

Research Methods Persistent in Social Science Research

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Abstract

This paper is developed on Social Research types and Methods. Basically there are three types of Social Research those are Basic, Applied and Action Research. Again Methods are two types Quantitative Research and Qualitative Research. Quantitative Research to used on human behavior, Where Qualitative Research not bounded only within behavior, rather time environments, social phenomenon etc factors have a great effect on that.

Social Research has primarily five Methods. As Case Study, Analytical Research, Narrative Method, Interview and Survey .Case study to used one a particular case. Narrative Methods live a historical narration. Analytical Methods do analysis on any phenomenon. Interview and Survey Methods are is-e-is. It too focused one few selected people and their opinion. However, Research can't be bounded in any single Method. Depending on subject demand, more than one Method may be applied. Qualitative Research always a research of considers method.

Keywords: : *Action Research, Applied Research, Basic Research, Content Analysis, Experimental Method, Qualitative Research, Quantitative Research, Research Approach, Survey Method, etc.*

1. Introduction

Sciences are broadly divided in to natural (physical) sciences and social sciences. Social sciences include various disciplines dealing with human life, human behavior and institutions. E.g. Anthropology, History, Economics, Education, Commerce, Demography etc.,

Social sciences are not exact science like physical sciences. It deals with human beings. Human nature and man's environment are so complex, that it is more difficult to comprehend and predict human behavior than the physical phenomena. It is difficult see the underlying uniformities in the diversity of complex human behavior.

Social science research is a systematic method of exploring, analyzing and conceptualizing human life in order to extend, correct or verify knowledge of human behavior and social life. Social research seeks to find explanations to unexplained phenomena, to clarify the doubtful and correct the misconceived fact of social life. It involves the application of scientific method for understanding and analyzing of social life in order to correct and verify the existing knowledge as a system. The main idea behind social research is to discover new inter relations, new knowledge, new facts and also to verify old ones. Human behavior may be involved by certain values and laws. The main purpose of social research is to discover those laws which can be proper guidelines for studying human contact and behavior. According to P.V. Young, we may define social research as “the systematic method of discovering new facts and verifying old facts. Their sequences inter relationship, causal explanations and the natural laws govern them”. From the above definition we can identify the following,

- a. Social research deals with social phenomena. It studies human behavior intra relations and the facility that affect the Social activities.
- b. Social research is carried on both for discovering new facts and verification of the old ones.
- c. Social research tries to establish casual connection between various human activities.

2.1. FUNCTIONS AND OBJECTIVE.

The major objectives of social research are listed as follows:-

- a) The aim of social research is to discover new facts and verifying or testing old facts.
- b) It tries to understand the human behavior and its interaction with the environment.

- c) It tries to find out the casual connection between human activities and natural laws governing them.

The important functions of social science research are discussed below;

- a) **Discovery of facts and their interpretation:** Social research provides answer to questions of what, when, how and why of man, social life and institutions. Discover of facts and their inter relationship help us to discard distortions and contribute to our understanding of social reality.
- b) **Diagnosis of problems and their analysis:** Our society has innumerable problems such as poverty, unemployment, economic inequality, social tension etc.,. The nature and dimensions of such problems have to be diagnosed and analyzed. An analysis of problems leads to an identification of appropriate remedial actions.
- c) **Systematization of knowledge:** The facts discovered through research are systematized and the body of knowledge is developed. It contributes to the growth of theory building.
- d) **Control over social phenomena:** Research in social science provides first hand information about the nature of social institutions. This knowledge helps us to control over the social phenomena.
- e) **Prediction:** Social research aims at finding an order among social fact and their casual relations. This affords a sound basis for prediction in several cases.
- f) **Development planning:** Systematic research can give us the required data base for planning and designing developmental schemes and programmes.
- g) **Social welfare:** Social research can identify the causes of social evils and problems. It can thus help in taking appropriate remedial actions. It also provides guideline for social welfare.

2.2. SCOPE OF SOCIALSCIENCE RESEARCH

The fields of social science research unlimited and the materials of research are endless. Every group of social phenomena, every phase of human life and every stages of past and present development are factors/materials for the

social scientist. The area of research in various social sciences provides vast scope for research in social sciences.

The main scope of social research is:

- a. Social research provides new insight in to the organized society and its social structure.
- b. Social research also provide new horizon in scientific explanation; advanced and tested principles of procedure and suggested new concepts.
- c. Another scope of social research is that exemplified by studies and attempt to test or challenge existing theories and revise them the light of new evidence.
- d. Social research helpful to establish new theory and established techniques of exploration.
- e. Social research also provides contributions to existing stone of fruitful ideas, methodology and basis understanding of social life and control of its problems.

Objectivity in social research:

The question of objectivity has been central to the methodological debates of the social sciences from the beginning. It means the willingness and ability to examine evidence dispassionately. It is the first condition of research. Objectivity means basing conclusion on facts without any bias and value judgment. The conclusion should be independent of one's personal beliefs, likes dislikes and hopes. Both the data and the inference drawn from their analysis must be free from bias and prejudices. But modern feminist researchers and critical social researchers argued research is a moral-political activity that requires the researcher to commit to a value position. Value freedom is a myth.

Factors Affecting Objectivity: It is very difficult to achieve objectivity in social science research. This difficulty arises out of the adverse influences of (a) personal prejudices and bias, (b) value judgment, (c) ethical dilemma and (d) complexity of social phenomena.

Personal prejudices and biases: Prejudices and biases are like fantasies to believe what is comforting to believe. It makes to believe something without considering evidence.

Value related problem arises: Value related problem arises from the social context with in which research occurs. A researcher's attitudes towards socio-economic issues are influenced by his values and ideologies.

Personal Preconceptions: Personal preconceptions of research create not only a distorting effect on the data but are also highly insidious. Research failed to examination objectivity.

Ethical Dilemmas: Research relation with other aspect of research creates ethical problems. E.g. Relation with sponsors, relation with source data, relation with research subject etc.

2.3. TYPES OF SOCIAL RESEARCH.

The purpose of research is to discover answer to questions through application of scientific procedures. Research always starts from a question like why, what, how etc.,. The nature of questions varies the type research procedure and methods and procedure also varies. Research may be classified crudely, according to its major intent or the method. According to the intent, research may be classified as pure research (basic research), applied research, exploratory research, descriptive study, action research etc.,. According to the method of study, research may be classified as experimental research, analytical study, historical research and survey.

The above classification is not a watertight demarcation. It is just a narration to understand the different approaches to research. The different types of research are not sharply distinguishable from one another. There may be overlapping between one type and other.

a. Basic/Pure Research:

The reason for asking research questions are of two general kinds; intellectual and practical. Intellectual questions are based on the desire to know or understand for the satisfaction of knowing or understanding. Practical questions based on the desire to do something better or more efficiently. The investigation to which these two types questions lead, sometimes labeled “pure” or basic and applied research.

Pure research is focused to collect knowledge without any intention to apply it. It is purely intellectual in character. It is also known as basic or fundamental research. Intellectual curiosity is the only motivational factor behind it. It is not necessarily problem oriented. It aims at extension of knowledge. It may lead to either discovery of a new theory or refinement of an existing theory.

The development of various sciences owes much too pure research. The findings of pure research enrich the store house of knowledge. Pure research lays the foundation for applied research. The findings of pure research formed the basis for innumerable scientific and technological inventions like steam engine, auto mobiles and telecommunication etc, which have revolutionized and enriched our human life.

Contributions of Pure Research.

a) Pure research of solutions to many practical problems by developing principles.

b) Pure research helps to find out the critical factors in practical problems.

c) Pure research provides many alternative solutions and thus enables us to choose best solutions.

b. Applied Research:

Applied research is focused up on a real life problem requiring an action or policy decision. It tries to find out practical and immediate result. It is thus problem oriented and action directed. According to Kerlinger (1979) applied research is research directed towards the solution of specified practical problems. Julian Simon has pointed out that applied social sciences help in making policy decision. “Applied research methods are sometimes more sophisticated than any methods used in pure research (Touffers: 1950)

There is vast scope for applied research in the fields of technology, management, commerce, economics and other social sciences. Innumerable problems are face in these areas. They need empirical study for finding solutions. The immediate purpose of an applied research is to find solutions to practical problems, it may incidentally contribute to the development of theoretical knowledge by leading to the discovering of new facts or testing of a theory or to conceptual clarity.

Contributions of Applied Research.

(I). Applied research can contribute new facts. It uncovers new facts which enrich the concerned body of knowledge.

(II). Applied research can put theory to the test. It offers an opportunity to test the validity of existing theory.

(III). Applied research may aid in conceptual clarification. Many concepts are vague. E.g. small farmer, social responsibility, social structure etc; applied research aid conceptual clarity.

(IV) Applied research may integrate previously existing theories. A practical problem has many facts. It cannot be solved by the application of abstract principles from a single science. The solution of a practical problem may require some integration of the theories and principles of various disciplines.

Relation between Pure and Applied Research.

The distinction between pure and applied research is not absolute. Both are not contradictory but are complementary. Pure research may have significant potential for its application to the solution of a practical problem and applied research may end up with making a scientific contribution to the development of the theoretical knowledge.

The terms ‘pure’ and ‘applied’ just represent the polar of a continuum. Morry said “research studies have differing degree of ‘purity’ and ‘applicability’, depending on

whether their purpose is solely to advance knowledge in a field or to solve some financial problem.

c. Action Research:

Conventional social scientific research is concerned to analyses and explains phenomena. The role of research is detached, in order to minimize disturbance of the phenomena under investigation. In action research, research is jointed with action. Researcher became participants in planned policy initiatives. It is an action programme launched for solving a problem or for improving an existing situation. Government institutions and voluntary agencies undertake action programmes for achieving specific goals or objectives. Social welfare programmes human resource development programmes, research for improving the qualities of life in factories and offices etc, are some examples of action research programme.

Types of Action Research:

Recover categorize action research in to five types.

(I). Classical design: Research and action are separated and independent. The connection between research and action is not purposely sought. It may occur by chance.

(II). Interdependence of action and research: Action is carried out by an agency not connected with a research institution. Research on action may be entrusted to an independent research body. For example government may launch a development programme and a university social scientist may be welcomed to study the on-going programme.

(III). Evaluate research built in to an action programme: In this case, research is dependent upon action, and the action people define the scope of the research.

(IV). Action for research: In this type research is jointed with action. Researcher became participants in planned policy initiatives.

2.4. RESEARCH APPROACHS:

Qualitative Research: Qualitative research is a broad term that encompasses a variety of approaches to interpretative research. It can be historical, sociological, education and much more. Qualitative research style in social research is not much related to the scientific logic of research, but more close to the world around. Quantitative Research focus upon human behavior for better understandings about the world around them. So the emphasis given by quantitative researchers in their studies involves an examination of the perspectives of the people or groups; e.g. their ideas, attitudes, motives, and intensions.

In qualitative research, the researcher's primary goals are an understanding of social processes rather than obtaining a representative sample. The study of one or small number of cases, often over a lengthy period of time.

Qualitative research methods such as in-depth interviews and participant observation have some of the following characteristics; Research is carried out in reliable settings. In qualitative research, the objectives are to take detailed descriptions of people behavior and thought.

The focus of the research may change during the course of research. The qualitative approach involves theory construction rather than theory testing.

Quantitative research in social science:

Quantitative approaches are typically associated with positivist perspectives in social research. Hamersley (1993) provides a useful definition of this approach.

"The term quantitative method refers in large part to the adoption of the natural science experiment as the model for scientific research, its key features being quantitative measurement of the phenomena studied and systematic control of the theoretical variables influencing those phenomena". Thus, the major characteristics of quantitative research is,

- i. Using standardized approaches to collect data.
- ii. Explaining causal relationship between variables.
- iii. Tests hypotheses or given theory.
- iv. High degree of pre-conceptualization.
- v. Adopting theory then research approach.

The sample survey and experimental method are the most typical example of quantitative research. Sample survey is the most commonly used technique with specific tools and methods to gather information about a particular question. Quantitative approaches differ from qualitative approach in a number of ways. E.g. in terms of objectives of the study, research design, tools and methods etc.

2.5. RESEARCH METHODS AS PER APPROACHS:

(a) RESEARCH METHODS: (QUALITATIVE):

These Methods are basically three types.

I. CASE STUDY:

Social researches are curious about their social settings. Their interests are virtually unlimited. Any social setting is potential for scientific inquiry. The diversity of social topic and situation made researcher to plan their action. This plan for research is conventionally labeled as research design.

Case study method is considered as one of the popular type of research design used by social scientist. It is an intensive

study of a particular case. In sociological investigation a case may be any of the following, taken singly or in combination. (1) A person, (2) A group of person such as family or gang, (3) A class of person such as thieves or professors, (4) An ecological unit such as neighborhood or community, (5) cultural unit such as fashion or institution.

Characteristics:

- a) Hartsfield (1982) has referred to the following characteristics of case study.
- b) It studies whole unit in their totality.
- c) It employs several methods in data collection to prevent errors and distortions.
- d) It often studies a single unit: one unit in one study.
- e) It perceives the respondent as knowledgeable person, not just as a source of data.
- f) It studies typically case.

Purpose of case study.

Burns (2000) has point out the following purposes of case study.

- a. It may be a source of hypotheses for future research.
- b. It helps to establish generalizations about the wider population to which the unit belongs.
- c. It provides anecdotal evidence that illustrates more general findings.
- d. To refute a universal generalization, a single case can represent a significant contribution to theory building.
- e. To test the feasibility of the quantitative study.

Advantages of case study.

Black champion (1976) enlisted following advantages of case study.

- a) It makes in-depth study possible.
- b) It is flexible in data collection methods.
- c) It could be used for studying any dimension of the topic; one specific aspect of the problem.
- d) It could be conducted practically any kind of social setting.
- e) Case studies are inexpensive.
- f) It helps to study unique case.

Disadvantages or criticism.

Case study method is generally criticized on the following basis,

Subjective bias: Research subjectivity in collecting data for supporting or refuting a particular explanation, personal view of investigation influences the findings and conclusion of the study.

Little evidence for scientific generalization: The common complaint against case study is; how can generalization be made from a single case? As an answer to this case studies are generalize to theoretical propositions, not to statistical

populations. Object of case study is to expand theory and not to undertake statistical generalization.

Time consuming: As it produces a lot of information which is difficult to analyze adequately.

Doubtful reliability: The investigator cannot prove his authenticity for obtaining data or having no bias in analyzing them.

Missing validity: For investigator, what seems to be true is more important than what is true. The case study can oversimplify or exaggerate leading to erroneous conclusions.

II. ETHNOGRAPHIC:

Ethnographic research is a qualitative method where researchers observe and/or interact with a study's participants in their real-life environment. Ethnography was popularized by anthropology, but is used across a wide range of social sciences. Within the field of usability and user-centered design, ethnography is used to support a designer's deeper understanding of the design problem – including the relevant domain, audience(s), processes, goals and context(s) of use.

Methods associated with ethnography.

Anthropological ethnographers often live amongst a group/society for a year or more, in order to learn about them. This fully immersive, long-term 'live and work' approach to ethnography has not proven popular within the field of usability. Part of the reason may involve cost, but it is also the case that anthropologists and usability practitioners are interested in different things. Anthropologists use ethnography in an attempt to fully understand as much as possible about an entire society. Usability practitioners are usually only interested in learning information that will support their reasoning on specific design problem.

We would argue that deep, immersive 'live and work' ethnography is rarely required within the field of user-centered design. However, short ethnographic studies can be very useful for user-centered projects. For example: in order to understand the way in which a Merchant Bank trades and operates, a usability consultant might conduct an ethnographic study by working and socializing with its employees for a month.

Individual methods which are available within an ethnographic study include: participant observation, interviews and surveys. All of these ethnographic methods can be very valuable in gaining a deeper understanding of a design problem. Usability practitioners often make use of these in order to develop their understanding of the relevant domain, audience(s), processes, goals and context(s) of use.

Ethnography is most useful in the early stages of a user-centered design project. This is because ethnography focuses on developing an understanding of the design problem. Therefore, it makes more sense to conduct ethnographic studies at the beginning of a project in order to support future design decisions (which will happen later in the user-centered design process).

Ethnographic methods (such as participant observation) could also be used to evaluate an existing design – but their true value comes from developing an early understanding of the relevant domain, audience(s), processes, goals and context(s) of use.

We would normally recommend that ethnographic methods are used for very complex and/or critical design problems. More complex design problems (in terms of their domain, audience(s), processes, goals and/or context(s) of use) are likely to need the deeper understanding which ethnographic studies can bring. Equally, highly critical systems (where failure or error can lead to disaster) could also justify significant ethnographic research.

For example: An insurance company wanted to re-design their system dealing with the processing of insurance claims. This system had evolved over many years and actually represented a patchwork of previous systems. The ‘claim processing’ supported by this ‘system of systems’ is itself a highly complex process. In this example, ethnographic research should probably be considered.

Advantages of ethnography: One of the main advantages associated with ethnographic research is that ethnography can help identify and analyze unexpected issues. When conducting other types of studies, which are not based on in-situ observation or interaction, it can very easy to miss unexpected issues. This can happen either because questions are not asked, or respondents neglect to mention something. An ethnographic researcher’s in-situ presence helps mitigate this risk because the issues will (hopefully) become directly apparent to the researcher.

Ethnography’s other main benefit is generally considered to be its ability to deliver a detailed and faithful representation of users’ behaviors’ and attitudes. Because of its subjective nature, an ethnographic study (with a skilled researcher) can be very useful in uncovering and analyzing relevant user attitudes and emotions.

Disadvantages of ethnography: One of the main criticisms leveled at ethnographic studies is the amount of time they take to conduct. As discussed above, ethnographic studies do not always require a long period of time, but this consideration is nonetheless valid. Because of its richer output, an ethnographic study will tend to take longer to generate and analyze its data than many other methods.

During previous ethnographic studies, we have found that it is possible that subjects may not act naturally during a short study. Longer studies normally counter-act this because the subjects grow to trust the researcher and/or get tired of any pretence.

For example: During the first week of an ethnographic study into an insurance claim processing system, all the subjects were observed to be following the strictest interpretation of the correct procedures. As time progressed, however, it became increasingly apparent that almost all employees had ‘work-around’ and ‘short cuts’ which were liberally used in order to speed things up. These behaviors were very instructive in helping to re-design the process flow. Had the researcher not stayed in-situ long enough to observe these, they may have gone unrecorded.

Risks associated with ethnography: As stated above, ethnographic studies consist of the researcher observing and/or interacting with subjects within the environment which the (future) design is intended to support. The two main potential weaknesses with ethnographic studies are:

Researcher: Ethnographic researchers need to be very highly-skilled to avoid all the potential pitfalls of an ethnographic study. Some of these include the detail & completeness of observations, as well as potential bias (and mistakes) in data collection or analysis.

Subjects: It is essential that any studies’ subjects are as true a representation of the larger user audience as possible (assuming that the study has been designed this way). It is also vital that the subjects are open and honest with the researcher. Of course, both of these issues are related to the quality of the researcher themselves and their role in the study’s design.

Perhaps the most critical decision within an ethnographic study is the choice of ethnographic researcher. This individual will design, conduct and analyze the study’s findings – so it is essential that they have the skill and experience to make sure the study is representative, accurate and fair.

III. CONTENT ANALYSES:

Human beings communicate through language. Language helps to convey our emotions, knowledge, opinions, attitudes and values. Print media, television, radio; movies also communicate ideas, beliefs and values. The analysis is of communication content-written and pictorial- has now become a methodological procedure for extracting data from a wide range of communications.

Definition: Content analysis is a method of social research that aims at the analysis of the content- qualitative and quantitative- of documents, books, newspapers, magazines and other forms of written material.

According to Berelson (1952), “content analysis is a research technique for the objective, systematic and quantitative description of the manifest content of communication”.

The content may be manifest or latent. The former refers to the visible actual parts of the text as manifested in the document, sentences, and paragraphs and so on. The latter is the underlying or implied meaning conveyed.

Characteristics of content analysis.

Gardner (1975) has identified four characteristics of content analysis.

1. Objectivity: Explicitly formulated rules of content analysis enable two or more persons to obtain same results from the same document.
2. Systematic: It provides enough freedom for the researcher to eliminate unnecessary materials which is not supporting the research hypotheses.
3. Generality: In content analysis, the characteristic of the sender or recipient of the communication is little scientific value.
4. Quantification: The inferences from the study must be in precise numerical terms. This means that inferences must be derived strictly from counts of ‘frequency’ steps in content analysis.

Sarantakos (1998) formulated following steps in content analysis;

I step: The selection of the Research Area, The topic can be one from the newspaper, TV, magazines, books, movies and the like.

II step: Formulation of Research Topic, It involves explaining and operationalizing the topic, selection of units, determining categories and formulating hypotheses.

III step: Research Design, It aims at determining the size of sampling method of data collection and so on.

IV step: Data Collection, It involves counting frequencies, gathering information about the study unit and evaluating units.

V step: Lastly, the analyses and interpretation of data aims at giving inferences and conclusions.

Types of content analyses:

Sanders and Piney (1983) have suggested five types of content analysis: (1) word counting analysis, (2) conceptual analysis, (3) somatic analysis, (4) evaluative assertion analyses, (5) contextual analysis.

Strength and limitations of content analysis

Following are the strength and limitations of content analysis,

Strength:-

- a. It is unobtrusive method; it is not threatens respondent directly.

- b. It is useful in historical research, studying people who are no longer available to answer questions.

- c. It makes possible a variety of cross cultural studies.

- d. It can be used to test preliminary ideas, hypotheses or theories etc.

- e. It is powerful tool for evaluating personal or social values.

- f. It is more useful where research budget is small and resources are limited.

- g. It is easier to repeat the study through this method.

Limitations:

- a. Unforeseen aspects of research field.

- b. Determining validity is difficult.

- c. Some required documents may not be available to the researcher which may affect the conclusion.

Its conclusion remains the shadow of personal bias.

(b) QUANTITATIVE METHODS:

These Methods are basically two types,

ISOCIAL SURVEY METHOD:

Social survey technique is very popular in sociology. Survey research is the systematic gathering of information about individuals and collectivities. The purpose of surveying may be description or casual analysis. Large scale descriptive surveys have long history in social research. National census is the biggest form of social survey in which surveys, the whole nation regarding its population, their economic condition including their earning, birth, death etc.

Social surveys are usually for dealing with many related aspects of social problem. They provide the data for administration, rather than for the illustrative or descriptive material. They are generally quantitative and the history of the social survey is intimately bound up with the development of statistics.

Surveys vary greatly in their scope, their design and their content. The specific characteristics of any survey will be determined by the basic objectives, which conducting survey there must be a specific pattern or design to follow to collect data. The research follows a scientific step by step procedure.

Procedural ways of social survey: The step by step tasks involved in carrying out a survey from the first state of planning to the preparation of the final report in as follows; Statement of the problem or general objectives: The problem which make survey necessary and the general objectives of the survey are stated. The statement is generally expressed the area and scope of the study.

- b) Specific objectives of the survey: Although the general objectives, usually few in number are formulated with out

regarding to the requirements of the survey technique; these general objectives are broken down in to numerous specific objectives. The specification of data to be gathered and the hypotheses to be tested by the survey is accomplished at this stage.

c) Sample: Two major divisions in the survey sample are (a) the universe of the survey (b) the size and design of the sample. After there two are made the actual selection of the sample units take place.

d) Questionnaire: After the selection of sample units a questionnaire is prepared, to collect facts from the sample. The questionnaire must be carefully designed with in limits of the problem. The preparation of questions, degree of probing, the sequence of questions and the establishment of rapport, a specific pattern and a skill to be applied. The questionnaire is pre-tested in the field for proper application.

e) Field work: The next important step is field work. Gathering facts from sample through personal interview and observation. The interviewers are usually provided with an instruction manual which explain the objectives of the study and the meaning of each question.

f) Data coding and tabulation: After careful coding and editing of the data collected through survey may transcribed into tables. This may be done by preparing a code, a numbered list of major items such summing all the responses received to each question.

g) Data analysis and reporting: The data are analyzed and a report is written which embodying the survey findings. The survey process is a highly interconnected chain of events so the above steps are independent of one another.

h) Limitation of survey method: Even though the survey method is applicable to wide range problems, it has evident limitations. The major limitations are;

Sample error: survey method is subjected to the selection of sample,

Errors of measurement: A score representing a person's attitude, abilities traits or behaviors may not match with reality.

Limitations of questionnaire: the imitations on length of the questions, that can be asked in a survey an there are limits to the number of topics that can be covered.

Limitations of population: A sample survey designed to represent a population over a wide geographical area is likely not to given adequate representation to any population which highly localized in its character.

II. EXPERIMENTAL METHOD:

The experimental method is usually taken to be the most scientific of all methods, the 'method of choice'. The main problem with all the non-experimental methods is lack of control over the situation. The experimental method is a means of trying to overcome this problem. The experiment is sometimes described as the cornerstone of psychology: This is partly due to the central role experiments play in many of the physical sciences and also to psychology's historical view of itself as a science. A considerable amount of psychological research uses the experimental method.

An experiment is a study of cause and effect. It differs from non-experimental methods in that it involves the deliberate manipulation of one variable, while trying to keep all other variables constant.

Experiments in the Laboratory:

In psychological experiments (like experiments in other fields) we try to keep all aspects of the situation constant except one - the one we are looking at. For example, suppose we want to investigate which of two methods is more successful at teaching children to read. The aspect that we vary is called the independent variable (IV) and we change this in a very precise way. In this example the teaching method is the independent variable. We call the factor which we then measure, in our example it would be some measure of the children's reading ability, the dependent variable (DV), because, if our ideas are correct, it depends on the independent variable. In our example, the children's reading ability depends on the teaching method used.

The variable which is being manipulated by the researcher is therefore called the independent variable and the dependent variable is the change in behavior measured by the researcher.

All other variables which might affect the results and therefore give us a false set of results are called confounding variables (also referred to as random variables). Examples of confounding variables in the example given might include the following Differences in the instructions given by an experimenter or in the stimulus materials being used (which could be overcome by standardizing instructions and materials for all those taking part) Differences between participants, e.g. in their age (which could be eliminated as a variable by using a single age group, or alternatively it could be made more constant by ensuring that the age structure of each of the groups taking part in the experiment is very similar).

By changing one variable (the IV) while measuring another (the DV) while we control all others, as far as possible, then the experimental method allows us to draw conclusions with far more certainty than any non-experimental method. If the IV is the only thing that is changed then it must be responsible for any change in the dependent variable.

Probably the commonest way to design an experiment in psychology is to divide the participants into 2 groups, the experimental group and the control group, and then introduce a change for the experimental group and not the control group. Suppose we wish to see if people sit at a library table for a shorter time if someone comes and sits at the same table than if they remain alone. First we must measure the average amount of time people sit when they are alone. This is the control condition and it gives us a baseline against which to judge our results. Then we send a confederate to sit at the same table and we measure the average amount of time the person sits there. This is the experimental condition.

A control group, then, is a group for whom the experimenter does not change the IV. The experimental and control groups must be matched on all important characteristics, e.g. age, sex, experience etc.

Advantages of laboratory experiments:

i. Experiments are the only means by which cause and effect can be established. It has already been noted that an experiment differs from non-experimental methods in that it enables us to study cause and effect because it involves the deliberate manipulation of one variable, while trying to keep all other variables constant. Sometimes the independent variable (IV) is thought of as the cause and the dependent variable (DV) as the effect.

ii. It allows for precise control of variables. The purpose of control is to enable the experimenter to isolate the one key variable which has been selected (the IV), in order to observe its effect on some other variable (the DV); control is intended to allow us to conclude that it is the IV, and nothing else, which is influencing the DV.

iii. Experiments can be replicated. We cannot generalize from the results of a single experiment. The more often an experiment is repeated, with the same results obtained, the more confident we can be that the theory being tested is valid. The experimental method consists of standardized procedures and measures which allow it to be easily repeated.

iv. It is also worth noting that an experiment yields quantitative data (numerical amounts of something) which

can be analyzed using inferential statistical tests. These tests permit statements to be made about how likely the results are to have occurred through chance.

Limitations of laboratory experiments:

1. Artificiality: The experiment is not typical of real life situations. Most experiments are conducted in laboratories - strange and contrived environments in which people are asked to perform unusual or even bizarre tasks. The artificiality of the lab, together with the 'unnatural' things that the subjects may be asked to do, jointly produces a distortion of behavior. Therefore it should be difficult to generalize findings from experiments because they are not ecologically valid (true to real life).

2. Behaviour in the laboratory is very narrow in its range. By controlling the situation so precisely, behavior may be very limited.

3. A major difficulty with the experimental method is demand characteristics. Some of the many confounding variables in a psychology experiment stem from the fact that a psychology experiment is a social situation in which neither the Subjects nor the Experimenters are passive, inanimate objects but are active, thinking human beings. Imagine you've been asked to take part in a psychology experiment. Even if you didn't study psychology, you would be trying to work out what the experimenter expected to find out. Experimenters too have expectations about what their results are likely to be. Demand characteristics are all the cues which convey to the participant the purpose of the experiment.

4. The experimental method as used in psychology has a history of using biased or unrepresentative sampling. George Miller (1962) estimated that 90% of U.S. experiments have used college students (who are accessible and 'cheap') and yet the results still tend to be generalized to the U.S. population as a whole, and often beyond that to Britain, Western Europe, etc. But there is no reason to believe that U.S. college students are typical of any other group in terms of gender, age, personality, social class background or any other subject variable which can influence how subjects will perform in any experimental situation. What's more, these students are often psychology students who are required to participate in research as a course requirement!

5. It has already been noted that a strength of the experimental method is the amount of control which experimenters have over variables. However it must also be noted that it is not possible to completely control all

variables. There may be other variables at work which the experimenter is unaware of. In particular, it is impossible to completely control the mental world of people taking part in a study.

6. A very major problem with the experimental method concerns ethics. For example, experiments nearly always involve deceiving participants to some extent and the very term 'subject' implies that the participant is being treated as something less than a person. Recently the use of the experimental method has come under considerable criticism for the way that researchers often break ethical guidelines. It is also important to recognise that there are very many areas of human life which cannot be studied using the experimental method because it would be simply too unethical to do so.

7. Another issue is to do with normative data. Some researchers consider that an important advantage which experiments have over, say, observational techniques is the random assignment of research participants to experimental conditions. This helps to reduce the problems of analysis caused by systematic differences between people. Other psychologists, however, argue that grouping people together in this way, and trying to cancel out individual differences so that we only look at a group norm, is limited in how much it can tell us because it ignores what is special about people.

Mainly because of the above limitations psychologists are increasingly more likely to use other non-experimental methods - and in particular more qualitative methods.

The Field Experiment:

Sometimes it is possible to carry out experiments in a more natural setting, i.e. in 'the field'. A famous example of this is the series of studies carried out by Piliavin et al (1969) in which they arranged for a person to collapse on an underground train and waited to see how long it was before the person was helped. One of the independent variables they used was the appearance of the 'victim': whether he was carrying a walking stick or whether he appeared to be drunk.

As with the laboratory experiment, the independent variable is still deliberately manipulated by the researcher.

However it is not possible to have such tight control over variables in the field, but it does have the advantage of being far less artificial than the laboratory.

Natural Experiments:

In some circumstances, psychologists can take advantage of a natural situation in order to carry out an investigation in circumstances which they cannot themselves manipulate. For example, a primary school may decide to try out a completely new reading scheme and the effects of this could be compared with a similar school using a different reading scheme. A local hospital may decide to have mixed wards rather than separate wards for men and women. The effects on the patients of being in these wards could be compared with those in single-sex wards.

This is not a true experiment because the psychologist is unable to manipulate or control variables. For this reason it is sometimes referred to as a quasi-experiment. It is possible, though to compare two groups, the equivalent of an experimental and a control group. It has the advantage that the participants are unaware that they are taking part in an investigation and it is certainly not as artificial as a laboratory setting.

3. Conclusions:

In contrast to the physical science the social science lack the power of exact prediction; this is attributed to the "erratic", and irregular nature of human behavior. Social scientist point out that the low predictable potential in social science is due to our limited knowledge of relevant variables operative in the group like customs, traditions etc.,. The cause and effect are difficult to be segregated clearly. The present state of development of social science is far behind physical science. Merton advises to social scientist against their despair; it is possible to develop border applicability. Present days Research is mostly Quantitative Research. The variable or factors are analyses depends on it Methods. So, it's very important to understand and select the suitable Methods for Research. However, It is not necessary to select any specific methods for any Social Research. Any research can be combination of two or more Methods depending on its nature and subject. Whatever may be the Methods the variables to be well analyzed and proven scientifically? Or else the Research result will not be accepted by the scholars..

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