and secondary data and qualitative and quantitative data have been presented, and several approaches to data collecting have been detailed. Some techniques that have been examined include in-depth interviews, focus groups, questionnaires and schedules, case studies, field research, oral traditions, and forecasts. The more you know about the various data collection methods, the more likely you are to pick one appropriate for your programme's budget, timeline, and study goals. Integrating data

from many sources allows for a complete picture and better strategic decisions. As an outcome, data collecting is becoming an integral part of modern research across many fields. While it is beneficial for investigators to be aware of data collection processes, even seasoned pros may need help to catch up on these techniques. The potential issues with data collecting and their solutions were discussed at that discussion. Ethical considerations, potential problems, and paper requirements were all looked into and discussed with the appropriate authorities for data collection in social science research.

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