

1. UNIT 1 RESEARCH

Definitions

Research purifies human life and improves its quality. It is a search for knowledge scientifically and systematically as well. In other words, it is a scientific and systematic search for pertinent information on a specific topic. Accordingly, it is the voyage of discovery and the quest for answers to unsolved problems.

According to dictionaries:

The Advanced Learner's Dictionary of Current English:

“Research is a careful investigation or inquiry especially through search for new facts in any branch of knowledge.”

the Encyclopaedia of Social Sciences:

“ Research is the manipulation of things, concepts or symbols for the purpose of generalising to extend, correct or verify knowledge, whether that knowledge aids in construction of theory or in the practice of an art.”

c) Merriam Webster:

“Research is a studious inquiry or examination especially an investigation or experimentation aimed at the discovery and interpretation of facts, revision of accepted theories or laws in the light of new facts, or practical application of such new or revised theories or laws.”

d) Oxford Dictionary:

“Research is the systematic investigation into and study of materials and sources in order to establish facts and reach new conclusions.”

Synonyms: investigation, study, inquiry, analysis

- According to some scholars:

There are several definitions of research, proposed by famous authors and scholars of their time. In fact, the basic meaning and the context of these definitions are same. The difference lies only in the way the author has undertaken research in his discipline.

a) According to Shuttleworth (2008),

“The definition of research includes any gathering of data, information and facts for the advancement of knowledge.”

b) According to Creswell (2008),

“Research is a process of steps used to collect and analyze information to increase our understanding of a topic or issue”.

(It consists of three steps: Pose a question, collect data to answer the question, and present an answer to the question.)

c) According to Mouly

"Research is the systematic and scholarly application of the scientific method interpreted in its broadest sense, to the solution of social [...] problems; conversely, any systematic study designed to promote the development of social studies as a science can be considered research”.

d) According to Leeds (1980)

“Research is the manner in which we solve knotty problems in an attempt to push back the frontiers of human ignorance. Research is ultimately a way of thinking. It is a way of looking at accumulated fact so that a collection of data speaks to the mind of the researcher”.

e) According to Cornell

“To be sure the best research is that which is reliable, verifiable, and exhaustive, so that it provides information in which we have confidence. The main point here is that research is, literally speaking, a kind of human behaviour, an activity in which people engage”.

OBJECTIVES OF RESEARCH

The purpose of research is to discover answers to questions through the application of scientific procedures.

The main aim of research is to find out the truth which is hidden and which has not been discovered as yet.

Though each research study has its own specific purpose, we may think of research objectives as falling into a number of following broad groupings:

1. To gain familiarity with a phenomenon or to achieve new insights into it (studies with this object in view are termed as exploratory or formative research studies);

2. To portray accurately the characteristics of a particular individual, situation or a group (studies with this object in view are known as descriptive research studies);
3. To determine the frequency with which something occurs or with which it is associated with something else (studies with this object in view are known as diagnostic research studies);
4. To test a hypothesis of a causal relationship between variables (such studies are known as hypothesis-testing research studies).

A research objective is a clear, concise, declarative statement, which provides direction to investigate the variables under the study. 10. Research objective should be RELEVANT, FEASIBLE, LOGICAL, OBSERVABLE, UNEQUIVOCAL & MEASURABLE. ... The objective of research project summarizes what is to be achieved by the study.

MOTIVATION IN RESEARCH

What makes people to undertake research? This is a question of fundamental importance. The possible motives for doing research may be either one or more of the following:

1. Desire to get a research degree along with its consequential benefits;
2. Desire to face the challenge in solving the unsolved problems, i.e., concern over practical problems initiates research;
3. Desire to get intellectual joy of doing some creative work;
4. Desire to be of service to society;
5. Desire to get respectability.
6. Directives of government,
7. Employment conditions, curiosity about new things,
8. Desire to understand causal relationships, social thinking and awakening

However, this is not an exhaustive list of factors motivating people to undertake research studies.

Many more factors such as directives of government, employment conditions, curiosity about new things, desire to understand causal relationships, social thinking and awakening, and the like may as well motivate (or at times compel) people to perform research operations.

Research has its special significance in solving various operational and planning problems of business and industry. Operations research and market research, along with motivational research, are considered crucial and their results assist, in more than one way, in taking business decisions.

Market research is the investigation of the structure and development of a market for the purpose of formulating efficient policies for purchasing, production and sales. Operations research refers to the application of mathematical, logical and analytical techniques to the solution of business problems of cost minimization or of profit maximization or what can be termed as optimization problems.

the problem of finding the best solution from all feasible solutions

Market research= The process of gathering, analyzing and interpreting information about a market, about a product or service to be offered for sale in that market, and about the past, present and potential customers for the product or service; research into the characteristics, spending habits, location and needs of your business's target market, the industry as a whole, and the particular competitors you face

Motivational research of determining why people behave as they do is mainly concerned with market characteristics. In other words, it is concerned with the determination of motivations underlying the consumer (market) behaviour.

Significant=important

Research is equally important for social scientists in studying social relationships and in seeking answers to various social problems. It provides the intellectual satisfaction of knowing a few things just for the sake of knowledge and also has practical utility for the social scientist to know for the sake of being able to do something better or in a more efficient manner.

Research in social sciences is concerned both with knowledge for its own sake and with knowledge for what it can contribute to practical concerns. This double emphasis is perhaps especially appropriate in the case of social science. On the one hand, its responsibility as a science is to develop a body of principles that make possible the understanding and prediction of the whole range of human interactions.

On the other hand, because of its social orientation, it is increasingly being looked to for practical guidance in solving immediate problems of human relations

the significance of research can also be understood keeping in view the following points:

To those students who are to write a master's or Ph.D. thesis, research may mean a careerism or a way to attain a high position in the social structure;

To professionals in research methodology, research may mean a source of livelihood;

To philosophers and thinkers, research may mean the outlet/opening for new ideas and insights;

To literary men and women, research may mean the development of new styles and creative work;

To analysts and intellectuals, research may mean the generalisations of new theories.

research is the fountain of knowledge for the sake of knowledge and an important source of providing guidelines for solving different business, governmental and social problems. It is a sort of formal training which enables one to understand the new developments in one's field in a better way.

General Characteristics of Research

Cook has emphasised the following characteristics of research in his description:

- It is an honest and exhaustive process.
- The facts are studied with understanding.
- The facts are discovered in the light of a problem. Research is problem- centred.
- The findings are valid and verifiable.
- Research work should contribute new knowledge in that field (Cited in Singh, 2006).

Leedy has insisted on that research has many discrete characteristics. These characteristics comprise the particular approach to a probing for truth. These latter include the following:

Research begins with a question in the mind of the researcher.

Research demands the identification of a problem, stated in clear, unambiguous terms.

Research requires a plan.

Research deals with the main problem through appropriate sub-problems.

Research seeks direction through appropriate hypotheses and is based upon obvious assumption.

Research deals with facts.

Research is circular (Cited in Leeds, 1980).

The following characteristics may be gathered from the definitions of “research”:

- It gathers new knowledge or data from primary or first-hand sources.
- It places emphasis upon the discovery of general principles.
- It is an extent systematic and accurate investigation.
- It uses certain valid data gathering devices.
- It is logical and exact.
- The researcher eliminates personal feelings and preferences.
- Research is patient and unhurried activity
- Research is carefully recorded and reported.
- Conclusions and generalisations are arrived at carefully and cautiously (Singh,2006).

Criteria of Good Research

Whatever may be the types of research works and studies, one thing that is important is that they all meet on the common ground of scientific method employed by them. One expects scientific research to satisfy the following criteria:

- 1 The purpose of the research should be clearly defined and common concepts be used.
- 2 The research procedure used should be described in sufficient detail to permit another researcher to repeat the research for further advancement, keeping the continuity of what has already been attained.
- 3 The procedural design of the research should be carefully planned to yield results that are as objective as possible.
- 4 The researcher should report with complete frankness, flaws in procedural design and estimate their effects upon the findings.
- 5 The analysis of data should be sufficiently adequate to reveal its significance and the methods of analysis used should be appropriate. The validity and reliability of the data should be checked carefully.

6 Conclusions should be confined to those justified by the data of the research and limited to those for which the data provide an adequate basis.

7 Greater confidence in research is warranted if the researcher is experienced, has a good reputation in research and is a person of integrity.

In addition, a good research should be:

1. systematic: It means that research proceeds through a series of steps and stages to be taken in specified sequence in accordance with the well-defined set of rules. It follows a logical flow which must be understood by the researcher.

2. logical: This implies that research is guided by the rules of logical reasoning and the logical process of induction and deduction are of great value in carrying out research. In fact, logical reasoning makes research more meaningful in the context of decision making.

3. replicable: This characteristic allows research results to be verified by replicating the study and thereby building a sound basis for decisions (Kothari, 1990).

Moreover, a good research should be:

accurate: Research emphasizes the importance of correspondence between what is said, what is observed and what has actually occurred.

precise: A research aims at estimating the exact amount of the event that has occurred or may yet to occur.

recorded Observations must be recorded. It is necessary to document observations with the aid of instruments like questionnaires, tape recorders for interviews.

objective: One's observations must not be influenced by personal preferences, prejudices, biases, attitudes and feelings. Subjective influences may take place especially when dealing with human behavior.

Types of Research

The basic types of research are as follows:

(i) Descriptive vs. Analytical: Descriptive research is a type of research that describes a population, situation, or phenomenon that is being studied. It focuses on answering the how, what, when, and where questions of a research problem, rather than the why. Descriptive research includes surveys and fact-finding enquiries of different kinds.

The major purpose of descriptive research is description of the state of affairs as it exists at present.

In social science and business research we quite often use the term Ex post facto research for descriptive research studies.

* The main characteristic of this method is that the researcher has no control over the variables; he can only report what has happened or what is happening. Most ex post facto research projects are used for descriptive studies in which the researcher seeks to measure such items as, for example, frequency of shopping, preferences of people, or similar data.

Ex post facto studies also include attempts by researchers to discover causes even when they cannot control the variables. The methods of research utilized in descriptive research are survey methods of all kinds, including comparative and correlational methods.

In analytical research, on the other hand, the researcher has to use facts or information already available, and analyze them to make a critical evaluation of the material.

Analytical research is a specific type of research that involves critical thinking skills and the evaluation of facts and information relative to the research being conducted. A variety of people including students, doctors and psychologists use analytical research during studies to find the most relevant information.

Descriptive vs. Analytical Research Analytical research focuses on understanding the cause-effect relationships between two or more variables. In analytical research, the researcher tries to explain the reasons why and how the trade deficit has moved in a specific direction within the given time.

(ii) Applied vs. Fundamental: Research can either be applied (or action) research or fundamental (to basic or pure) research.

Applied research aims at finding a solution for an immediate problem facing a society or an industrial/business organisation, whereas fundamental research is mainly concerned with generalisations and with the formulation of a theory.

* "Gathering knowledge for knowledge's sake is termed 'pure' or 'basic' research."

* Research concerning some natural phenomenon or relating to pure mathematics are examples of fundamental research.

* Similarly, research studies, concerning human behaviour carried on with a view to make generalisations about human behaviour, are also examples of fundamental research, but research aimed at certain conclusions (say, a solution) facing a concrete social or business problem is an example of applied research.

Research to identify social, economic or political trends that may affect a particular institution or the copy research (research to find out whether certain communications will be read and understood) or the marketing research or evaluation research are examples of applied research.

Thus, the central aim of applied research is to discover a solution for some pressing practical problem, whereas basic research is directed towards finding information that has a broad base of applications and thus, adds to the already existing organized body of scientific knowledge.

Characteristics of Applied Research

Focuses on specific practical goals and immediate applications.

Addresses practical issues faced by industries, organizations, or communities.

Utilizes existing theories and knowledge to create practical solutions.

Emphasizes collaboration with stakeholders and application of findings.

Methodology in Applied Research

Employs various research methods, including surveys, experiments, case studies, and field observations.

Focuses on gathering data directly from real-world settings.

Emphasizes practicality, relevance, and the applicability of findings.

Prioritizes problem-solving and practical outcomes.

Examples of Applied Research Studies

Evaluating the effectiveness of a new teaching method in improving student performance.

Investigating the impact of new drug treatment on patient outcomes.

Analyzing consumer behavior and preferences to inform marketing strategies.

Characteristics of Fundamental Research

Focuses on theoretical concepts and fundamental principles.

Seeks to explore and discover new knowledge.

Explores uncharted areas of study and expands the boundaries of understanding.

Often needs immediate practical applications but provides a foundation for future research and innovation.

Methodology in Fundamental Research

Emphasizes theoretical frameworks and hypothesis testing.

Focuses on controlled experiments, theoretical modeling, and data analysis.

Prioritizes scientific rigor, reproducibility, and unbiased inquiry.

Seeks to contribute to the existing body of knowledge.

Examples of Fundamental Research Studies:

Investigating the nature of black holes in astrophysics.

Studying the genetic basis of a specific disease without immediate treatment implications.

Exploring the principles of quantum mechanics and their implications for future technologies.

Understanding the Difference: Applied vs. Fundamental Research

Applied Research focuses on practical problem-solving, while Fundamental Research seeks to expand theoretical understanding.

Applied Research addresses specific issues in real-world settings, while Fundamental Research explores broader concepts and phenomena.

Applied Research emphasizes immediate applications, while Fundamental Research contributes to the long-term foundation of knowledge.

(iii) Quantitative vs. Qualitative: Quantitative research is based on the measurement of quantity or amount. It is applicable to phenomena that can be expressed in terms of quantity.

Qualitative research, on the other hand, is concerned with qualitative phenomenon, i.e.,

phenomena relating to or involving quality or kind. For instance, when we are interested in investigating the reasons for human behaviour (i.e., why people think or do certain things), we quite often talk of 'Motivation Research', an important type of qualitative research.

This type of research aims at discovering the underlying motives and desires, using in depth interviews for the purpose. Other techniques of such research are word association tests, sentence completion tests, story completion tests and similar other projective techniques.

Attitude or opinion research i.e., research designed to find out how people feel or what they think about a particular subject or institution is also qualitative research.

* Qualitative research is specially important in the behavioural sciences where the aim is to discover the underlying motives of human behaviour. Through such research we can analyse the various factors which motivate people to behave in a particular manner or which make people like or dislike a particular thing. It may be stated, however, that to apply qualitative research in practice is relatively a difficult job and therefore, while doing such research, one should seek guidance from experimental psychologists.

(iv) Conceptual vs. Empirical: Conceptual research is that related to some abstract idea(s) or theory. It is generally used by philosophers and thinkers to develop new concepts or to reinterpret existing ones.

* On the other hand, empirical research relies on experience or observation alone, often without due regard for system and theory. It is data-based research, coming up with conclusions which are capable of being verified by observation or experiment.

We can also call it as experimental type of research. In such a research it is necessary to get at facts firsthand, at their source, and actively to go about doing certain things to stimulate the production of desired information.

In such a research, the researcher must first provide himself with a working hypothesis or guess as to the probable results. He then works to get enough facts (data) to prove or disprove his hypothesis. He then sets up experimental designs which he thinks will manipulate the persons or the materials concerned so as to bring forth the desired information.

Such research is thus characterised by the experimenter's control over the variables under study and his deliberate manipulation of one of them to study its effects.

* Empirical research is appropriate when proof is sought that certain variables affect other variables in some way. Evidence gathered through experiments or empirical studies is today considered to be the most powerful support possible for a given hypothesis.

V Some Other Types of Research: All other types of research are variations of one or more of the above stated approaches, based on either the purpose of research, or the time required to accomplish research, on the environment in which research is done, or on the basis of some other similar factor.

Form the point of view of time, we can think of research either as one-time research or longitudinal research.

In the former case the research is confined to a single time-period, whereas in the latter case the research is carried on over several time-periods.

Research can be field-setting research or laboratory research or simulation research, depending upon the environment in which it is to be carried out.

Research can as well be understood as clinical or diagnostic research. Such research follow case-study methods or in-depth approaches to reach the basic causal relations. Such studies usually go deep into the causes of things or events that interest us, using very small samples and very deep probing data gathering devices.

The research may be exploratory or it may be formalized. The objective of exploratory research is the development of hypotheses rather than their testing, whereas formalized research studies are those with substantial structure and with specific hypotheses to be tested.

Historical research is that which utilizes historical sources like documents, remains, etc. to study events or ideas of the past, including the philosophy of persons and groups at any remote point of time.

Research can also be classified as conclusion-oriented and decision-oriented. While doing conclusion oriented research, a researcher is free to pick up a problem, redesign the enquiry as he proceeds and is prepared to conceptualize as he wishes. Decision-oriented research is always for the need of a decision maker and the researcher in this case is not free to embark upon research according to his own inclination.

Operations research is an example of decision oriented research since it is a scientific method of providing executive departments with a quantitative basis for decisions regarding operations under their control.

Research Approaches

The above description of the types of research brings to light the fact that there are two basic approaches to research, viz., quantitative approach and the qualitative approach.

The former involves the generation of data in quantitative form which can be subjected to rigorous quantitative analysis in a formal and rigid fashion.

The Mixed-Methods Approach

Tashakkori and Teddlie (2003) discussed the mixed methods approach to research, which emerged in the mid-to-late 1900s. Johnson and Onwuegbuzie (2004) hoped that the mixed methods approach to research provided researchers with an alternative to believing that the quantitative and qualitative research approaches are incompatible and, in turn, their associated methods “cannot and should not be mixed” (p. 14). With the mixed methods approach to research, researchers incorporate methods of collecting or analyzing data from the quantitative and qualitative research approaches in a single research study (Creswell, 2003; Johnson & Onwuegbuzie; Tashakkori & Teddlie). That is, researchers collect or analyze not only numerical data, which is customary for quantitative research, but also narrative data, which is the norm for qualitative research in order to address the research question(s) defined for a particular research study. As an example, in order to collect a mixture of data, researchers might distribute a survey that contains closed-ended questions to collect the numerical, or quantitative, data and conduct an interview using open-ended questions to collect the narrative, or qualitative, data.

By having the ability to design research studies that combine data collection or data analysis methods from the quantitative and qualitative research approaches, researchers are now able to test and build theories. Researchers are also able to employ deductive and inductive analysis in the same research study. The mixed methods approach to research provides researchers with the ability to design a single research study that answers questions about both the complex nature of phenomenon from the participants’ point of view and the relationship between measurable variables. Proponents of the mixed methods approach to research advocate doing „what works“ within the precepts of research to investigate, to predict, to explore, to describe, to understand the phenomenon (Carr, 1994; Creswell, 2003; Johnson & Onwuegbuzie, 2004; Mingers, 2001; Sale, Lohfeld, & Brazil, 2002; Tashakkori & Teddlie, 2003).