

Nutshell of Quantitative Research

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Primary Research

- Primary research is a methodology used by researchers to collect data directly, rather than depending on data collected from previously done research.
- It involves going directly to a source. Technically, they “own” the data. Primary research is solely carried out to address a certain problem, which requires in-depth analysis.

Secondary Research

- Secondary research involves the summary, collation and/or synthesis of existing research. Secondary research is contrasted with primary research in that primary research involves the generation of data, whereas secondary research uses primary research sources as a source of data for analysis.
- Secondary research is information gathered from previously conducted studies. Secondary research is usually where most research begins

Tertiary Research

- Tertiary sources of information are based on a collection of primary and secondary sources.
- Examples of tertiary sources include: textbooks (sometimes considered as secondary sources) dictionaries and encyclopaedias, manuals, guidebooks, directories, almanacs.
- Tertiary sources are sources that identify and locate primary and secondary sources. These can include bibliographies, indexes, abstracts, encyclopaedias, and other reference resources; available in multiple formats, i.e. some are online, others only in print.

Fundamental Research (Basic or Pure Research)

- It is known as basic or pure research. It is carried out in a laboratory settings or other sterile environment, sometimes with animals.
- This type of research, which has no immediate or planned application, may later result in development of a theory or further research of an applied nature.
- Basic researches involve in the development of theory and generalization of theory.
- Basic research is primarily concerned with the formulation of the theory or a contribution to the existing body of knowledge.

Applied Research

- It aims to solve an immediate practical problem, is referred to as applied research.
- According to Travers, applied research is undertaken to solve an immediate practical problem and the goal of adding to scientific knowledge is secondary.
- Behavior research is based on the large population and its result is more vast. And it also bound to some other formalities.
- Action research is limited to class and school and it is not bound to very strong formalities.

Action Research

- The purpose of action research is to solve classroom problems to resolve the everyday problems of school, to improve the skills of the teachers, for the improvement of educational skill of students through the application of scientific methods. It is concerned with a local problem and is conducted in a local setting.
- The primary goal of action research is the solution of a given problem, not contribution to science.

Descriptive Research

- Descriptive research; it means, where a research attempt to describe systematically a situation, problem, circumstances, phenomenon of people, culture, community, services, programs, etc..
- It is mainly focus on providing information about all the above aspects with every minute and factual details of current event.
- In general we can say that descriptive research where key variables are defined and it uses the methodology of description, recording, analysing, interpretation and explanation of 'what is'. It deals with the phenomena.

Exploratory Research

- Exploratory research is the process of investigating a problem that has not been studied or thoroughly investigated in the past.
- Exploratory type of research is usually conducted to have a better understanding of the existing problem, but usually doesn't lead to a conclusive result

Explanatory Research

- Explanatory Research is conducted for a problem that was not well researched before, demands priorities, generates operational definitions and provides a better-researched model.
- It is actually a type of research design that focuses on explaining the aspects of your study in a detailed manner.

Predictive Research

- The definition of a prediction is a forecast or a prophecy. Predictive research, empirical research concerned with forecasting future events or behavior: the assessment of variables at one point in time so as to predict a phenomenon assessed at a later point in time.
- Predictive analytics involves extracting data from existing data sets with the goal of identifying trends and patterns. These trends and patterns are then used to predict future outcomes and trends.
- Predictive analytics uses historical data to predict future events. Typically, historical data is used to build a mathematical model that captures important trends.

Survey Research

- Survey Research is defined as the process of conducting research using surveys that are sent to survey respondents. The data collected from surveys is then statistically analysed to draw meaningful research conclusions.
- Survey research is often used to assess thoughts, opinions, and feelings. Surveys can be specific and limited, or they can have more global, widespread goals.

Ex-Post Facto Research

- In an ex-post facto research, the researcher finds out the best possible reason that might have led to the occurrence of that disease within the person or the subject. In an ex-post facto research, it is necessary for the researcher to focus on the problem that he or she needs to study.

Correlational Research

- Correlational research is a type of non-experimental research method, in which a researcher measures two variables, understands and assess the statistical relationship between them with no influence from any extraneous variable.
- One purpose for doing correlational research is to determine the degree to which a relationship exists between two or more variables.
- Correlational research designs are incapable of establishing cause-and-effect.

Comparative Research

- Comparative research, simply put, is the act of comparing two or more things with a view to discovering something about one or all of the things being compared.
- This technique often utilizes multiple disciplines in one study.
- The major aim of comparative research is to identify similarities and differences between social entities.
- Comparative research seeks to compare and contrast nations, cultures, societies, and institutions.

Causal-Comparative Research

- In causal-comparative research, the researcher investigates the effect of an independent variable on a dependent variable by comparing two or more.
- A causal-comparative design is a research design that seeks to find relationships between independent and dependent variables after an action or event has already occurred.
- Many similarities exist between causal-comparative research and correlational research.

Cross-Sectional Research

- Cross sectional research is a study in which subjects of different ages are compared at the same time.
- It is often used in developmental psychology, but also utilized in many other areas including social science, education and other branches of science.
- A cross-sectional study (also known as a cross-sectional analysis, transverse study, prevalence study) is a type of observational study that analyses data from a population, or a representative subset, at a specific point in time that is, cross-sectional data.

Experimental Research

- This type of research describes what will be when certain variables are carefully controlled or manipulated.
- The focus is on the relationship between two sets of variables.
- One set of variables is deliberately manipulated (experimental treatment of the independent variable) to examine its impact on another set of variables (dependent variables).
- For example, in one of the experimental studies, a distance education tutor held specially designed contact classes (independent variable or treatment) for a particular group of distance learners and studied its impact on their performance in the university examination (dependent variable).
- The experimental research involved systematic recording of data and scientific analysis later. This type of research leads to developing testable hypotheses, generalizations and predictions. This methodology is derived largely from the physical sciences.

Non-Experimental Research

- Non-experimental research is the label given to a study when a researcher cannot control, manipulate or alter the predictor variable or subjects, but instead, relies on interpretation, observation or interactions to come to a conclusion.

Developmental Research

- The purpose of developmental research is to assess changes over an extended period of time.
- Developmental research is a study focused on the progressive changes that occur as an organism develops.
- Research design is the strategy or blueprint for deciding how to collect and analyse information. Research design dictates which methods are used and how.
- Developmental research designs are techniques used particularly in lifespan development research. When we are trying to describe development and change, the research designs become especially important because we are interested in what changes and what stays the same with age.

Longitudinal Research (Differential Research)

- Longitudinal research involves beginning with a group of people who may be of the same age and background (cohort) and measuring them repeatedly over a long period of time.
- One of the benefits of this type of research is that people can be followed through time and be compared with themselves when they were younger; therefore changes with age over time are measured.
- Longitudinal research designs are used to examine behavior in the same individuals over time.

Trend-Study Research

- A trend is a type of activity that is changing consistently over time. A trend usually involves an increasing number of people doing something increasingly often (or fewer people doing something less often).
- Trend studies gather data from a particular population characterized by a specific variable, such as education level. Learn more in: Survey Research: Methods, Issues, and the Future. Trend studies gather data from a particular population characterized by a specific variable, such as education level.

Panel-Study Research

- Panel studies are a particular design of longitudinal study in which the unit of analysis is followed at specified intervals over a long period, often many years.
- The key feature of panel studies is that they collect repeated measures from the same sample at different points in time.
- Panel research is a method for collecting data repeatedly, from a pre-recruited set of people.

Retrospective Research

- A retrospective study looks backwards and examines exposures to suspected risk or protection factors in relation to an outcome that is established at the start of the study.
- There are two types of retrospective study: a case–control study and a retrospective cohort study.
- A retrospective study design allows the investigator to formulate hypotheses about possible associations between an outcome and an exposure and to further investigate the potential relationships.

Prospective Research

- A prospective study watches for outcomes, such as the development of a disease, during the study period and relates this to other factors such as suspected risk.
- In prospective studies, individuals are followed over time and data about them is collected as their characteristics or circumstances change.

Analytical Research

- To see critically already available facts or information or a critical evaluation of existing facts, knowledge.
- Analytical Research: The distinction between descriptive and analytical research is based on the question it asks.
- Descriptive research attempts to determine, describe, or identify what is, while analytical research attempts to establish why it is that way or how it came to be.

Conceptual Research

- It is related to some abstract idea or theory .It is generally use by philosophers, and thinkers to develop new concepts or reinterpret existing one.
- Conceptual research is defined as a methodology wherein research is conducted by observing and analysing already present information on a given topic.
- Conceptual research doesn't involve conducting any practical experiments. It is related to abstract concepts or ideas.

Empirical Research

- It means evidence or it depends on experience or observation of individual.
- Empirical research is a type of research methodology that makes use of verifiable evidence in order to arrive at research outcomes.
- In other words, this type of research relies solely on evidence obtained through observation or scientific data collection methods.

Policy-Oriented Research

- Policy-oriented research is designed to inform or understand one or more aspects of the public and social policy process, including decision making and policy formulation, implementation, and evaluation.
- A problem-solving model assumes that research follows policy and that policy issues shape research priorities.

Ethical Research

- Research ethics govern the standards of conduct for scientific researchers.
- It is important to adhere to ethical principles in order to protect the dignity, rights and welfare of research participants.
- Discussion of the ethical principles of beneficence, justice and autonomy are central to ethical review.
- PRINCIPLE ONE: Minimising the risk of harm.
- PRINCIPLE TWO: Obtaining informed consent.
- PRINCIPLE THREE: Protecting anonymity and confidentiality.
- PRINCIPLE FOUR: Avoiding deceptive practices.
- PRINCIPLE FIVE: Providing the right to withdraw.

Inductive Research

- Inductive reasoning works the other way, moving from specific observations to broader generalizations and theories.
- Informally, we sometimes call this a “bottom up” approach (please note that it’s “bottom up” and not “bottoms up” which is the kind of thing the bartender says to customers when he’s trying to close for the night!).
- In inductive reasoning, we begin with specific observations and measures, begin to detect patterns and regularities, formulate some tentative hypotheses that we can explore, and finally end up developing some general conclusions or theories.

Deductive Research

- Deductive reasoning works from the more general to the more specific. Sometimes this is informally called a “top-down” approach.
- We might begin with thinking up a theory about our topic of interest.
- We then narrow that down into more specific hypotheses that we can test. We narrow down even further when we collect observations to address the hypotheses.
- This ultimately leads us to be able to test the hypotheses with specific data a confirmation (or not) of our original theories.

Clinical Research (Diagnostic Research)

- These research follows case study methods or in depth approaches to reach the basic cause and effect relations.
- Clinical research is a branch of healthcare science that determines the safety and effectiveness (efficacy) of medications, devices, diagnostic products and treatment regimens intended for human use.
- These may be used for prevention, treatment, diagnosis or for relieving symptoms of a disease.

Field Research

- Field research is defined as a qualitative method of data collection that aims to observe, interact and understand people while they are in a natural environment.
- For example, nature conservationists observe behavior of animals in their natural surroundings and the way they react to certain scenarios

Laboratory Research

- laboratory study (*LA-bruh-tor-ee STUH-dee*) Research done in a laboratory.
- A laboratory study may use special equipment and cells or animals to find out if a drug, procedure, or treatment is likely to be useful in humans.
- It may also be a part of a clinical trial, such as when blood or other samples are collected.

Simulation Research

- A simulation is a computer model in which experiments can be conducted, creating a higher level of completeness than a normal experiment.
- Simulation models can assist in both complex and simple experiments, and they can be used with almost any social process.

Theory-Testing Research

- Theory-testing with cases is the process of ascertaining whether the empirical evidence in a case or in a sample of cases either supports or does not support a given theory.
- The sample case study is a strategy for testing this type of proposition.

Theory-Building Research

- First, theory-building research carefully defines concepts, states the domain, explains how and why relationships exist, and then predicts the occurrence of specific phenomena. After the prediction, it typically gathers evidence to see if the phenomena occurs.

Quantitative Approach (Structured Approach)

- It is based on measurement of quantity or amount or numbers.
- It is a quantitative phenomenon .It is top down approach means from general to practical.
- It establish cause and effect relationships. It strives for generalizations.
- It depends on numerical evidence means it focuses on numbers or data or one reality or narrow area.
- The structured approach to inquiry is usually classified as quantitative research.

References

- <https://scholar.google.com/>
- <https://www.researchgate.net/>

Thank you