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THE SIGNIFICANCE OF DATA COLLECTION IN WRITING A RESEARCH PAPER

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ABSTRACT: - Data collecting, which enables the researcher to discover answers to research questions, is one of the key phases in a research study. Data collection is the process of gathering information to learn more about the research issue. Various data types correspond to various data collection techniques. However, based on the type of data that will be utilized in the research, it may be difficult for researchers to choose the best type of data collection. This article tries to give a thorough source on data gathering techniques, including outlining the procedure and going over the major categories of data.

KEY WORDS: - Qualitative data, quantitative data, survey, checklists, interview, primary data, secondary data.

INTRODUCTION

Data collection refers to various techniques for gathering information about particular study variables to use in the data analysis phase in order to produce study results, find the answers to research questions, or test hypotheses.

The quality of obtaining results can be impacted by the data-gathering stage of a research study because it reduces the possibility of errors that could come later in the process. Due to the fact that incomplete and incorrect information makes it impossible to guarantee the accuracy of the findings, a strong study design should be combined with lots of quality time spent on data collection to produce acceptable results (Kabir, 2016). On the other hand, while an appropriate data collection strategy aids in the planning of sound research, it cannot always ensure the project's ultimate success (Olsen, 2012).

Data types

The type of data needed for the study should be established prior to choosing a data-gathering technique (Kabir, 2016). This section seeks to give a brief overview of potential data types before exploring various data collection techniques and sources depending on these categories. But first, we must define what data actually is. Data is the actualized information in the form of numbers or facts that is used to analyze for various calculations and ultimately provide a conclusion to answer the study's question or perform a hypothesis test (Hurrel, 2005). Different methods, including quantitative and qualitative ones, can be used to categorize data.

Qualitative data

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The term "qualitative data in words or sentences format" refers to both nominal and descriptive non-numerical data that cannot be represented as numbers. When used to address "how and why" questions in a research project, this type of data mostly consists of information about feelings, perceptions, and emotions and is gathered using unstructured methods like interviews. To collect this information, researchers employ a variety of techniques, including audiotapes, sketches, notes, and photographs.

Although qualitative data can be useful for obtaining additional details to explore and ascertain new effects and consequences of programs on the research, and ultimately improve the quality of quantitative results, its implementation requires investing a significant amount of money and time, and the results might not be generalizable. It implies that the results of case studies may only be applied to the same problems as the broad trends for many studies. Observations, document reviews, and in-depth interviews are the three primary types of qualitative procedures, however, there are other, less popular approaches to collecting qualitative data.

Quantitative data

Quantitative data is defined as numerical data that is produced and computed mathematically. Quantitative data can be measured using a variety of scales, including nominal, ordinal, interval, and ratio scales (Kabir, 2016). Scales can also be divided into two main categories, "Rating Scales and Attitude Scales." To evaluate the points or categories, rating scales give them a numerical value. The propensity of people toward any person, phenomenon, or object can be assessed using attitude scales, which are more sophisticated methodologies (Taherdoost, 2016b). The "what" inquiry type is dealt with via a qualitative approach in a study. These strategies rely on random sampling and structured data collection techniques.

These techniques are thought to be less expensive than qualitative ones, and the results can be standardized to produce different outcomes based on factors like size. The results are also easily generalized and condensed. It is also possible to compare the results in a straightforward manner. Nevertheless, due to their limitations in terms of execution and research capacity, these approaches can potentially encounter unanticipated variations and some challenges.

Data collection methods

Primary data collecting techniques and Secondary data collection methods are the two basic categories into which data collection methods are typically categorized.

Primary data is unpublished material that was obtained directly from a source and has not been altered by anyone. In other words, researchers employ a variety of techniques to obtain and compile primary data for a certain objective. As a result, primary data have higher levels of validity, trustworthiness, objectivity, and authenticity than secondary data kinds.

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When data is collected from published sources, it is considered secondary data because it has previously been collected for another reason and can be used for other research reasons. The literature review component of every publication draws on secondary data sources. Therefore, secondary data is a crucial component of research that can assist in gathering data from earlier studies as a foundation for carrying out a research project or as the necessary background data. The design of a study and the provision of a baseline for contrasting primary outcomes can also be helpful. It should be mentioned, nonetheless, that for genuine results, researchers need to reevaluate the accuracy and dependability of these backdrops.

Qualitative Data Gathering Methods

Qualitative data are narrative; in other words, the data are words. These "words" could be found in the form of journal entries, observational notes, audio or video tape transcriptions, interview transcripts, or existing documents, records, or reports. Although they may be gathered in a variety of ways, it's crucial to keep in mind that the final qualitative data will always be made up of descriptive, narrative narratives.

Observations

We observe and take notice of the environment around us continually as humans. Additionally, we teachers are always observing our students. When gathering qualitative data, observations entail paying close attention to and methodically documenting what is happening in a specific situation (Schmuck, 1997).

Structured observations frequently ask for the observer to do nothing except watch, usually in search of particular actions, responses, or interactions. It is frequently challenging to carry out systematic observations because there are so many other things going on in a given classroom at the time. Classroom-based action research should only be conducted to improve and enlighten your teaching, never to the detriment of it (Hubbard & Power, 2003; Johnson, 2008). The teacher-researcher has more freedom during unstructured or semi-structured observations to attend to other things happening in the classroom at the same time or to engage in quick but intense periods of observation and note-taking (Hubbard & Power, 2003).

Interviews

Direct questioning of individuals is an alternative to watching them in action. There are various ways to do this. Interviews are talks in which the teacher-researcher asks questions of the study participants (Schmuck, 1997). One can interview an individual or a group of people. Prior to doing any interviews, it is best to develop an interview guide with either particular or general questions to ask.

Journals

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Both teachers and students are allowed to keep data journals, which offer insightful details on the operations of a classroom (Mills, 2007). Student journals give teachers information that is somewhat like homework in that they may get a feel of the everyday ideas, perceptions, and experiences that students have in the classroom. Similar to student journals, teacher journals can give teacher-researchers the chance to keep narrative descriptions of their professional thoughts on practice. They genuinely turn into teachers' continual efforts "to methodically reflect on their practice by building a narrative that.

Existing Records and Documents

Action research frequently calls for the collection of pre-existing data. Basically, these data are anything that was gathered for a purpose other than the action research study and are now being used as information for the study. In addition to curriculum materials, textbooks, teaching aids, attendance records, test scores, previous grades, discipline records, cumulative folders, and (at the school or district level) attendance rates, retention rates, graduation rates, newspaper articles about school events, faculty or school board meeting minutes, and standardized test scores, among other things, these existing documents and records may take many different forms.

Quantitative Data Collection Methods

Quantitative information is numerical in contrast to qualitative information. Quantitative data can be thought of as anything that can be counted, calculated, tallied, or rated. This contains both quantifiable items and ratings of one's emotions, attitudes, interests, or views on a scale of some kind. Surveys, questionnaires, checklists, rating scales, tests, and other more formal sorts of measurement equipment are all examples of quantitative data collection procedures.

Survey

The term "survey" refers to a category of quantitative data collection methods where a sample of people are asked a series of questions or given comments. Surveys can be given verbally, in which case they constitute a type of interview even though the results are numerical rather than narrative. They can also be given in writing. Questionnaires are a special type of survey that is used when participants are asked to respond to a series of statements or questions in writing and then send back their answers to the researcher. The teacher-researcher can swiftly obtain a wide range of information using surveys and questionnaires (Johnson, 2008).

Checklists

According to Johnson (2008) and Leedy & Ormrod (2005), a checklist is a collection of behaviors, traits, abilities, or other things that a researcher is interested in examining. The main distinction between a checklist and a survey or rating scale is that, unlike surveys or rating scales, checklists only offer a set of binary response alternatives. Checklists allow the teacher-researcher to simply state if the behavior or trait is noticed or present or not, as opposed to describing the extent, degree, or quantity of something. Compared to surveys and rating scales, checklists are quicker

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for the teacher-researcher to utilize, but the data they provide are not nearly as detailed as those obtained through the use of rating scales.

Tests and other standardized instruments

Tests, whether they are created by teachers for the classroom or are standardized examinations, can also serve as sources of quantitative data. It is crucial to understand that while these "formal" data-collecting tools are regularly given to children as part of classroom instruction and district-level accountability, they would also be regarded as "existing records." Scores on homework assignments and quizzes, as well as final semester or course grades, are additional formal assessment tools that may be used in this context.

CONCLUSION

This article presents an overview of several data-collecting techniques, the difficulties researchers may have when carrying out these procedures, and lastly, the ethical considerations that must be made when collecting data. For this, we first covered the most popular techniques, such as tests, surveys, questionnaires, interviews, and observation.

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