UTKAL UNIVERSITY
NAAC ACCREDITED A+

MASTER OF ARTS IN SOCIOLOGY

SEMESTER-I

SOC-1.4: RESEARCH METHODOLOGY-I

CREDIT: 4

BLOCK: 1, 2, 3 & 4

AUTHOR

Dr. P.K Kar

C.D.O.E

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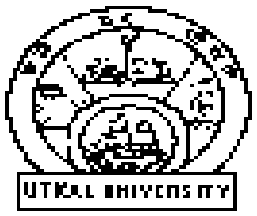

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DIRECTOR

SOC-1.4 RESEARCH METHODOLOGY-I

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CENTRE FOR DISTANCE AND ONLINE EDUCATION, UTKAL UNIVERSITY, BHUBANESWAR

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Course Code: SOC-1.4 **Semester: I Credit: 4** **Block No. 1 to 4 Units No. 1 to 14**

EXPERT COMMITTEE:

1. **Prof. Navaneeta Rath**
   Dept. of Sociology Utkal University, Vani Vihar

2. **Dr. Rabindra Garada**
   Dept. of Sociology Utkal University, Vani Vihar

3. **Dr. Tanaya Mohanty**
   Dept. of Sociology Utkal University, Vani Vihar

COURSE WRITER:

Dr. P.K Kar

CONTENT AND STRUCTURE EDITOR

Dr. Pralap Kumar Sethy

Faculty and Course Co-ordinator in Sociology, CDOE, Utkal University

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SOC-1.4: RESEARCH METHODOLOGY-I

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Block-01 Fundamentals of Social Research:

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Unit-01 Philosophy of Social Sciences

Structure

1.1 Learning Objectives

After going through this unit, the learner will be able-

1. To learn the philosophy of social sciences.
2. To know the concept of sociological research.

1.2 Introduction/ Assessment of Prior Knowledge

We may describe the philosophy of social science in a couple of ways. First, it seeks to produce a rational reconstruction of social science which entails describing the philosophical assumptions that underpins the practice of social investigation in the manner the philosophy of natural science endeavors to lay bare the methodological and ontological assumptions that guide scientific investigation of the occurrences of natural phenomena, Secondly, it makes a critique of the social sciences ,such as sociology, political science ,anthropology etc, with the objective of increasing their ability to explain the social phenomena or otherwise enhancing our ability to cognize it in the logical manner, The philosophers of social sciences are concerned with the differences and similarities between the social and natural sciences, causal relationship between social phenomena , the possible existence of social laws and the ontological significance of structure and agency.

1.3 Philosophy of Social Science

The philosophy of social science is both descriptive and prescriptive as it involves a multiplicity of inter-related questions relating to (I) the method of investigation of social scientists, (ii) whether it uses the method of natural science?(iii) if not, should it use the same? (iv) are the methods appropriate to social investigation?(v)Is it really possible to attempt on a scientific investigation different from those of the natural science?(vi)what type of knowledge may be obtained on the basis of social inquiry?(vii)are social sciences able to maintain objectivity?(viii)if not, should they strive for it?(viii)if not, should they strive for it?(ix)whether the social realm of inquiry is unique with its own distinctive properties?(x) or is it possible to reduce the regularities and properties in respect of the social world to the level of facts about individuals?

The philosophers of social science have endeavored to address to debate the aforesaid questions, The debate mainly pertains to the central query as to the use of the same methods by social sciences as in case of the natural sciences, Addressing this question spontaneously paves the way to other controversial queries in the field, in terms of the nature of explanation needed for social phenomena and the problem of maintaining value neutrality, While examining the views relating to social inquiry, modeled on natural sciences, one reaches the conclusion that there is no unanimity

among the philosophers as some are the proponents and the others are the critics of social inquiry, opening a discussion of debate between the methodological individualists and methodological holists The methodological individualists maintain the view that social phenomena can only be understood by examining how they result from motivations and actions of individual agents, The doctrine was introduced as a methodological precept for the social sciences by Max Weber, It amounts to the claim that social phenomena must be explained by showing how they result from individual actions, which in turn must be explained through reference to the intentional states that motivate the individual actors . In other words, it involves the commitment to the privacy of what Talcott Parsons called the ”action frame of reference” in social scientific explanation. Defenders of methodological individualism generally claim that it is an innocent doctrine because it is devoid of any ideological or political content. Max Weber himself observes that “it is a tremendous misunderstanding to think that an individualistic method should involve what is in any conceivable sense an individualistic system of values”.

Methodological individualism is the hallmark of positivism which construes phenomena as simple, homogenous separate variables. A variable being qualitatively invariant and only quantitatively variable because of its separation from other variables; it prevents others from imbuing it with their qualities, altering its quality and complicating it. We may take the examples of intelligence, aggression, along with other psychological phenomena as separate variables with simple fixed qualities which vary in degree in different conditions. The positivists eschew investigating or theorizing about their qualities which are taken for granted as obvious, simple and fixed and concentrates on measuring quantities of variables.

Whereas methodological individualism or atomism is the basis of positivistic methodology, holism is the basis of qualitative methodology. However, in fact, individualism is pervasive in qualitative research, along with holism. One of the most important applications of holism in qualitative methodology is Dilthey’s hermeneutics. The central idea is that the psychological significance of any behavioural expression can only be discerned by relating that response to other responses. Methodological individualism is also evident in positivistic instruments, such as questionnaires. In holism, the significance of a response is not transparent in a single behaviour, It has to be located in a context of others related behaviours. This relating of behaviours in order to disclose psychological phenomena is known as the hermeneutic circle, For instance, Kurt Lewin used a hermeneutic analysis to diagnose neurological deficits by observing the pattern of responses by which patients match a coloured stimulus with objects of identical hue, Normal and impaired subjects often find the equal number objects that match the coloured stimulus; however, their pattern of response is not at all the same. The patient proceeds in a sequential manner by first matching the stimulus to an object

that most closely appears to be identical (O1),then resembling another object{O2) to(O1), thereafter matching (O3) to (O2) and so on. On the other hand, normal subjects are capable of comparing each hue directly with the stimulus hue. The patient's deficit is revealed by qualitative difference in behavioral patterns. Such an analysis is called a hermeneutical holistic analysis because it examines patterns of interrelated responses which indicate the quality of significance of each. Hermeneutic methodology that elucidates pattern is holistic, On the contrary, simply counting the number of correct matches and comparing the same for the normals and patients are indifferent to their order and inter-relationship sums are individualistic forms of methodology.

It has been argued by some advocates of methodological individualism that methodological holism is politically dangerous. They maintain that ascribing reality to holistic entities lends credence to the view that such credence has interests of their own. As such, methodological holism becomes instrumental in tyrannical a regime that asserts that the needs of the state or nation transcend those of actual living people. Keeping this in view, Karl Popper has gone to the extent of calling methodological individualism a "democratic individualist approach" to social investigation, contrary to methodological collectivism which delivered "totalitarian justice". Nevertheless, the critics of methodological individualism come down heavily on it by claiming that it too has its own built in biases because it denies the realities of institutional structures and other holistic entities. Downplaying the degree to which they can constrain individual actions, methodological individualism tends to support a conservative political outlook.

Natural science with the core principles of objectivity, universalization and causal explanation did have a tremendous impact on the formation of modern social science. Therefore, it may not be an exaggeration to state that the modern social sciences emerged from out of the epistemological optimism that society exists out there readily amenable to empirical observation, that this knowledge of society can be universal , objective and therefore cumulative and progressive, that this knowledge of society is quite different from and superior to religious dogmas or ideological distortions and that such knowledge is positively useful for the restructuring of human society, However, it is not based on the absolute agreement on the unity of method. Although true positivism, the dominant mode of social investigation, in the nineteenth and early twentieth century, could not evince much qualitative differences in the study of natural and socio-cultural spheres, nevertheless there were a galaxy of philosophers who differed and pleaded for a separate mode of investigation in the domain of social sciences. We may take into account the contention of Immanuel Kant in this regard. As one of the ardent Enlightenment philosophers, he advanced a couple of distinct principles: (i) the physical components being enslaved by the senses, and (ii) the moral component that strives for truth, justice and beauty.

We find two different aspects of the Enlightenment social theory: 0ne speaks of the conditioning of human beings and the other mode of investigation speaks of the freedom of human beings. The former generated material/ structural analysis and the latter laid emphasis on voluntarism, human agency, creativity and reflexivity. This makes the differences and accordingly there are social scientists who argue that the human being is a creative/reflexive creature, unlike an object in the physico-chemical or biological world, Therefore the human society should not be construed just an external thing, rather it has a domain of meanings. It has to be visualized as product of creative accomplishment on the part of the social workers. The task of the social scientists is to attempt on understanding and interpreting these meanings. Max Weber developed the 'verstehen' method of understanding of the conscious/subjective meanings social actors attach to the world. He considered sociology as an interpretive study of the subjective meaning complex of social actions. Although Weber spoke of the human agency, his sociology was not subjective in nature. Rather, he attempted on uniting the interpretive study of subjective meanings with an objective causal analysis. He never objected to objectivity, value neutrality and causal explanation- the basic tenets of science. But he was against the positivist urge to equate society with nature and undermining the domain of meanings .Although Max Weber spoke of the human agency, it never meant that his sociology was subjective in nature. Rather, he attempted on uniting the interpretive study of subjective meaning with an objective causal analysis. It is a truism that Weber objected to the positivist urge to equate society with nature and undermine the domain of knowledge, but it is also equally true that he was never against objectivity, value neutrality and causal explanation- the basic tenets of science. Therefore, his basic concept of "ideal types" were more like models which were formed by the one sided accentuation of one or more points of view and by the synthesis of great many diffuse, discrete, more or less present and occasionally absent concrete individual phenomena, which were arranged according to those one sided emphasized viewpoints into a united analytical construct. In its conceptual purity, this mental concept this mental construct cannot be fond empirically anywhere in reality. Weber cautions that the ideal type is to be constructed and used with care . To begin with, the ideal type is not a hypothesis, nor an average, nor a faithful description of reality. Nor it is a model of what ought to be. Rather, an ideal type is an accentuation of what the researcher considered to be the essential characteristics and tendencies of the phenomenon in question.

The tradition of interpretive sociology gained further momentum through phenomenological and ethnomethodological traditions. The main crux of these traditions lies in the fact that the entire world is a world experienced by the human beings. Hence the task of social science is to explicate cognize and make sense of this world as people themselves define and construct it. Upholding the inter-subjective world in which people interact, communicate and understand one another, and have a shared

role expectation. Alfred Schutz, a leading proponent of the phenomenological tradition believed that the everyday world in which people interact is the paramount reality, although there is the realm of scientific theorizing, Schutz held the main task of sociology is to describe and define how people, experience the world.

Harold Garfinkel, a student of Schutz, attempted on a fusion of Parsonianism and Schutzian ideas to develop Ethnomethodology as a distinctive orientation. Ethnomethodology is the study of commonsense knowledge and the range of procedures and considerations by means of which the ordinary members of society make sense of, find their way about in and act on the circumstances in which they ftnd themselves. The proponents of this tradition are very much inclined towards the direction of the study of everyday life. Contrary to the phenomenologist,who focus on what people think, the ethnomethodologist are more interested in what people actually do. Garfinkel held that the task of "people's methodology" is to describe how people themselves define their world. Rather than explaining it in terms of some context free, abstract, universal generalization. Thus the ethnomethodological traditions exhibit a shift from abstract explanation to meaningful understanding, from universality to specificity, from theory to description. The most striking feature is the shift from the structural causes to people's lived experiences. However, with the advent of post-modernity, all these modern principles, these very foundations based on scientific objectivity, historical progress, coherent/ rational self and the agency/freedom of the actor are doubted. As a result, Sociology has to cope with a severe philosophic crisis.

1.4 Summary

Harold Garfinkel, a student of Schutz, attempted on a fusion of Parsonianism and Schutzian ideas to develop Ethnomethodology as a distinctive orientation. Ethnomethodology is the study of commonsense knowledge and the range of procedures and considerations by means of which the ordinary members of society make sense of, find their way about in and act on the circumstances in which they ftnd themselves. The proponents of this tradition are very much inclined towards the direction of the study of everyday life. Contrary to the phenomenologist,who focus on what people think, the ethnomethodologist are more interested in what people actually do. Garfinkel held that the task of "people's methodology" is to describe how people themselves define their world. Rather than explaining it in terms of some context free, abstract, universal generalization. Thus the ethnomethodological traditions exhibit a shift from abstract explanation to meaningful understanding, from universality to specificity, from theory to description. The most striking feature is the shift from the structural causes to people's lived experiences.

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1.5 Self Assessment Questions

1. Describe the contribution of social philosophy to the social science research.
2. Discuss the nature and philosophy of social sciences.

1.6 Key Words

Sociology: Sociology is the study of human society that focuses on society, human social behavior, patterns of social relationships, social interaction, and aspects of culture associated with everyday life.

Philosophy: Philosophy is a systematic study of general and fundamental questions concerning topics like existence, reason, knowledge, value, mind, and language. It is a rational and critical inquiry that reflects on its own methods and assumptions.

1.7 Study Guide

1. Goode and Hatt, Methods of Social Research
2. Sjoberg and Nett, Methodology of Social Research
3. Lundberg, Social Research
4. Galtung, John,Theory and Methods of Social Research
5. Young,P.V., Social Survey and Social Research

Unit-02 Sociological Research: Pure & Applied

Structure

2.1 Learning Objectives

After going through this unit, the learner will be able-

1. To understand the pure and applied research.

2.2 Introduction/ Assessment of Prior Knowledge

Search implies thorough investigation and the term 'research' which has been derived from the French word 'rechercher', 're' and 'chercher', means a critical examination of a topic or subject to discover new facts for increasing the sum total of human knowledge. It is a method for discovery of new knowledge which augments to the existing body of organized facts, ideals and aspiration, "Research is considered to be the more formal, systematic, intensive process of carrying on the scientific method of analysis. It involves a more systematic structure of investigation, usually resulting in some sort of formal record of procedures and a report of results or conclusions". Research per se constitutes a method for the discovery of truth which necessitates critical thinking. "It comprises defining and redefining problems; formulating hypothesis or suggested solutions, collecting, organizing, and evaluating data; making deductions and reaching conclusions; and at least, carefully testing the conclusions to determine whether they fit the formulated hypotheses."

2.3 Sociological Research

"Research is considered to be the more formal, systematic, intensive process of carrying on the scientific method of analysis. It involves a more systematic structure of investigation, usually resulting in some sort of formal record of procedures and a report of results or conclusions". Research per se constitutes a method for the discovery of truth which necessitates critical thinking. "It comprises defining and redefining problems; formulating hypothesis or suggested solutions, collecting, organizing, and evaluating data; making deductions and reaching conclusions; and at least, carefully testing the conclusions to determine whether they fit the formulated hypotheses."

"It is the manipulation of things, concepts or symbols for the purpose of generalizing to extend, correct or verify knowledge, whether that knowledge aids in construction of theory or in the practice of an art." Thus, research is a "systemized effort to, gain new knowledge."

Research is characterized by : (i) a specific problem.(ii) involvement in original work, (iii) resting upon a mental attitude of curiosity, (iv) requirement of an open mind, (v) resting upon the assumption that everything is subject to law and order, discovery of laws and generalizations (vii) study of cause and effect (viii) measurement and (ix) involvement in a conscious technique.

Sociological research implies discovery of some facts concealed in a social phenomenon or some laws governing it. It is mainly concerned with the cause and effect relationship of human behaviour and the discovery of new facts as well as the verification of old facts. Therefore, "we may define social research as the systematic method of discovering new facts or verifying old facts, their sequences, interrelationships, causal explanations and the natural laws which govern them." While studying human behaviour and social problems and discovering new interrelations, new knowledge, new facts and verifying old ones, social research applies the scientific method and tries to establish the causal connection between various human activities and the natural laws governing them by means of logical and systematized methods because the human behaviour may be motivated by certain rules and laws and does not appear haphazardly. Briefly stated, social research implies scientific investigation conducted in the field of social as well as behavioral sciences.

Sociological research has many objectives which may be discussed below:

1. **Manipulation of things, concepts and symbols** :

While dealing with things the scientist remains at the concrete level. He is able to purposefully handle things for experimentation. But at this level his results are at best limited to the particular thing in a specific situation and none else. Therefore the concepts symbolizing the things and their properties are also dealt with, so as to make much sense to conduct controlled inquiries through abstract notions. Use of concepts or symbols in the process of manipulation not only reduces the content and load of the things but also provides the scientist with greater facility and effect.

2. **Generalization** : The sole purpose with which manipulation of things, concepts or symbols is undertaken is to arrive at statements of generality. It implies that the findings of controlled investigation should be a conclusion which "will enable us to expect that under certain class of conditions influencing a class of things, something will happen in a generalized manner, notwithstanding its degree. But in any case the absence in generality cannot characterize science. Therefore the propositions derived on the basis of observations and through manipulation of things, concepts or symbols may vary in their levels of generality, may maintain a high or low degree but should never reach the null point. Otherwise those will move beyond the framework of science. In this regard, Slesinger and Stephenson have given the example of a physician or automobile mechanic as playing the role of a researcher. Whereas the automobile mechanic endeavors to generalize about the automobiles, the physician attempts to make ailments for a given class of patients.

3. **Verification of Old Facts**: A major purpose of social research is verification of conclusions which have already been accepted as established facts. Since there is no place for complacency in the arena of science, the established system of knowledge always warrant frequentative scrutiny so as to confirm whether or not the observations are in accordance with the predictions made on the basis

of the established corpus of knowledge. In case it is confirmed, the empirical observation strengthens the established system of knowledge. Otherwise in the light of the research outcome, the system of established corpus of knowledge calls for revision or even rejection.

4. **Extension of Knowledge:** As a sequel to generalization the seemingly inconsistencies in the existing corpus of knowledge are brought into light and attempts are made to reconcile these inconsistencies. The new general proposition, established as an outcome of research also identifies gaps in the established system of knowledge. A gap in knowledge implies the inadequacy of the theory as well as the failure of a conceptual scheme to explain and account for certain aspects of a social phenomenon. The gap is bridged up in the light of the new empirical observations. Thus knowledge gets expanded. The expansion of systematic knowledge occurs at least in a couple of ways. First in cognizing certain aspects of phenomena which were not examined in these terms prior to the advent of the new general proposition. Secondly in the light of new observation, the phenomena under investigation may be incorporated in a comparatively large class of phenomena, so as to be governed by a uniform law. As a result, the new system of knowledge not only accumulates more units under its conceptual scheme, but also appreciates greater depth of understanding and bettering of predictions.

5. **Knowledge may be used for theory building or practical application** : By seeking to explain the unexplained social phenomena, clarifying the doubtful one and correcting the misconceived facts relating to it, social research provides the scope to use the fruits of research in two possible ways : (a) theory building (.6) practical application. In its basic or pure form social research gathers knowledge for the sake of it, for building a theory in order to explain human behaviour in its totality, only for the satisfaction of knowing. For construction of theoretic models, the researcher organizes knowledge into propositions and then meaningfully articulated those propositions to constitute a more abstract conceptual system pertaining to a class of phenomena, influenced by a certain class of conditions.

In its practical or applied form, social research gathers information regarding the betterment of quality of life in social settings. The findings of social research are used as the means to an end, not construed just as an end in itself. From its utilitarian point of view the results of social research provide decision makers with proper guidelines for policy making, social welfare, amelioration of practical problems, mitigation or resolution of social conflict and tensions as well as rectification and removal of social evils.

It is generally believed that sociological research and social work research do not have much difference as the purpose of promoting the welfare of the humanity through investigation remains common to both. Whereas the social work research commences with practical problems, social

research aims at producing such knowledge that can be of use in planning and executing the social work programmes .Sociological research also has the objective of accumulating knowledge for understanding the social life of human beings. The social work research is an applied research which has the purpose of gaining knowledge in order to control or change human behaviour. On the other hand, sociological research may have practical as well as theoretical concern. Social work research serves the objectives of social work. On the contrary, social research does not have any specific goal. The main objective is to enhance in the knowledge of any social science. Moreover the social work research renders helps to the social workers for dealing which social problems relating to their client which may be afflicting either individual or the group or community. Sociological research may be of use to social worker as well as entire field of social work as it helps in enhancing the knowledge of dealing with and understating human behaviour.

2.3.1 Pure Research

Knowledge acquired through research may be used either for constructing theoretic models or as a means to some practical or utilitarian goal. The former is known as basic, theoretical, fundamental or pure research, aiming at enriching the theory. It is obtained through the formal and systematic process of deductive- inductive analysis.

Pure research may be motivated by a desire to cognize or for the sake of knowing, involving a rigorous, structured analysis conducted to develop and test theories by evolving broad generalizations or principles. To a pure scientist, the scientific enquiry is noble in itself, knowledge is the highest good, truth is the supreme value, all the rest is secondary and subordinate. . He seeks to add to the volume of knowledge by formulating and testing of hypothesis and building theories. The pure researcher has no interest in the application of his findings to actual problems in the fields. Although pure type of research may have solution for problems in future, it is conducted primarily for increasing knowledge in a field of inquiry where scores of questions remain unanswered. From the above discussion, we may deduce the following characteristics of pure research.

(i) It aims at studying 'what' and 'how' of the problem.

(ii) It studies a problem from the perspective of one discipline.

(iii) It seeks to develop and test theories by evolving broad generalizations or principles.

(iv) It works at the presumption that variables not measured remain constant.

(v) It also seeks to find out answers to 'why' of the problem.

(vi) Reporting is made in technical language of the concerned discipline.

Francis Bacon, an ardent supporter of 'pure' research, held that "just as the vision of light itself is something more excellent and beautiful than its manifold use, so without doubt the contemplation of things as they are without superstition or imposture... is in itself a nobler thing than the whole harvest of inventions" Talcott Parsons has also held high the importance of' pure' research which is directed at solving abstract theoretical problems. He considers the application of knowledge gained through research as only a technological by-product of abstract relationship among concepts.

2.3.2 Applied Research

Applied or utilitarian research seeks knowledge mainly for serving some practical ends. It aims at applying theories developed through pure research to the solution of human problems. Therefore it is also called action-oriented or practice-oriented research. The applied scientist is more likely to work within a certain set of norms and values as he is apt to see his research in a practical context. Although it may involve several qualities of a pure research and although the applied scientist may work on the same data as a pure scientist, the basic goal is to improve a process by stepping in and proposing the measures to ameliorate the situation by testing the theoretical concepts in actual problem solutions. The applied scientist enjoys no scope to suggest what ought to be done. Marketing research and educational researches are applied researches in character. Whereas the former purports to the analysis of consumer preferences, market products or advertisements, the latter emphasizes the development of generalizations in respect of the teaching-learning process and instructional materials. The applied research has the following characteristics.

(i) It aims at solving a problem through application of theories developed through pure research.

(ii) It is more or less confined to the field of application of a discipline, although the collaboration of several disciplines may not be ruled out.

(iii) It is action-oriented or practice-oriented and hence seeks knowledge for the sake of serving some practical ends.

(iv) Often it may attempt on studying individual cases. It recognizes constant

change in other variables.

(v) It seeks to state how things can be ameliorated or exploited for certain personnel or ideological ends.

(vi) Reporting is made in a common language.

R.S. Lynd, a staunch advocate of the applied research, held the view that any knowledge which do not have practical utility in terms of affording solutions to day-to-day problem is of no use. An eminent researcher Samuel Stouffer has pointed out the following merits of applied research.

(i) It can speed up the process of building basic theories.

(ii) It enhances public recognition of the importance attached to it.

(iii) It influences public cooperation and financial support for its prosecution.

(iv) It not only stimulates the improvement of known tools, but also leads to the discovery of better ones.

2.4 Summary

Francis Bacon, an ardent supporter of 'pure' research, held that "just as the vision of light itself is something more excellent and beautiful than its manifold use, so without doubt the contemplation of things as they are without superstition or imposture... is in itself a nobler thing than the whole harvest of inventions" Talcott Parsons has also held high the importance of' pure' research which is directed at solving abstract theoretical problems. He considers the application of knowledge gained through research as only a technological by-product of abstract relationship among concepts.

2.5 Self Assessment Questions

1. What is research? Differentiate between applied and pure research.
2. Define research. Explain it's nature.
3. What is scientific method? Is it applicable to the social sciences? Discuss.
4. What is applied research?
5. What is pure research?

2.6 Key Words

Sociological Research- Social research is research conducted by social scientists following a

systematic plan. Social research methodologies can be classified as quantitative and qualitative.

Pure research- Basic research, also called pure research, fundamental research, basic science, or pure science, is a type of scientific research with the aim of improving scientific theories for better understanding and prediction of natural or other phenomena.

Applied Research- Applied research is a type of examination looking to find practical solutions for existing problems.

2.7 Study Guide

1. Goode and Hatt, Methods of Social Research
2. Sjoberg and Nett, Methodology of Social Research
3. Lundberg, Social Research
4. Galtung, John,Theory and Methods of Social Research
5. Young,P.V., Social Survey and Social Research

Unit-03 Ethical Issues in Social Research

Structure

3.1 Learning Objectives

After going through this unit, the learner will be able-

1. To be acquainted with the ethical issues in social research.

3.2 Introduction/ Assessment of Prior Knowledge

The guiding principles of social research are ethical neutrality and objectivity. In accordance with this yardstick, the social researcher has to approach the problem in a dispassionate manner, without bringing to bear upon their discussion any kind of ethical consideration. Even while embarking on an emotive theme like family disorganization, the social researcher should not be swayed away by his own feelings or past experience in any manner. His personal likes and dislikes should not be allowed to influence his judgment. The principles of ethical neutrality and objectivity were the outcome of positivism and evolutionism of the eighteenth and nineteenth centuries which influenced the sociological thinking during its formative stages.

3.3 Ethical issues in social research

In accordance with this yardstick, the social researcher has to approach the problem in a dispassionate manner, without bringing to bear upon their discussion any kind of ethical consideration. Even while embarking on an emotive theme like family disorganization, the social researcher should not be swayed away by his own feelings or past experience in any manner. His personal likes and dislikes should not be allowed to influence his judgment. The principles of ethical neutrality and objectivity were the outcome of positivism and evolutionism of the eighteenth and nineteenth centuries which influenced the sociological thinking during its formative stages. Auguste Comte, for example, was very much influenced by the method of investigation of Physics. As a sociological rule, he laid the foundation of the need for establishing causal relations between social phenomena through direct empirical observation of these phenomena. In the like manner, Herbert Spencer approached Sociology strictly on the lines of the theory of organic evolution. Spencer strongly believed that direct empirical observation of social phenomena was the appropriate sociological method. Therefore, there is no place for subjective perceptions of what is good or bad, desirable or undesirable in social research. Scientific social research demands that the researcher maintains an ethically neutral attitude in his pursuit of knowledge. Science never passes normal judgement on facts by designating them as good or bad. In his professional capacity, the social researcher is not supposed to take sides on issues of ethical or moral character. Scientific social research reserves science on normative questions.

Although from the ideological point of view this approach is commendable, in actual practice,

however, it may not be easy to follow strictly this ideal. To begin with, sociology is not an exact science like physics or chemistry. The subject matter of the physical sciences is external to the investigator. He can afford to be neutral and unbiased in his approach. It has been very aptly said that the stars have no sentiments, the atoms no anxieties that have to be taken into account, observation is objective with little effort on the part of the scientist to make it so." Those who are concerned with the social universe are thus at a disadvantage in comparison with those who are concerned with the physical universe. In the former case, the investigators and researchers are themselves immersed, as it were, in the objects of their study. They are, so to say, participant-observers. Their own emotions and sentiments, human as they are,-cannot fail to sway their judgment this way or that. There is a second reason for their failure to be truly objective in their approach. Like all others, sociologists live in a normative society. Since their childhood, they have been exposed to the values which the society upholds, to the ways of behaviour which the society considers to be appropriate. They assimilate most of these values and ways of behaviour and follow them almost unconsciously all throughout their lives. Apart from human qualities of passion, sentiments, emotions and attachments, their thinking processes are conditioned by the society in which they are born and brought up. Is it not too much to expect that they will be able to dislodge these completely from their minds after having imbibed all these since early childhood? A sociologist can, therefore, never be objective to the same extent and in the same manner as a natural scientist can. The sociological ideals of objectivity and ethical neutrality should be understood, subject to these qualifications.

It is necessary to point out, however, that there is disagreement among sociologists about the methodological norm of objectivity and ethical neutrality. There are sociologists who are prompted by the zeal of social reformers and argue that sociological investigations should be directed towards social reform and adoption of ameliorative measures. In their view sociologists cannot, and should not, sit in 'ivory tower' in utter disregard of what they consider to be undesirable and detrimental to the larger interests of society. The debate is still continuing among sociologists about the goal of sociological investigation. "It is desirable to recognize, however, that social action and sociological enquiry are two different enterprises. One can indulge in both, but not at the same time. Social and political actions require commitment, but scholarship requires detachment. On account of its avowed methodological norm of objectivity and ethical neutrality, sociology is sometimes given the label of 'science' ranking it with physical sciences. However this cannot be exactly maintained because Sociology is not an exact science. The objects of its investigation very often defy exact, or even nearly exact, measurement. Quantification is not possible in cases where human emotions or sentiments are involved. Human responses to the same stimulus vary from person to person, from group to group, and also over time. Generalization in such cases will naturally be

approximate! Conclusions may have to be hedged in by a number of qualifications. The errors which creep into the generalized conclusions because of the nature of variables one deals with in social. science cannot always be identified and their effects measured. In physical sciences on the other hand, the variables one has to consider in observations and experiments can be limited and controlled. The errors which enter into measurement because of the nature of variables are fairly known. Their effects can also be measured. The result may be subtracted from the total score. Unlike social sciences, finding in case of the physical sciences is thus more or less exact, the margin of error being reduced to the« minimum. Therefore, the label of' science cannot, be tagged on to sociology in spite of its claim to have maintained objectivity and ethical neutrality.

If 'science' is construed to be an attitude of mind, an attitude or approach distinguished by objectivity, rationality, and readiness to subject every hypothesis to rigorous test, then sociological investigations partake of the nature of scientific investigation. A sociologist tries his utmost to be as objective as is humanly possible for a member of society. He refuses to accept any statement or hypothesis unless he finds convincing evidence to corroborate the same. He examines all social phenomenal rationally and logically and tries to find causal explanation for the same. Sociology may be described as a 'science' in so far as it follows scientific methodology and tries to exclude all subjective perceptions which are not supported by evidence. As regards the aspect of scientific obligation, which, as pointed out earlier, has become the subject of a raging controversy especially during the last few decades with scholars like: Lynd, Znaniecki, Redfield, Sorokin, Bierstedt, Gouldner, Nisbet, Mills, Stein, Vidich and Horowitz—to mention just some of the more outstanding, vehemently questioning the ethically neutral or value-free pose of the social sciences; particularly sociology. Their's has been, for quite some time in the recent past, a minority voice and the desire within the social and behavioral disciplines to project a scientific image, i.e., to appear quantitatively precise has been so strong all these decades as to overpower whatever questions were raised against the value-free stance of these disciplines. These questions were dismissed as inconsequential or scoffed at as acts of sociological heresy.

3.4 Summary

Generalization in such cases will naturally be approximate! Conclusions may have to be hedged in by a number of qualifications. The errors which creep into the generalized conclusions because of the nature of variables one deals with in social. science cannot always be identified and their effects measured. In physical sciences on the other hand, the variables one has to consider in observations and experiments can be limited and controlled. The errors which enter into measurement because of

the nature of variables are fairly known. Their effects can also be measured. The result may be subtracted from the total score. Unlike social sciences, finding in case of the physical sciences is thus more or less exact, the margin of error being reduced to the« minimum. Therefore, the label of' science cannot, be tagged on to sociology in spite of its claim to have maintained objectivity and ethical neutrality.

3.5 Self Assessment Questions

- Discuss ethical issues involved in social research.

3.6 Key Words

Ethical Issues- There are several reasons why it is important to adhere to ethical norms in research. First, norms promote the aims of research, such as knowledge, truth, and avoidance of error. For example, prohibitions against fabricating, falsifying, or misrepresenting research data promote the truth and minimize error

3.7 Study Guide

1. Goode and Hatt, Methods of Social Research
2. Sjoberg and Nett, Methodology of Social Research
3. Lundberg, Social Research
4. Galtung, John,Theory and Methods of Social Research
5. Young,P.V., Social Survey and Social Research

Block-02 Social Research and Research Design:

Unit-04 Relation between Data and Theory

Unit-05 Research Design Exploratory, Descriptive and Diagnostic

Unit-06 Experimental Research Design

Unit-04 Relation between Data and Theory

Structure

4.1 Learning Objectives

After going through this unit, the learner will be able-

1. To find out the relations among theory, data and method.

4.2 Introduction/ Assessment of Prior Knowledge

The scientific view point of theory as well as data is significantly different from their popular conception. The scientist regards fact as an observation which is subject to empirical verification. Empiricism implies that all concepts are derived from experience and that all statements claiming to express knowledge depend on experience, for their justification. On the other hand, in its scientific perspective, theory is referred to as the relationship between data or an orderly arrangement of facts meaningfully. In fact, the modern science is the result of meaningful and orderly arrangement of data. Systematic arrangement of data, designated as theory, enables science to make prediction so as to control the material world. Therefore, scientific data are construed as the result of meaningful empirical observations. They have theoretical relevance. Hence, construing theory and data as being opposed would be misleading. On the contrary, they are so inextricably intertwined that development of science may be attributed to an incessant reciprocal interaction between theory and fact.

4.3 Theory and Data

Science is a method of approach to the entire empirical world and basic to science, in the modern times, is the intricate affinity between theory and data. Generally, theory and data are conceived as direct opposites, because theory is treated as a speculation until it is proved and data are construed as definite, with self-evident meaning.

Another misconception concerning science is that it deals with data only. On the other-hand, philosophers are concerned with theories alone. To that extent, it appears that scientific theory is supposed to be the accumulated data on a given subject. But a close examination of the scientists, engaged in research, in fact, reveals that (i) theory and data are not direct opposites but closely inter-related, (ii) that theory is not speculation and (iii) that scientist's deal with both theory as well as data.

The scientific view point of theory as well as data is significantly different from their popular conception. The scientist regards fact as an observation which is subject to empirical verification. Empiricism implies that all concepts are derived from experience and that all statements claiming to express knowledge depend on experience, for their justification. On the other hand, in its scientific perspective, theory is referred to as the relationship between data or an orderly arrangement of facts meaningfully. In fact, the modern science is the result of meaningful and orderly arrangement of

data. Systematic arrangement of data, designated as theory, enables science to make prediction so as to control the material world. Therefore, scientific data are construed as the result of meaningful empirical observations. They have theoretical relevance. Hence, construing theory and data as being opposed would be misleading. On the contrary, they are so inextricably intertwined that development of science may be attributed to an incessant reciprocal interaction between theory and fact.

4.3.1 The Role of Theory

As a tool of science, theory plays the following roles:

(i) It defines the orientation of science and thereby narrows down the range of facts to be cognized. An object or a phenomenon may be studied in a variety of ways. But theory as orientation delimits the types of data which are to be abstracted in respect of a particular branch of science. The example of football may be cited in this regard. A football may be investigated within the framework of different branches of knowledge, such as economics, physics, chemistry or sociology. But each of these branches of science keeps its attention upon the particular aspects of football within its own perspective, while abstracting from reality. Therefore, the pattern of demand and supply of football comes under the economic framework, but the physicist studies it as a physical object which has a mass and which attains particular velocities under different conditions. To the chemist, a football becomes an object of chemical research. But to a sociologist, it may be construed as being concerned with those activities which have sociological relevance like play, communication, group organization etc. Thus the broad orientation of each branch of science focuses on a limited range of things within its own perspective.

(ii) **Theory also plays the role of conceptualization and classification**. Each Science develops its own concepts for communicating its findings, so much so that the theoretical system may be referred to as conceptual system. Every branch of science gets organized by a structure of concepts. The facts of science are nothing but the relationship between these concepts. Organization of knowledge necessitates some system imposed upon the observable facts. As a sequel to that, any branch of science plays the major role of developing systems of classification, a structure of concepts as well as a set of definitions of these terms in an increasingly precise manner.

(iii) **A further task of theory is summarization**. Theory summarizes concisely knowable aspects of the object of study under two simple categories of empirical generalization and systems of relationship between propositions. Man's continuing existence depends upon empirical observations which are expressed through statements that go beyond a single observation or observations by a single group. When their complexity increases and when they express the conditions of their

accuracy, relationship between the statements may be visualized.

(iv) Another task of theory is to predict facts. Because of its capability to summarize facts and state a general uniformity even beyond the immediate observations, theory performs the task of presenting what facts are to be expected. The most obvious facet of prediction is the extrapolation from the known to the unknown, with the expectation of occurrence of the same process.

(v) **Theory also performs the task of pointing to the unexplored areas**. Summarization of known facts and prediction of facts, yet to be observed, suggests where to test our knowledge. In other words, it points to gaps in our knowledge. Abridging gaps of a more basic kind brings transformation in the conceptual scheme.

4.3.2 The Role of Data

Due to the constant interaction of theory and fact, development in either of them results in development of the other. Not only that theory plays a dynamic role in unearthing of facts, but it is also expected that fact also plays an equally stellar role in the development of theory. As a result, the development of science is really dependent upon a continuous inter-stimulation of theory and fact.

Data play the following significant roles:

(i) **Striking data lead to new theories**. The entire history of science is replete with many examples, in this regard, which are construed as discoveries by the public. The basic fact underlying the growth of science is that on observation, appearing to be apparently simple, may consequently result in important new theories. R.K. Merton designates such an observation "the unanticipated, anomalous and strategic datum". This strategic datum does not speak for itself. Every researcher may not be able to respond to such strategic datum. To that extent, the discoverer who responded to the challenge and solved is, in real terms, preceded by other researchers who visualized his discovery first but did not further apply mind to it. Only when the researcher is alert to the possible mutual action and reaction of theory and fact, the latter may initiate the former.

(ii) Data play the role of discarding or reformulating any theory if that fails to be fitted into the structure of facts. Research being a continuous process, any theory must adjust to facts under the changing circumstances. Since new facts are likely to appear, rejection or reformulation are likely to continue simultaneously. Doubting the old theories should actually be based on the development of a justified new body of theory. But at any given time one may find that many a scientist suspected-the old theories without developing a satisfactory alternative. Durkheim's rejection of the earlier theories of suicide based on psychopathology, climate, race and nationality etc. on the ground that the prevailing bodies of fact did not fit any such theories, may be cited as the best

example in this regard.

The major trends of research flow from reformulation of theories which provides the scientist with a new focus and which, in turn, necessitates those new data including even the negative facts, would be recorded. Data not only lead to reformulation, they may also determine the direction of scientific enquiry.

(iii) **Data also play their role in redefining and clarifying theory**. Although it is rare on the part of the scientist to find a fact that does not fit previous theory, nevertheless, there is every possibility of emergence of new facts and these new facts which simply fit the theory will lead to its redefinition, stating in detail what the theory presents in general terms. Furthermore, as the new facts focus on its concepts, they also clarify the theory. The likelihood of redefinition being more and more specific, the new facts may, in real terms, present new theoretical problems.

Relations between Data, Theory and Method: Method is a body of techniques for investigating phenomena, acquiring new knowledge, or correcting and integrating previous knowledge. To be termed scientific, a method of inquiry must be based on empirical data and measurable evidence subject to specific principles of reasoning. The chief characteristics which distinguishes the scientific method from other methods of acquiring knowledge is that scientists seek to let reality speak for itself, supporting a theory when a theory's predictions are confirmed and challenging a theory when its predictions prove false. A theory is a set of interrelated constructs, definitions and propositions that present a systematic view of phenomena by specifying relations among variables, with the purpose of explaining predicting the phenomena. Theories often offer a crude and general explanation of phenomena. They are refined and modified as knowledge in the form of data accumulated. Collection of pertinent data by using scientific method is essential in order to determine whether a theory can be confirmed or should be rejected or reformulated, For example, if the data gathered by the application of scientific method do not substantiate the theory, a scientist must reject or reformulate the theory to fit the fresh data. Although procedures vary from one field of inquiry to another, identifiable features distinguish scientific inquiry from other methods of obtaining knowledge Social researchers formulate hypothesis, either from the existing theories or from analogy or from the findings of other studies or from the personal and idiosyncratic experience, as explanations of phenomena and design experimental studies to test these hypotheses via predictions which can be derived from them. These steps must be repeatable to guard against mistake or confusion in any particular experimenter. Theories that encompass wider domains of inquiry may bind many independently derived hypotheses together in a coherent, supportive structure. Theories, in turn, may help form new hypotheses or place groups of hypotheses into context.

Scientific inquiry is intended to be as objective as possible in order to minimize bias. Another

basic expectation is the documentation, archiving and sharing of all data collected or produced and of the methodologies used so they may be available for careful scrutiny and attempts by other scientists to reproduce and verify them. This practice, known as full disclosure, also means that statistical measures of their reliability may be made. The goal of a scientific inquiry is to obtain knowledge in the form of testable explanations that can predict the results of future experiments. This allows scientists to gain an understanding of reality, and later use that understanding to intervene in its causal mechanisms (such as to cure disease). The better an explanation is at making predictions, the more useful it is, and the more likely it is to be correct. The most successful explanations, which explain and make accurate predictions in a wide range of circumstances, are called scientific theories. Most experimental results do not result in large changes in human understanding; improvements in theoretical scientific understanding are usually the result of a gradual synthesis of the results of different experiments, by various researchers, across different domains of science. Scientific models vary in the extent to which they have been experimentally tested and for how long, and in their acceptance in the scientific community. In general, explanations become accepted by a scientific community as evidence in favor is presented, and as presumptions that are inconsistent with the evidence are falsified.

Arising out of the basic issue of true objectives of science, the prevailing methodological orientation of social sciences generally and sociology in particular has in recent decades come in for much criticism. The critique is directed against the glorification of the hypothetico-deductive method—the method typifying the structure of inquiry in physics—as a model for the development of a system of reliable knowledge in the social sciences. The critics vehemently object to the wholesale adoption of the hypothetico-deductive model by the social or behavioural sciences and open the flood gate to a furious debate about the propriety of the prevailing methodological orientation. The hypothetico-deductive paradigm, as we most often perceive, involves the formulation of a theoretic explanation from a connected set of statements, some of which (premises) logically imply others (theorems). The truth of these theorems or logically deduced expectations (hypotheses) is open to verification by data secured in the course of empirical investigation. The critics express serious doubts about the value and fruitfulness of the hypothetico-deductive method in social sciences. While admitting that the model represents a valid and productive method of inquiry, the critics point out how this well thumbed method has failed to deliver the promised goods in the domain of the social and behavioural sciences, if its achievements by way of contributing a body of generally accepted knowledge or empirical laws were to be taken as the measure of its efficiency. Johnson, for example, has argued that from a pragmatic point of view the social sciences have achieved very little, precisely because of the way

they have interpreted the hypothetico-deductive system. The system has been taken to mean that science can validly study only the objective phenomena. It has been noted by Gouldner that with method alone we all too easily sink into ritualism,"...it sacrifices the venturesome but chancy insight for the security of controllable routine, penetrating novelty of the shallow familiarity, the broader for the narrow circumstances."It has also been maintained by the Critics that methodology is in the ultimate analysis only a means and its current worship within the social discipline brings to one's mind Robert Merton's ritualist who in effect, sacrifices the ends or goals having become so involved with them (means) that clinging to them becomes for him the prized goal. The mode worshippers in the social sciences suffering as they typically do from 'methodological inhibition' approximates in their behaviour the ritualistic adaptation which consists in "abandoning ... (the) goals and clinging all the more closely to the safe routines and the institutional norms." It is obvious that the current emphasis on formal verification via quantification would imply that one can hardly know anything by any other means. By this criterion, the major insightful works of Weber, Toennies, Simmel, Cooley, Mead and Veblen do not qualify as scientific works. And yet, but for the unwitting violation of the requirement of modern scientism, these thinkers, often referred in certain quarters as 'arm-chair theorists', might perhaps not have been able to formulate certain imaginative concepts like the looking-glass self, the role taking, conspicuous consumption, etc. Nisbet expressing himself on the implications of contemporary method-worship has only strong words to use in its condemnation. He says, "It is hard to think of a better way (than the current methodological fetishism) to apotheosize the routine and insignificant."

In the light of the arguments of the critics cited above, one would legitimately ask whether the ideals of objectivity, hard data, rigid empiricism serve to stifle original thoughts and potential creativity of scientists. The critics feel that while true creativity cannot be 'trained', serious efforts must be made by the community of scientists to at least provide for such conditions as would permit its initial expression and once revealed, give it full rein. The adherence on the part of the social sciences to the hypothetico-deductive principle implies the absolute reliance on the statistical testing of the null hypothesis. The critics opine that one of the unfortunate expressions of this is that virtually no studies are published where the results do not achieve statistical significance. "Happiness is rejecting a null hypothesis"—so goes a saying current in sociological research. So much is made of the null hypothesis that its rejection or otherwise will make or mar a study. Rosenthal's work has shown that there are various subtle and sometimes poorly understood devices whereby the researcher ensures that his hypothesis will

be- confirmed. The critics have also gone to the length of saying that so often the statistical test which is in fact a relatively simplistic stage in the development of an explanation has become confused with the explanation itself. Thus, a statistically significant difference or association does not imply necessarily a meaningful understanding of the functional and living relationships between the variables. It has been pointed out that with a sample several hundred strong, it is statistically extremely unlikely that there will exist an absolute zero correlation between any two variables and yet the sociological significance of a statistically significant coefficient may be a negligible, implying no meaningful understanding of the functional relationship between the variables.

4.4 Summary

Statistically significant difference or association does not imply necessarily a meaningful understanding of the functional and living relationships between the variables. It has been pointed out that with a sample several hundred strong, it is statistically extremely unlikely that there will exist an absolute zero correlation between any two variables and yet the sociological significance of a statistically significant coefficient may be a negligible, implying no meaningful understanding of the functional relationship between the variables.

4.5 Self Assessment Questions

1. Data and theory are interrelated. Explain.
2. Examine the role of facts in theory building.
3. What is data?
4. What is theory?

4.6 Key Words

Data- Data is information such as facts and numbers used to analyze something or make decisions.

Theory- an idea or set of ideas that is intended to explain facts or events

Method- a systematic procedure, technique, or mode of inquiry employed by or proper to a particular discipline sees scientific method.

4.7 Study Guide

1. Kalton & Moser, Survey Methods in Social Investigation
2. Goode & Hatt, Methods of Social Research
3. Young. P.V., Social Survey and Social Research
4. Sjoberg, G and Roger, N., Methodology of Social Research
5. Cocharam. W.G., Sampling Techniques
6. Lundeberg, Social Research
7. Galtung, John, Theory & Methods of Social Research

Unit-05 Research Design Exploratory, Descriptive and Diagnostic

Structure

5.1 Learning Objectives

After going through this unit, the learner will be able-

1. To be acquainted with the concept of research design.
2. To know about exploratory, Descriptive and diagnostic.

5.2 Introduction/ Assessment of Prior Knowledge

The research design refers to the overall strategy and analytical approach that you have chosen in order to integrate, in a coherent and logical way, the different components of the study, thus ensuring that the research problem will be thoroughly investigated.

5.3 Research Design

Once the research problem is formulated, a specific topic is assigned and the hypothesis is formulated, the next stage is to work out a research design. Preparing research design is an important stage in the process of conducting a research. Kerlinger defines a research design as "the plan, strategy of investigation purporting to answer research questions and control variance." The term 'plan' implies the overall scheme or programme of the research embracing on outline of what the researcher intends to do, ranging from the stage of formulation of hypotheses and their working implications to the final stage of data analysis. The term 'structure' intends to define the research study in a more specific way as the outline. The term 'strategy' is used in a more specific way than 'plan* and involves the methods and techniques- for collection of data and their analyses so as to achieve the precise research objectives. Miller defines "designed research" as "the planned sequence of the entire process involved in conducting a research study". According to P.V. Young, "Research design is the logical and systematic planning and directing of a piece of research." Selltiz and others define research design as "a catalogue of the various phases and facts relating to the formulation of a research effort. It is an arrangement of the essential conditions for collection and analysis of data in a form that aims to combine relevance to research purpose with economy with a procedure".

In the words of Ackoff[4] "Design is the" process of making decisions before the situation arises in which the decision has to be carried out. It is a process of deliberate anticipation directed towards bringing an unexpected situation under control." E.A. Schuman says that "A research design represents a compromise dictated by many practical considerations that go into social research. He says further, "A research design is not a highly specific plan to be followed without deviation, but rather a series of guide posts to keep one headed in the right direction."

According to Jahoda, Deutsch and Cook, "A research design is the arrangement of conditions for

collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure."

Thus, it becomes amply clear from the above definitions that research design is nothing but a scheme of work to be undertaken by a researcher at various stages, facilitating the research work in a systematic manner and conducting the various operations methodologically. Research design acts as a guide to achieve the goal of the researcher step by step in a calculative and cautious manner within a prescribed time limit and "specified cost. If the study is/not completed within the time limit, it will not only increase the cost but also cause a series of other problems associated with research, affecting the quality of research. Therefore, "the challenge of a research design is to translate the general scientific model into a practical research operation. Research design will refer to the entire process of planning and carrying out a research study". It involves the arrangement of conditions and observations in such a way that alternative answers to the questions taken up in the research are ruled out, containing a built in system of checks against all the factors that might affect the validity of the research outcome.

According to P.V. Young, a research design should be able to provide answer the following queries

(i) What is the study about and what type of data are required?

ii) What is the purpose of the study? What is its scope?

(iii) What are the sources of the needed data- ?

(iv) What should be the place or area of study?

(v) What time, approximately, is required for the study?

(vi) What should be the amount of material or number of cases for the study?

(vii) What type of sampling should be used?

(viii) What method of data collection would be appropriate?

(ix) How will the data be analyzed ?

(x) What should be the approximate expenditure?

(xi) What would be the methodology of study?

(xii) What should be the specific nature of study? Keeping in view the aforesaid design decisions, the researcher may split the overall practical research design into the following phases.

The sampling design, dealing with the method of selecting items to be observed for the given study;

(a) The observational design, specifying the conditions under which the observations are to be made;

(b) The statistical design, taking into account the quantitative and statistical aspects of the design which concerns with the questions of how many

items are to be observed and how the information and' data gathered are to be analyzed.

(c) The operational design, relating to the use of specific technique for the operation of the model already designed. It deals with the techniques by which the procedures specified in the sampling, statistical and observational designs can be carried out.

1. Basic purposes of Research Design

From what has been stated above, we can derive two basic -purposes:

(a) To provide answers to the research questions,

(b) To control variance. Indeed, these research purposes are achieved by the researcher himself, not by the research design.

As regards the first purpose, a research is designed to enable the researcher to arrive at an objective, accurate, valid and economic solution of the given problem to the maximum possible extent. Since scientific research begins with a provisional supposition in the form of a hypothesis, the major purpose of the design is to provide the research with a valid test of the hypothesis on the basis of empirical evidence obtained by the researcher by utilizing the least amount of money, manpower and time and maximum possibility of its being approved by other investigators engaged in the given area of investigation. By providing a sort of blue print for the variation of hypothesis, presuming the relation between two or more variables on the basis of empirical facts and by directing the process of observation in terms of determining the facts relevant to the research problem, how and where to look for them and how many observations to make, the research design becomes indispensable on the part of any researcher in scientific investigation. Furthermore, it also indicates whether or not the variables of the research are to be manipulated or selected, what specific values of the manipulated or selected variables are to be utilized in the scientific investigation, how a conceptual variable can be converted into observable facts. Research design also makes specification of the method to be adopted for manipulation of the independent variable and for measurement of the dependent variable along with suggesting the ways by which the collected data for research are to be analyzed and determining the level of statistical analysis appropriate to the research situation. "The design of an experiment and its analysis are interrelated. Indeed it is often said that one should not do an experiment without knowing how it is to be analysed." This statement of Riecken and Boruch not only applies to experimental design, but also holds good for all kinds of designs of research.

The second purpose of research is to control the effects of the potentially relevant independent variables on the behaviour of the research subjects. It merely facilitates the process of obtaining

answer to relevant questions in the research study and enables the investigator to exercise control over experimental, extraneous and error variances pertaining to the particular research problem being studied. The validity of the research findings would be affected if these variables are not controlled. In a real world, any observed event of behaviour is influenced by a multiplicity of facts and events. The behaviour being "a real World event involving overt or covert responses by one or more actors to a task or situation" and task being "any impending sequence of acts guided by a goal" both behaviour and task involve a complexity of events. Each of these may be used as an independent variable. Of course, consideration of a variable as an independent one depends upon the researcher's interest or the nature of the research problem. For example, job satisfaction, educational achievement, individual production, restriction of birth rate and similar other effects are explainable on the basis of the influence of a number of related or unrelated facts and events. But it is not possible to incorporate each one of these variables within the same research undertaking. On the contrary, a researcher must keep himself restricted only to a limited number which are used as the more explicitly relevant variables in a given research. If they happen to be active variables, their values are deliberately changed and thereby they are manipulated in order to be controlled.

2. Characteristic features of a Good Research Design

Designing a research, particularly in the field of social sciences is very complex as the selection of a method or methods of logic and planning of the design was not always guarantee sound results. As a blue print, the research design may at best be only tentative and useful to the extent of providing the researcher with a series of guide posts to keep him headed ir[1] the right direction. Although every design has its own strengths and weaknesses and simultaneously the possibility of a single perfect research design is difficult, a good research design is often believed to possess characteristic features like flexibility, appropriateness, efficiency, economically sound and so on. A design which minimizes bias and maximizes the reliability of data is construed as a good design.

Similarly the design giving the smallest experimental error is considered to the best design and the design yielding maximal information covering various aspects of a problem is construed as the most efficient design because it is appropriate to the research problem. Hence, consideration of a design as good depends too much upon the objective of the research problem and also the nature of the problem under investigation. A single design can never serve the purpose of all types of research problems because what appears to be suitable in one case, may be lacking in one respect or the other in the context of some other research problems. A good research design should always fulfill the following four conditions; objectivity, reliability, validity and generalisability of the findings.

(a) **Objectivity.** The findings are said to be objective when they pertain to the method of data

collection and the scoring of the responses. The objectivity in respect of the procedure may be judged by the degree of agreement between the final scores assigned to various persons by more than one independent observer.

The more the agreement among the observers, the more objective are the observation, recording and evaluation of the responses. Therefore, a good research design should permit fairly objective measuring instruments in which every observer visualizing a performance comes to the same conclusion.

(b) **Reliability**. The question of reliability of knowledge is usually raised when the presence of a problem arouses in the knower a demand, not only for something more than mere conjecture, but for something for which it shall be useful in a given situation and perhaps in other similar situations.[10] Reliable knowledge means any claim that is substantiated as trustworthy for a given purpose.

(c) **Validity**. Validity implies self-consistency or absence of self-contradiction. It is identified with formal truth or self-consistency. A valid reasoning conforms to the rules of correct reasoning. It is that type of reasoning where conclusions automatically follow from the premises legitimately.

d) **Generalisability**. The degree of generalisability is known in terms of the replicability and reproducibility of the findings in spite of different measures and settings respectively.

Elements of Research Design

1. Selection of Research Problem.
2. Selection of Units of Analysis.
3. Choice of Variable
4. Identification of Relationships.
5. The Nature of Causal Relationship.
6. Operationlisation of Concepts and Definitions.
7. Formulation of Hypotheses.

1. **Selection of Research Problem**. As regards the selection of topic for research, anything that is social and empirical is a relevant problem for social research. The factors which affect the decisions on selection of topic in social sciences are : (i) the structure and state of a discipline (ii) social problems (iii) other determinants like the availability of grants for particular themes, the popularity and prestige of the particular area 'of research, public interest and motivation of the researcher etc., and (iv) practical considerations.

2. **Selection of Units of Analysis**. Determination of the units of analysis is a key factor in social research. In general, the purpose of the study dictates the selection of the appropriate unit of analysis. The objects or events or entities under investigation are referred to as units of analysis in social sciences.

3. **Choice of Variable**. Since a social scientist is primarily interested in studying the relationship

among some characteristics or properties of the observed units which are subject to variation over cases, over time or over both cases and time, it is necessary for a researcher to decide which variables should be the focus of research. Explanatory variables are known as the variables under focus. They are of two types dependent and independent. The former one is the variable the researcher is interested in explaining and predicting. Dependent variable is the presumed effect. The independent variable is the presumed cause. The extraneous variables are those which are not the direct focus of research. Those are of two types: controlled and uncontrolled. The controlled variables are held constant or prevented from varying during the course of observation. Apart from the above classification of the variables, a typology of quantitative and qualitative variables is also made. Whereas a quantitative variable implies values or categories consisting of numbers, qualitative variables represent certain qualities, attributes or discrete categories.

4. **Identification of Relationship**. In real terms, very many social researchers directly aim at developing and testing relationships, apart from gaining familiarity of a phenomenon or description of communities or groups or exploration of a situation or event. However, on the whole, research findings largely depend on particular anticipated relationships. Therefore, identification of the anticipated relationship and the guiding theoretical premises assume greater importance.

5. **The Nature of Causal Relationship**: Causal relationships constitute the heart of scientific understanding. These are very much required for purposes of explanation and prediction. In order to establish causality, the social scientists take help of three types of evidence: association, direction and non- spuriousness.

Statistical association, such as a pattern of change in one variable is related to the other variable, indicates that former is the cause. Causal relationships are determined in terms of strong and weak associations.

Another criterion required for establishing a causal connection between events is that the direction of influence should be from cause to effect. In other words', cause must precede its effect.

The third criterion needed to establish a causal relationship between events is non-spuriousness which implies that in order to inter a causal relationship from an observed correlation there should be sufficient reason to believe that no hidden factors have contributed to a spurious relationship. Ideally, the researcher must show that the connection between the variables is held constant.

6. **Operationalisation of Concepts.** Since concepts serve a number of important functions, clarity and precision in the usage of concepts are to be achieved by definitions which must contain the distinctive characteristics or qualities of the phenomenon under investigation.

Concepts, in order to be operationally existent, should be established through operational definitions which are instrumental in specifying the contextual meaning of concepts and providing the

framework of their application. Briefly stated, the operational definitions serve as a link between the conceptual theoretical level and the observational empirical level.

7. **Formulation of Hypothesis.** In order to state the research questions in a precise manner so as to give clear indication of what is to be observed and what kind of information will be gathered, the research questions must be stated in the form of hypotheses. Hypotheses are tentative generalisations which are expected but based on unconfirmed relationship between two or more variables.

3. Types of Research Design

On the basis of research purpose, research studies may broadly be categorised into four types:

(i) Exploratory or Formulative Design

(ii) Descriptive Design

(iii) Diagnostic Design

(iv) Experimental Design.

The nature of each of these designs is explained below.

4. Exploratory or Formulative Design

The main purpose of exploratory study is to gather information which will help in future for formulation of a precise research problem. On the basis of the collected facts the researcher may be able to formulate sound hypotheses for further research. It may also enable the researcher to get himself acquainted with the phenomena which he expects to investigate at a later stage. The aim of an exploratory or formulative study may be clarification of concepts, establishing priorities for future research and collection of data about the actual conditions which affect an intended research.

Requirement of Exploratory Design

The essentials for exploratory or formulative design are:

(a) Review of pertinent literature

(b) Experience Survey

(c) Analysis of Insight Stimulating cases.

(a) **Review of Pertinent Literature.** While proceeding in the path of research the researcher has to take help from the work already done by his predecessors. By doing so, he will not only save himself from the problem of trial and error but also minimize the expenditure of his energy. Apart from reviewing available literature pertaining to the problem under investigation, the researcher may also take into account the literature pertinent to analogous problems.

(6) **Experience Survey**. Because of the complicated nature of social problems, the researcher is not in a position to collect all the required materials about a particular problem from one place. At times the

researcher has to contact the persons who have earned enough of experience to understand and analyze the social reactions. The researcher should take advantage of their experience in a very intelligent manner.

Taking good advantage of the experience of the persons involves the following steps:

(i) Selection of respondents

(ii) Questioning of respondents

(a) **Selection of Respondents:** Formulation of a correct exploratory design requires that the investigator should make proper selection of the respondents. For this purpose he should select only those respondents who are dependable and who have actual knowledge regarding the problem under investigation. The selection of the respondents may be made either directly or indirectly. In direct selection the investigator chooses those persons who are well known for their knowledge in the problem area. In case of indirect selection the investigator chooses those persons who are indirectly concerned with the problem. Hence, the selection of the respondents should not be confined to a particular group; rather it should be many- sided.

ii) **Questioning of the Respondents**: Proper questioning of the respondents ensures relevant information. Therefore while framing the questions, due attention should be given on clarity of concepts. For this purpose, the investigator should consult the books and the relevant portions of the bibliographical schemes adequately.

(c) **Analysis of Insight Stimulating Cases**: Analysis of insight stimulating cases includes all those events, incidents and phenomena that stimulate the researcher. Such cases invoke in the investigator the thinking regarding the formulation of the hypotheses. In this regard, the attitude of the investigator, intensity of the case study and integrative power of investigators appear to be very important.

As regards the attitude of the investigator, receptivity and sensitivity are needed. These qualities enable the investigator to take stock of various developments occurring in his field of study and make steady progress.

Intensive case study involves studying the subject matter in all its dimensions and verifications, in the background of history.

In this regard, the groups, the community and groups of individuals may be treated as the units of study.

Integrative power of the investigator is considered important because, on that basis he is able to collect even the minutest possible information regarding the subject matter. What appears significant, in this regard, is his attention on new observations rather than on experimentation.

5. Descriptive Research Design

The purpose of descriptive type of design is to describe some event, situation, people, group or community or some phenomena. Fundamentally, it is a fact finding exercise which focuses on relatively far dimensions of a well defined entity, aiming at precise and systematic measurement of some dimensions of a phenomenon. Usually, a descriptive design involves detailed numerical descriptions, such as distribution of the population of a community by age, sex, caste or education. The researcher may also take recourse to descriptive design for estimating the proportion of people in a particular geographical locality in respect of their specific views or attitudes.

However, the procedure followed in descriptive design is broadly analogous, notwithstanding the differences evinced in their field, formulation of hypotheses, objectives, for treatment of the problem and in matters of field expansion.

6. Diagnostic Research Design

Being concerned with the express characteristics and existing social problems, the diagnostic research design endeavors to find out relationship between express causes and also suggests ways and means for the solution. Thus, the diagnostic studies are concerned with discovering and testing whether certain variables are associated. Such studies may also aim at determining the frequency with which something occurs or the ways in which a phenomenon is associated with some other factors.

Diagnostic studies are mostly motivated by hypotheses. A primary description of a problem serves the basis so as to relate the hypotheses with the source of the problem and only those data which form and corroborate the hypotheses are collected. As regards the objectives of diagnostic research design, it is based on such knowledge which can also be motivated or put into practice in the solution of the problem. Therefore, it is obvious that the diagnostic design is concerned with both the case as well as the treatment.

Diagnostic studies seek immediate to timely solution of the causal elements. The researcher, before going through other references, endeavors to remove and solve the factors and the causes responsible for giving rise to the problem.

The research design of diagnostic studies demands strict adherence to objectivity for elimination of any chances of personal bias or prejudice. Utmost care is taken while taking decisions regarding the variables, nature of observation to be made in the field, the type of evidence to be collected and tools of data collection. Simultaneously the research economy should not be lost sight of. Any faulty decision in these regard will result in wastage of time, energy and money.

Usually the first step in such designing is accurate formulation of research problem wherein research objectives are precisely stated and principal areas of investigation are properly linked. Otherwise the investigator will find it difficult to ensure the collection of required data in a systematic

manner. Simultaneously, the clarification of concepts and the operational definition of the terms should also be ensured so as to make them amenable to measurement.

At the next stage certain decisions regarding collection of data are taken. In this regard, the researcher should always bear in mind the advantages and disadvantages of the method to be employed and at the same time the nature of research problem, type of data needed, degree of desired accuracy etc. should be considered. That apart, while collecting data, effort must be made to maintain objectivity to the maximum possible extent.

In order to surmount the financial constraints, paucity of time, a representative sample of the research universe should be drawn so as to gather relevant information. A wide range of sampling techniques is prevalent which must be made use of, appropriately by the researchers.

At the stage of analysis of data, the researcher must take proper care in placing each item in the appropriate category, tabulating of data, applying statistical computations and so on.

Sufficient care must be taken to avoid potential errors due to faculty procedures of analysis of data. Advance decisions regarding the mode of tabulation, whether manual or by machine, accuracy of tabulating procedures, statistical application etc. will be of immense help in this regard.

5.4 Summary

At the stage of analysis of data, the researcher must take proper care in placing each item in the appropriate category, tabulating of data, applying statistical computations and so on.

Sufficient care must be taken to avoid potential errors due to faculty procedures of analysis of data. Advance decisions regarding the mode of tabulation, whether manual or by machine, accuracy of tabulating procedures, statistical application etc. will be of immense help in this regard.

5.5 Self Assessment Questions

1. Write a note on exploratory design.
2. Write a note on descriptive research design.
3. What is research design? Discuss its types.
4. What is research? Explain Experimental research design.
5. Distinguish between descriptive and diagnostic research design.

5.6 Key Words

Research Design- A research design is a strategy for answering your research question using empirical

data.

5.7 Study Guide

1. Kalton & Moser, Survey Methods in Social Investigation
2. Goode & Hatt, Methods of Social Research
3. Young. P.V., Social Survey and Social Research
4. Sjoberg, G and Roger, N., Methodology of Social research
5. Cocharam. W.G., Sampling Techniques
6. Lundeberg, Social Research
7. Galtung, John, Theory & Methods of Social Research

Unit-06 Experimental Research Design

Structure

6.1 Learning Objectives

After going through this unit the learner will be able-

1. To understand the experimental research design

6.2 Introduction/ Assessment of Prior Knowledge

In real terms, experimentation is resorted to when it is not possible to solve the problem through observation and general knowledge. The core of the experimental method lies in drawing inferences by observation of human relations under controlled conditions. According to Chapin, "experiment is simply observation under controlled conditions. When observation alone fails to disclose the factors that operate in a given problem, it is necessary for the scientist to resort to experiment."

6.3 Research Design

Once the research problem is formulated, a specific topic is assigned and the hypothesis is formulated, the next stage is to work out a research design. Preparing research design is an important stage in the process of conducting a research. Kerlinger defines a research design as "the plan, strategy of investigation purporting to answer research questions and control variance." The term 'plan' implies the overall scheme or programme of the research embracing on outline of what the researcher intends to do, ranging from the stage of formulation of hypotheses and their working implications to the final stage of data analysis. The term 'structure' intends to define the research study in a more specific way as the outline. The term 'strategy' is used in a more specific way than 'plan* and involves the methods and techniques- for collection of data and their analyses so as to achieve the precise research objectives. Miller defines "designed research" as "the planned sequence of the entire process involved in conducting a research study". According to P.V. Young, "Research design is the logical and systematic planning and directing of a piece of research." Selltiz and others define research design as "a catalogue of the various phases and facts relating to the formulation of a research effort. It is an arrangement of the essential conditions for collection and analysis of data in a form that aims to combine relevance to research purpose with economy with a procedure".

6.3.1 Experimental Design

The concept of experimental design in sociological research refers to systematic study of human relations by making the observations under conditions of control. In the words of Jahoda and Cook, 'an

experiment maybe considered as away of organizing the collection of evidence so as to permit one to make inference about the tenability of a hypothesis. According to Chapin, "experiment is simply observation under controlled conditions. When observation alone fails to disclose the factors that operate in a given problem, it is necessary for the scientist to resort to experiment."

In real terms, experimentation is resorted to when it is not possible to solve the problem through observation and general knowledge. The core of the experimental method lies in drawing inferences by observation of human relations under controlled conditions. Since a number of factors are in operation in every complex social situation, the social scientist, while seeking to describe the single causal relation of factor A to factor B, must attempt to create an artificial situation wherein all other factors, such as C, D, E etc., are controlled. Such a state is achieve4 by selecting two groups which are equal in all significant receipts and choosing either of the groups as 'experimental group, and the other as the 'control group', and thereafter exposing the 'experimental group' to the assumed causal variable, while keeping the 'control' group under control. After a specific time period, the two groups are compared in terms of the 'assumed effect'. The assumed causal variable and the assumed effect are otherwise called the independent variable and dependent variable respectively. Required evidence for testing causal relations among variables, already stated in the form of a hypothesis, is generated by the above method of experiment.

Demonstration of causal relationship among variables in experimental design involves three clear cut operations; such as demonstrating co variation, eliminating spurious relationships and establishing the time order of occurrence. We have already discussed the first two operations elsewhere in this chapter. Here we will discuss the third operation which is concerned with establishing the time order of occurrence. This necessitates that the researcher should demonstrate that one phenomenon occurs first or gets transformed before the other phenomenon with the premise that the phenomenon which is yet to occur cannot be the determinant of the present or past phenomena.Experimental design enables the researcher to draw causal inferences. It also smoothens the observation of independent variable causing assumed effect.The three components of experimental design are : comparison, manipulation, and control.Through comparison, the correlation between variables is known. It also enables us to demonstrate the association between two or variables.Through manipulation the researcher establishes the time order of events. The major evidence which become essential to determine the sequence of events is that-a change occurs only after the activation of the independent variable. In other words the independent variable precedes the dependent variable.

6.3.2 Types of Experimental Design

There are numerous ways in which experiments can be done in the field of social sciences. In their work "Experimental and Quasi-Experimental Designs of Research on Teaching", Donald T. Cambell and Julian C. Stanley have mentioned more than a hundred ways of conducting experiments which maybe designated as experimental design. But from the analytical point of view seven broad categories may be mentioned;

(i) After only design.
(ii) Before-after design.
(iii) Before-after with control group design.
(iv) Four group-six study design.
(v) After only with control group design.
(vi) Ex-post facto design.
(vii) Factorial design.

(i) **After only design**: Among all categories of experimental designs, after only design appears to be the simplest. This consists in measuring the dependent variable only after the experimental subjects have been exposed to the experimental variable. This design is considered more appropriate as an exploratory study than a real experiment.

(ii) **Before-after design**. As the name suggests, in this design measurement of the dependent variable is taken before as well as after exposure of the subject to the experimental variable, and the difference between the two measurements is taken to be the effect of the experimental variable. For example if the measured value of the dependent variable before exposure of the subject to the experimental variable is noted as 'A' and its measured value after exposure of the subject to experimental variable is noted as (B' then the effect of the experimental variable is taken to be (B—A).

(ii) **Before-after with control group design**. In this design the research has a control group against which the results of the experimental group are compared. The control group and experimental groups are selected in such a way that both the groups are similar and interchangeable. The control group is measured before as well as after without being exposed to the experimental variable. Hence, there may hardly be any difference between before and after measurements. But if there is any difference between before and after measurement, it represents the result of uncontrolled variables.

On the other hand, the experimental variable is introduced in the experimental group. The difference between before and after measurements in respect of the experimental group is construed as the result of experimental variable as well as the uncontrolled variables. To know the exact effect of the experimental variable, the researcher deducts the difference between the two measurements of the controlled group from the difference of the two

measurements of the experimental group. The following notation explains this:

	Control Group	Experiment Group
Whether before-measurement is taken ?	Yes **(A)**	Yes **(C)**
Whether experimental variable is introduced ?	**No**	Yes
Whether after-measurement is taken ?	Yes **(B)**	Yes **(D)**
Effect of experimental variable	**(D-O—(B—A)**	

(iii) **Four group-six study design. In** this type of design two experimental groups and two control groups are taken. Measurements are made in six cases, *i.e.* before- measurement, and after-measurement in respect of experimental group-I, after-measurement in experimental group-II, before and after measurements in respect of control group-I; and only after measurement in control group-II.

Before measurements in all the four identical groups will be almost the same. If the before-measurements have no effect on the variable being studied, the two experimental groups should provide the same after-measurements and, similarly, the two control groups should also give the same after measurements. However, the results of in the two experimental groups are most likely to be different from the results of the two control groups, if the experimental variable exerts any influence.

(v) **After only with control group design.** This is also known as two group-two study design, which is a modification of the four group-six study design. Here, the researcher does not study the experimental variable under different conditions. Hence the effect of experimental variable is determined simply by finding out the differences between the after-measurements in respect of experimental and control groups. It so happens because if before- measurements of the experimental group-II and control group-II are taken, those are likely to be the same due to the identical characteristics of the groups. On this presumption, the researcher may very well ignore them.

We can express the design by the following notation:

	Experimental Group	Control Group
Whether before measurement is taken?	**No**	No
Whether experimental variable is introduced?	Yes	Yes
Whether after-measurement is taken?	Yes **(A)**	Yes **(B)**
Effect of experimental variable	**(A—B)**	

(vi) **Ex-post facto design.** In Ex-post facto design the experimental and control groups are selected after the introduction of the experimental variable. Thus, it can be called as a variation of the after-only design. The main advantage of this design is that the test subjects are not influenced towards the subject by their knowledge of being tested. It also enables the researcher to introduce the experimental variable according to his own will and to control his observations.

(v) **Factorial design.** All categories of experimental designs discussed above are designed to test experimental variable at one level only. But, on the other hand, the factorial designs enable the experimenter the testing of two or more variables simultaneously in order to study the effects of a number of independent factors singly as well as the effects due to interactions with one another. Variations in factorial designs are made according to the degree of complexity depending upon the nature and purpose of the experiment.

6.4 Summary

At the stage of analysis of data, the researcher must take proper care in placing each item in the appropriate category, tabulating of data, applying statistical computations and so on. Sufficient care must be taken to avoid potential errors due to faculty procedures of analysis of data. Advance decisions regarding the mode of tabulation, whether manual or by machine, accuracy of tabulating procedures, statistical application etc. will be of immense help in this regard.

6.5 Self Assessment Questions

1. What is research? Explain Experimental research design.

2. What is controlled group in experimental research design? Describe.

3. Explain the advantages and disadvantages of experimental research design.

6.6 Key Words

Experimental Research Design- Experimental research design is a framework of protocols and procedures created to conduct experimental research with a scientific approach using two sets of variables.

6.7 Study Guide

1. Kalton & Moser, Survey Methods in Social Investigation
2. Goode & Hatt, Methods of Social Research
3. Young. P.V., Social Survey and Social Research
4. Sjoberg, G and Roger, N., Methodology of Social research
5. Cocharam. W.G., Sampling Techniques
6. Lundeberg, Social Research
7. Galtung, John, Theory & Methods of Social Research

Block-03 Tools and Techniques of data collection:

Unit-07 Sampling

Unit-08 Observation

Unit-09 Interview

Unit-10 Questionnaire

Unit-07 Sampling

Structure

7.1 Learning Objectives

After going through this unit the learner will be able-

1. To know the concept, principles, procedures of sampling and types of sampling.
2. To understand the utility of sampling method

7.2 Introduction/ Assessment of Prior Knowledge

A sample is a subset of a larger population. Sampling *means selecting the group that you will actually collect data from in your* research. Sampling is not only typical to the field of science, rather in our day-to-day life, we take to such method. For example, a cook presses a few pods of boiled rice in the cooking pot to be able to know that it is ready to be served. Similarly, while examining the quality of food grain one need not examine each and every grain contained in the bag. Rather an examination of a handful of grains gives the impression regarding the entire bag.

7.3 Meaning of Sampling

Sampling is the process of obtaining information regarding the entire research population or aggregate or totality by examining only a part of it. It is a picture in miniature to represent the larger whole, to enable the researcher to make a judgment or inference about the whole with the presumption that the sample data will provide valid and reliable conclusions.

Sampling is not only typical to the field of science, rather in our day-to-day life, we take to such method. For example, a cook presses a few pods of boiled rice in the cooking pot to be able to know that it is ready to be served. Similarly, while examining the quality of food grain one need not examine each and every grain contained in the bag. Rather an examination of a handful of grains gives the impression regarding the entire bag.

We frequently practice some crude versions of sampling, because in practice, census enquiry is not always possible as it involves a great deal of time, money and energy and therefore, the census method may be practically beyond the capacity of an ordinary researcher. Probably, Government is the sole institution which can completely enumerate all the items. Even then government takes ten years of time for population census. Moreover, many a time it is well nigh impossible to touch every item in the population and seldom it is possible to obtain sufficient accuracy by studying only a part of the total population. If the universe is small, it needs to be emphasized that it is of no use to take recourse to a sample survey.

7.3.1 Population and Universe

Thus a sample is a portion selected from the population or universe. However, the terms 'population' and 'universe' have been used in social research in a very specific sense. Population refers to the total number of cases with a given characteristic or characteristics, or all the members of a given set or class. Broadly speaking, 'universe' constitutes all the individuals, things, events, documents or observations either on a single or many individuals etc. belonging to designated category characterizing specific attribute which a particular study should principally cover. For example, if an investigation is intended to determine the average per capita income of the inhabitants in a particular urban centre, the universe will comprise all the earning people in that urban centre.

A 'universe' or 'population' consists of sub-population, *e.g.* the girl students in a college making the sub-population of the population which consists of all the college students. A sub-population or stratum of the entire universe may be defined by one or more specification, which makes the division of the population into mutually exclusive sections or strata.

A single unit or member of the population is called population element. According to J. Simond "Sample is a collection of observation for which one has data to work with." Almost any set of observations for which one has data makes a sample.

A 'population' or 'universe' may be divided into two types :

(i) Finite universe. (ii) Infinite Universe

A universe containing a finite member of observations or items is known as finite universe *e.g.* the students in a college, workers in a factory, the population of a city etc.

On the contrary, a population having an infinite number of observations or with the number of observations so as to appear practically infinite, is called as an infinite universe *e.g.* the floating population of a pilgrimage, number of people in a festival or fair etc. However, infinite populations do not create a problem in sampling method but rather they are considered better than the finite universe.

Another type of classification of the universe is the dichotomy of—

(i) Existent universe, (ii) Hypothetical universe.

An existent universe comprises concrete objects such as number of buses in a bus-stand, number of scooters in a particular city etc.

On the other hand, if the universe does not consist of concrete objects, rather it comprises imaginary objects, it is called hypothetical universe. The population of the throws of coin or dice in infinite number of times is hypothetical universe.

The researcher makes a decision concerning sampling unit before he actually selects sample. A sample is a finite sub-set of the population, selected from it with the objective of investigation properties.

A sample unit may be a geographical one or it may be a social unit or even it may be an individual *e.g. .a* state, district or a village. Even a construct unit such as house, flat etc. may be called a sampling unit in a geographical arena.

A sample unit may also be a social unit like family, club, school etc. or may be an individual.

The number of units in the sample is known as sample size. In other words, sample size refers to a number of items selected from the universe to constitute a sample. Decision regarding the size of sample is a major problem before a researcher. Therefore, the sample size has to be more than a small unit and at the same time less than large. And optimum sample is one which fulfils the requirements of efficiency, representativeness, reliability and flexibility.

7.3.2 Utility of Sampling

Before we go to discuss the types of sampling design involving implementing designs, it is worthwhile to understand the advantages and disadvantages of sampling in a general way. As regards its advantages, Prof. R.A Fisher has summed up the advantages of sampling over census in just four words, such as speed, economy, adaptability and scientific approach.

If the sampling plan is properly designed and is carefully executed, it is most likely yield to better results, even sometimes better than those obtained through census method.

(a) **Greater Speed:** Speed emphasizes use of less time for collection of data as an universe in miniature is to be inspected and examined. Less time is consumed not only in the conduct of sampling inquiry, but also in the processing, editing, and analysis of data. As such, adoption of sampling method becomes absolutely necessary where the results are urgently needed.

(b) Reduced Cost: The sampling method involves reduction of cost of inquiry and as such this is much more economical than census method. Because of lack of finances the developing countries may not be able to afford to a complete census. The sample method will be of immense help in conducting socio-economic surveys in those countries.

(c) **Administrative Convenience:** When small samples are used, the researcher finds it easy to give more attention to each return and to check their accuracy. Since a complete census requires a huge administrative set up involving large number of personnel, trained investigators and moreover proper co-ordination between various operating agencies, the organization and administration conducting a sample survey is in a relatively more convenient position. Contrary to the census method the sample survey requires less number of personnel or trained investigators and smaller field of inquiry.

(d) **Reliability**: A carefully designed and scientifically executed sample survey always

yields more reliable results than those obtained on the basis of a complete census survey due to the following reasons:

(i) It is always possible to determine the sampling errors and thereby ascertain the degree of reliability of the results through the use of different devices.

(ii) In a sample survey the non-sampling errors can be effectively controlled and minimized by :

(a) Engaging sufficiently qualified, skilled and trained personnel.

(b) Providing proper training to the field investigators. Adequate accuracy.

(c) Utilizing refined equipments and developed statistical techniques and processing and analyzing the relatively limited data.

(d) By ensuring the follow up work in case of non-response and incomplete response.

On the other hand, in case of a complete census, the non-sampling errors caused due to measuring and recording of observations, inaccuracy and incompleteness of information, location of unity, incomplete response, non-responses, training of investigators, interpretation of questions, bias of investigator etc. appear to be more serious.

(iii) The effective reduction of non-sampling errors in a sample survey more than compensates errors in the estimates due to sampling procedure. Therefore, the results, it provides become more accurate and reliable ones.

(iv) Sampling procedure has also got an edge over the census method in the sense that the efficiency of sampling procedure lies in the accuracy of result at par with the complete census by the use of some type of sampling check procedures.

(e) **Wider Scope:** Although it generally appears that a complete census can only provide detailed information due to its coverage of all the units in the universe, nevertheless, sampling procedure results in considerable saving of time, money, labour power and simultaneously provides obtaining more detailed and exhaustive information of the limited number of units selected in the sample. Moreover, in many a case, a complete enumeration of the universe is well nigh impracticable. In such cases where the investigation requires adequately trained personnel and more sophisticated equipments for data collection, processing and analyzing the data, it is rather inconceivable. In those cases sampling procedure is readily adaptable.

(f) Suitable for infinite or hypothetical population:

Where the universe appears to be too large or infinite, the sampling procedure is the only means available to the investigator for estimating the parameters of a population. For example, the floating

population in a fair can only be estimated by sampling method. In the analogous manner, in case of a hypothetical universe the sampling procedure is the only scientific technique or estimation of the parameters of the population. For example, in the problem of tossing a coin where the process may continue indefinitely a sampling procedure is more readily adaptable than census.

(g) Destructive testing: If in the course of inspection the units are affected adversely or destroyed, or in other words if the testing unit is destructive, the researcher is left with no other means than taking recourse to sampling procedure. In such cases, inspecting a representative sample can only be resorted to, in order to avoid complete census which will destroy all the items.

7.3.3 Principle of Sampling

Sampling demands the exercise of great care, otherwise the results may be misleading. If sample survey is not properly designed and carefully executed according to the principles, the results will lack in reliability and are more to be misleading. Therefore, F. Stephen says, "Samples are like medicines, they can be harmful, when they are taken carelessly without knowledge of their effects".

(1) Every good sample should have proper levels with instructions about its uses. Unless sampling design is made perfect, it might lead to serious complication in the final result, whereas the omission of few units in case of a census survey may hardly matter. Incomplete response or non- response from even one or two units in a small sample might have tremendous impact on the findings.

(2) A careful sample survey necessitates the involvement of qualified skilled and more experienced personnel, proper supervision and relatively more sophisticated tools and statistical techniques for the planning and execution of the sampling skill and for the collection, processing and analysis of data. If the survey lacks in either of these or all, the findings of the sample survey may not be relied upon.

(3) Although, it is believed that a sample survey saves time, money and manpower, it may so happen that sometimes the sample survey might need more time, relatively more expenditure and man power than a census survey. This happens so particularly when the sample size constitutes a large chunk of the research universe and when complicated weighted system is used.

(4) The researcher can not resort to sampling procedure if he wants to get information about the entire universe *i.e.* about each and every unit of the population. Moreover, a. sampling procedure swelling impossible when the population is too heterogeneous.

7.3.4 Types and Procedures of Sampling

Different types of sample designs are based on a couple of factors such as the representation basis and elements selection technique. As regards the representation basis, the classification may be between—probability and non- probability sampling. Probability sampling is based on the finite universe and conducive to random selection. On the other hand the non-probability sampling is non-random sampling, because it is related to infinite universe. As regards the other typology based on the element selection techniques, the sample may either be restricted or unrestricted.

In case of unrestricted sample, sample element is drawn individually from the population at large, whereas in case of restricted sample and other forms of sampling are covered. Different sample designs discussed above are shown in the chart given below.

Representation Basis -----> **Element Technique** 4	**Probability** Sampling	**Non-probability Sampling**
Un-restricted Sampling	Simple Random Sampling	Haphazard Sampling or Convenience Sampling
Restricted	Complex Random sampling *(i)* Cluster Sampling *(ii)* Systematic Sampling *(Hi)* Stratified Sampling etc.	Purposive Sampling *(i)* Quota Sampling *(ii)* Judgment Sampling

In the execution of sample survey paramount importance is given to the chance on the appropriate sample design. The selection is generally made keeping in view the objective and scope of inquiry and the type of universe to be sampled.

From the practical point of view the sample designs are basically of two types:

(1) Probability Sampling. (2)Non-probability sampling.

1. **Probability Sampling:**

It provides a scientific technique of drawing samples from population in accordance with certain laws or chance in which each unit in the universe has some definite pre-assigned probability of being selected in the sample. That is why it is called chance or random sampling. For example, in a lottery method, the individual units are picked up from the entire group not by deliberate attempt but by some mechanical processes. Since the method of selection is based on blind chance, the results obtained from it can be assured in terms of probability or the errors of estimation or the significance of the result obtained from random sampling can be measured. Due to such reasons, the superiority of random sampling design over the deliberate sampling design is established. The law of statistical regularity is ensured by random sampling, implying that if the sample chosen is a random one on an average, it will be executed in same composition and characteristics of the population. Due to such reasons, random sampling is adjudged as the most efficient technique of selecting representative sample. Random sampling may be of two types:

- Sampling without replacement.
- Sampling with replacement.

In random sampling without replacement, sampling from the finite population implies that the probability of selecting a specified unit of population at any given draw is equal to the probability of its being selected at the first draw.

In random sampling with replacement, the unit selected in any draw is replaced back before making the next draw. Thus simple random sample with replacement always amounts to sampling from an infinite population even though the population is finite.

Selection of Simple Random Sampling:

Proper care is taken to select simple random sampling. A random sample should be selected in such a manner that it will ensure the representativeness of population. This can be done by any of these following methods:-

(a) Lottery Method.

(b) Use of table of random numbers.

(c) Grid system.

(d) Alphabetical list.

Lottery Method is considered as the simplest method of drawing random sample. In such a case, the names of all the units of population or their number are written on a slip or a card which should be as homogeneous as possible in shape, size, colour etc. to avoid

human bias. Then they are mixed thoroughly in a container and thereafter lottery is drawn either blind folded or by rotating in a drum or box or in any similar devices. If the population is small then the slips or cards are put in a bag and thoroughly shuffled and then the required number or slips as units are drawn one by one. After each drawl the slips are thoroughly shuffled. The sampling units relating to numbers on the selected slips or cards will constitute random sample. An example may be cited in this regard. If we suppose that a random sample of 20 individuals is to drawn from a population of 200 individuals, we will have to assign the number from 1 to 200, one number to each individual of the population and arrange 200 individual slips bearing numbers 1 to 200. Thereafter all these slips are put in a container and shuffled throughly. Finally, 20 slips are drawn out one after another.

When the population to be sampled is reasonably large, we may use another lottery method in which the slips or cards are placed in a metal cylinder, thrown into large rotating drum which is operated mechanically. The rotation of drum mixes or randomizes the cards and finally a sample size in a desired size 'n' is drawn out from the container. Thus lottery method provides a sample which is quite independent of the properties of the population. Therefore, it is considered the best and commonly used method of selecting random sample. As regards simple random sampling with replacement, each slip or card drawn is replaced back in the container before making the next draw. But in a sampling without replacement the slips or cards once drawn are not kept again in the container. Therefore, a thorough mixing is necessary before drawing the next card or slip.

(6) **Use of Random Number Tables:**

A relatively easy method in drawing random sample can be made by the use of table of random numbers. Since the lottery method has already been described as a cumbersome task and quite time consuming process; particularly when the population is sufficiently large and since the slips or cards used in the processes cannot be made exactly similar as some bias is likely to occur, the statisticians have designed random number tables, which have been constructed in such a manner that each of the digits 0, 1, 2, ...9 appears with approximately the same frequency and independently of each other. Various statisticians like Tippet, Fisher and Yates, Kendal and Babington Smiths *etc.* have prepared tables of random numbers which can be of use for drawing random sample. The use of random number table involves following steps.

(i) 'N' units in the population numbering from 1 to N must be identified.

ii) Any page of the random number table must be selected at random and the numbers row wise or column wise or even diagonally be picked up at random.

(iii) The population units corresponding to the number selected in the above procedure

constitutes the random sample.

Although generally, Tippet's random number tables are used for the purpose, other random number tables also serve all practical purposes.

Tippet's table of random numbers:

L.H.C. Tippet constructed a list of 10,400 four digit numbers written at random at every page. They have been constructed out of 4,16,000 digits taken from census reports by combining them in fours. A list is given below—

952	6641	3992	9792	7979	5911
3170	5624	4167	9525	1545	1396 !
7203	5356	1300	2693	2370	7483
3408	2769	3563	6107	6913	7691
0560	5246	1112	9025	6008	8126

For example, if one is interested in taking 20 units from the population of 5000 units bearing numbers from 3001 to 8000, one will have to select such figures from the above random numbers which are not less than 3001 or greater than 8000.

Fisher and Yates tables of random numbers:

These comprise 15,000 digits arranged in twos, which have been obtained by drawing numbers at random from the 10th to 19th digits of A.S. Thomson's 20 figure logarithmic tables.

Kendall and Babington Smiths Table:

These random tables consist of one lakh digits, which are grouped into 25,000 sets of four digits random numbers.

(c) **Grid system:**

It is used for selecting a sample of area. According to this method a map of the entire area is prepared. Then a screen with squares is placed upon the map. Some of the squares are selected at random. Then the screen is placed upon the map and the areas falling within the selected squares are taken as samples.

(d) **Alphabetical list (Selecting** from **sequential list)**

Under this plan the names are first arranged serially according to some particular order which may be alphabetical, geographical or simply serial. Then out of the list every 10th or any other number, as the case may be, is taken up. If every tenth unit is to be selected, the selection may begin from 7th and 17th, 27th, 37th units etc. may be selected.

Merits of Simple Random Sampling:

1. Simple random sampling, being a probability sampling, bias caused due to personal judgement or discretion of the investigator is eliminated.

At the same time the sample selected becomes more representative of the universe in comparison with judgement sampling.

2. The efficiency of the estimates is ascertained due to random character of the sample and due to estimation of standard errors of the sampling distribution. According to the principle of statistical regularity and principle of inertia of Large Number, large sample will be more representative of the universe and can provide better results.
3. Simple r a n d o m s a m p l e enables us to obtain the most reliable and maximum information at the least cost- It also enables the researcher to save his time and man power because it is highly developed.

Demerits of Simple Random Sampling:

1. Although it is easy to draw random samples from finite population with the aid of random numbers tables, this is only possible when a complete list is maintained and items are readily numbered. Hence simple random sampling requires an up-dated population *i.e.* a complete up dated list of the universe. But in real terms it is practically impossible to maintain such a list. Therefore, it restricts the user to go for this sampling design.

2. If the area covered by field survey is large, it is expected that units selected in random sample are scattered widely and therefore it may consume more time and money, involve higher cost for collection of the required information.
3. If the sample size is small it may not represent the universe in miniature and thus it may fail to reflect the true characteristics of the universe.Although it is told that sampling involves less time and engages' less man power and money, in reality the numbering of units in the entire universe and preparation of cards and slips becomes quite time consuming and expensive particularly when the universe is large. Moreover, in the social sciences it may not be used so effectively.Simple random sampling usually requires large sample as compared to stratified sampling for gaining greater degree of accuracy.
4. There are instances wherein simple random sampling gives results which is highly I probabilistic *i.e.* probability is very small.

Complex Random Sampling:

Probability sampling under restricted sampling technique may result in complex random

sampling. Such sample may be called mix-sampling design because in real terms many of such designs may represent a combination of both probability and non-probability sampling-procedure in selecting sample. The different types of popular complex random sampling are discussed below:-

(i) **Systematic Sampling**:

It is the most practical way of drawing samples in selecting every *i*th item from a complete list. An element of randomness is initiated into this type of sampling by the use of random numbers and by picking up the unit with which we start. For example, if a 5% sample is required, the first item would be chosen randomly from the first 20 and thereafter every 20th item would automatically be picked-up and included in the sample. Hence, in systematic sample the investigator chooses the first unit at random and thereafter the remaining units are selected at fixed intervals and included in the sample. Of course, strictly speaking a systematic sampling is not a random sample. Nevertheless, it is considered reasonable to constitute systematic sample as random sample.

As regards the merits of systematic, sampling, it can be taken as an improvement over a simple random sampling on the ground that it is spread more evenly in the entire population.

Secondly, the systematic sampling becomes an easy task on the part of researcher and involves less cost.

Thirdly, it can be used conveniently, even in case of large population.

Demerits:

The systematic sample is also not free from its own demerits.

It may prove to be an inefficient method in sampling in case there is hidden periodicity in the population.

Secondly, if all elements of the population are ordered in such a way that they appear the representative of total population, systematic sample is considered analogous to random sampling. But in practices the systematic sampling is used on the basis of availability of lists of population.

Stratified Random Sampling:

When the universe does not constitute a homogeneous group, stratified random sampling technique is resorted to obtain a representative sample. Hence, the technique of stratified random sampling is used to obtain more representative sample if the population is heterogeneous with respect to the characteristics under study. Stratification implies the division of universe into different layers. Therefore, stratified random sampling involves the following steps:

The given universe has to be stratified into number of sub-groups or sub- population, known as strata in such a manner

(i) The units within each stratum are as homogeneous as possible.

(ii) There should be marked differences between various strata.

(*iii)* The different strata or sub-groups should not be overlapping. The criterion on the basis of which the entire universe is divided into various sub-groups of strata is known as stratifying factor which may be geographical, sociological, economic characteristics of the given universe, such as geographical area, economic status include occupation, level of education, sex etc.

Stratification will be effective only when it fulfills the three characteristics, such as knowing entity of the units in the subgroup, marked differences between various strata and non-overlapping strata, when the distribution is highly skewed, stratification becomes very effective and valuable. For example in a stratified sampling the population size is 'N' and there are

'K" relatively homogeneous strata of sizes $N, N_1, N_2 \ldots\ldots\ldots N_K$

Respectively such that $N = \sum_{i=1}^{K} N_i$

2. Simple random samples, without replacement, are to be drawn from each of 'K' strata. Let, simple random sampling without replacement of size *n-,* be drawn from the *i*th strata (i =

1, 2…….k) such that $\sum_{i=1}^{k} n_i = n$, where n is the total sample size

from the population size N. The sample of $n = \sum_{i=1}^{k} n_i$, i varying

from 1 to k units, is known as stratified random sample without replacement and technique of drawing such a sample is known as stratified random sampling.

The stratified random sampling has the following basic problems:-

(1) The researcher may be confused while determining different strata or sub-groups.

(2) He may further be confused while determining the sizes of the samples to be drawn from different strata.

In stratified sampling, the allocation of sample size n_i (i = 1, 2, …….k) i.e. the number of units to be selected from the *i*th stratum, is done either by proportional allocation, optimum allocation or disproportionate

allocation.

In the proportional allocation, the items are selected from each stratum in the same proportion as they exist in the population.

The ratio of units selected from the stratum to the population size remains the same in all the strata. This principle is mathematically stated as:

$$\frac{n1}{N1} = \frac{n2}{N2} = \ldots\ldots \quad \frac{nK}{Nk}$$

In the optimum allocation, the number of units to be drawn from the various strata is determined by the principle of optimization so that : *(a) Variance* of sample estimate of the population mean is minimum. In other words, its precision is maximum for fixed total sample size *n* (6) *Variance* of the estimate is minimum for a fixed cost estimate, (c) for fixed desired precision, the cost of the sampling design is minimum.

In disproportionate allocation, an equal number of units are taken from each stratum without having regard to the representation of the stratum in the universe. Hence, the proportion may vary from stratum to stratum. In other words, in a disproportionate stratified sample, the number of units selected from each stratum is independent of its size.

Merits of Stratified Random Sampling:

1. Stratified random sampling, if properly constituted and executed, overcomes the drawbacks of random sampling or purposive sampling.

At the same time, it enjoys the benefits of these sampling methods, because, it not only divides the given universe into different homogeneous strata keeping in view the purposive strata characteristics but also thereafter using the technique of random sampling in drawing samples from each homogeneous sub- groups. Thus a stratified random sampling is capable of giving adequate representation in respect of each sub-group of the population and rules out a possibility of complete omission of any important group of the population.

(a) Since the stratified random sampling provides more representative sample of the universe and thereby results in less variability in comparison with other sampling designs it is considered more efficient than other methods of sampling.

(c) The stratified random sampling is also convenient from the administrative point of view because of the population divisions of universe into relatively homogeneous strata. It also involves low cost and less time in terms of collection of data and supervision of the field work.

(d) The stratified random sampling is also considered an efficient method for

obtaining the results of non-precision for each other strata.

(e) Lastly, the stratified random sampling is quite effective in tackling the problems which differ quite significantly in different segment of population by considering each segment as different stratum and by approaching them independently during sampling.

Demerits:

Since the success of stratified random sampling is dependent upon effective stratification of the universe into different homogeneous sub-groups, and adequacy of representation in respect of each of the strata, the results will be biased when the stratification is faulty or adequacy is not maintained.

The following are the demerits of stratified random sampling:-

(a) The researcher may find it difficult to stratify the universe into homogeneous strata.

(b) Appropriate size of sample which ensured the uses of simple random sampling is not so easy to be determined from each of the stratum.

(c) The error caused due to wrong stratification cannot be compensated even by taking large samples.Therefore, faulty stratification will yield biased results.

(d) In case of disproportional stratified sampling if the weight assigned to different strata are faulty the result in sample will not only fail to be representative of the universe, it might also yield biased results.

CLUSTER SAMPLING:

As simple random sampling and stratified random sampling-cause heavy expenses due to the coverage of large and sparsely dispersed population and since the elements chosen in sample may lack uniformity, the total area of interest which happens to be large one, it may be conveniently divided into a number of smaller non-overlapping areas and thereafter a number of these small areas, usually called cluster, maybe chosen with the ultimate sample consisting of all the units in these small areas of cluster. These clusters may be household, city wards, or various social units. However, simple random sampling methods are used to make the sampling of clusters from the universe ; then from these selected clusters the constituent elements are drawn on the basis of random sampling, *e.g.* if a social scientist desires to conduct a sample study of the problems of the aged in villages of a district, he may proceed as follows :-

First, the researcher enlists all the villages within the district and selects a sample through the procedure ensuring random method. For each of the villages included in the sample, he makes a list of aged persons under its jurisdiction, above a particular age. For each of the villages he selects a

sample of desired size on the basis of simple random sampling. In this way the researcher sets probability of random sampling of elements which are consistent either to a lesser or greater extent. Thus the researcher becomes capable of avoiding enormous expenses which would have been incurred in course of simple random sampling procedure. When the researchers researcher resorts to sub sampling within the clusters it is called *Multi-stage sampling* because the sampling technique is carried out in various stages, progressively from more inclusive to less inclusive sampling units until he obtains his desired sample. Thus it is a further development of the principle of cluster sampling. It is more flexible than any other methods of sampling.

Although the cluster sampling reduces cost by confining survey to selected clusters, it certainly is less precise than random sampling. Relatively speaking, the marginal error is much greater in cluster sampling. Nevertheless, it is only used because of the economic advantage and due to the fact that estimates based on cluster sample happen to be more reliable per unit cost.

Area Sampling: While using the cluster sampling the researcher must bear the following points in the mind.

(i) The cluster should be as small as possible.

(ii) The cluster should be consistent with cost and limitations of the study must be based on some geographic. The clusters sub divisions.

(iii) Each cluster should contain approximately the same number of sampling units. Therefore, the cluster sampling is not found suitable if the sample comprises the private residential houses, business or industry complex, apartment etc., depicting wide variations in the number of social units.

Haphazard or Convenience Sampling:

As the name suggests, the convenience sampling is not based on any system, rather it is chosen according to the convenience of the researcher because if otherwise rigid sampling procedures are followed, the researcher may find it difficult to contact all the chosen units due to lack of money, man power and time at hand. Nevertheless, the purpose of research is not lost sight of.

Quota Sampling:

Quota sampling may be viewed as a special form of stratified sampling wherein the investigator is told in advance the sample size, so that he is aware of the number of sampling units to be examined o$ enumerated from the stratum, assigned to him. The quota of the units to be examined by the researchers from the stratum assigned to them is fixed for each investigator. While fixing up sampling quotas certain specified characteristics are to be taken **into** account, such as income group, occupational category, political or religious affiliation, sex etc. However, the investigator has

his own choice to select the particular units for investigations. They are merely assigned the quotas with clear-cut instructions to interview a specified number of units from each stratum. Although the investigator has got the choice for selecting randomly sample units, nevertheless, instead of making a random selection, the researcher usually applies judgment and discretion in choosing the sample. Simultaneously, he also tries to get the desired information as quickly as possible. At the same time, in , case of non-response from some of the selected sample units due to certain reasons like non-avail ability of the informant, in spite of repeated calls by the researcher or the inability or refusal of the respondent to give the required information, the investigator chooses some new units himself to maintain his quota. Thus he is most likely to incorporate some purposive units to obtain the required data.

The quota sampling enjoys the advantages of both a stratified-cum-purposive sampling and judgment sampling. Thus it provides the best use of stratification without incurring heavy expenses involved in resorting to any probabilistic method of sampling. That apart, it also saves time and money because of the closeness of sample units to be investigated.

Secondly, quota sampling is likely to yield quite dependable results, provided it is carefully executed by the skilled and experienced investigator.

Demerits:

Quota sampling also suffers from the limitations of judgment or purposive sampling.

(i) It is likely to biased due to the personal beliefs or prejudices of researcher while selecting the units and inspecting them.

(ii) It may involve the biases on account of the replacement or substitution of sample units for those who have no responses.

(iii) Estimation of sampling error is not possible because it is not based on random samples. Notwithstanding the shortcomings, quota sampling is adopted in market survey, political survey or in surveying the opinion poll, particularly when the researcher finds it difficult or, at times, impossible to make identification of different strata in the universe.

Judgement Sampling:

In judgement sampling the investigator's judgement is taken into account for selecting items, considered to be representative of the universe. For instance, a judgement sample of college students might be taken to obtain their reaction to a new method of teaching. The judgement sample is taken into consideration to obtain data quite frequently on qualitative research work so as to develop hypothesis rather than generalizing the research universe.

7.4 Summary

Sampling is the process of obtaining information regarding the entire research population or aggregate or totality by examining only a part of it. It is a picture in miniature to represent the larger whole, to enable the researcher to make a judgment or inference about the whole with the presumption that the sample data will provide valid and reliable conclusions.

7.5 Self Assessment Questions

1. Analyse probability sampling with suitable examples.
2. What is stratified sampling?
3. Illustrate the non-probability sampling design for quantitative data with examples.
4. Describe the types of sampling.
5. Write short note on "cluster Sampling".
6. What is sampling? Discuss the limitations.

7.6 Key Words

Sampling- A sample is a subset of individuals from a larger population. Sampling means selecting the group that you will actually collect data from in your research.

7.7 Study Guide

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Unit-08 Observation

Structure

8.1 Learning Objectives

After going through this unit the learner will be able-

1. To find out the meaning of observation.
2. To be acquainted with the types of observation.

8.2 Introduction/ Assessment of Prior Knowledge

Observation in the natural sciences is an act or instance of noticing or perceiving and the acquisition of information from a primary source. In living beings, observation employs the senses. In science, observation can also involve the perception and recording of data via the use of scientific instruments.

8.3 Meaning of Observation

Observation method has occupied an important place in descriptive sociological research. It is the most significant and common technique of data collection. Analysis of questionnaire responses is concerned with what people think and do as revealed by what they put on paper. The responses in interview are revealed by what people express in conversation with the interviewer. Observation seeks to ascertain what people think and do by watching them in action as they express themselves in various situations and activities.

Observation is the process in which one or more persons observe what is occurring in some real life situation and they classify and record pertinent happenings according to some planned schemes. It is used to evaluate the overt behaviour of individuals in controlled or uncontrolled situation. It is a method of research which deals with the external behaviour of persons in appropriate situations.

According to P.V. Young, "Observation is a systematic and deliberate study through eye, of spontaneous occurrences at the time they occur. The purpose of observation is to perceive the nature and extent of significant interrelated elements within complex social phenomena, culture patterns or human conduct".

From this definition it is clearly understood that observation is a systematic viewing with the help of the eye. Its objective is to discover important mutual relations between spontaneously occurring events and explore the crucial facts of an event or a situation. So it is clearly, visible that observation is not simply a random perceiving, but a close look at crucial facts. It is a planned, purposive, systematic and deliberate effort to focus on the significant facts of a situation.

According to Oxford Concise Dictionary, "Observation means accurate watching, knowing of

phenomena as they occur in nature with regard to cause and effect or mutual relations".

This definition focuses on two important points. Firstly, in observation the observer wants to explore the cause-effect relationships between facts of a phenomenon. Secondly, facts are watched accurately, carefully and recorded by the observer.

8.3.1 Characteristics of Observation

Observation method is a scientific technique used for collecting data. It is different from the casual observation of men in the street. Every casual observation is not a research observation. More specifically, scientific observation must comply with the following characteristics.

1. Observation is a systematic method

Observation is not haphazard or unplanned. The length of the observation periods, the interval between them, the number of observations, the area or situation of observation and various techniques used for observation are carefully planned. Often there are systematic managements for controlling the situation if special factors are to be studied, for example study of honest behaviour, sportsman spirit, leadership qualities etc.

2. Observation is specific

It is not just looking around for general aspects of human behaviour. Rather it is directed at those specific aspects of total situation which are assumed to be significant from the stand point of the purpose of the study. The layman may frequently overlook what is crucial while observing an event or phenomenon, but the scientific observer should look for some definite things which suit his purpose of study so as to economize his time, money and effort for observation.

3. Observation is objective

Observation should be objective and free from bias as far as possible. It should generally be guided by a hypothesis. The observer must maintain ethical neutrality. He must consider hypothesis as something to be tested. But at the same time he must maintain a flexible attitude, so that he can deviate from his original plan when such deviation appears inevitable.

4. Observation is quantitative

Although many important phenomena cannot be quantified, it becomes almost an imperative to use some means for quantifying observations in order to increase their precision and to facilitate their analysis. Even the quality should be converted into quantity, because qualitative data is subjective and quantitative one is objective and can further be interpreted in objective manner.

5. Observation is an affair of eyes:

P.V. Young remarks that observation is a systematic and deliberate study through eye. An observer

gathers the data which he has seen in his own eyes. Collecting information through eyes is probably the most trustworthy technique of data collection in social research.

6. Definite aim:

Observation must have some definite aims and objectives. It should be clearly defined before the beginning of the actual observation process. Without the proper aims and objectives observation will be unsystematic and expensive.

7. **The record of observation is made immediately**:

During the observation period it is very difficult on the part of the observer to remember each and every element of observation. He may forget much important information. If we rely on memory the factor of forgetting will enter and affect the data of observation. Therefore the observer should record all important information's as soon as the observation is completed.

8. Observation is verifiable:

Observation result can be checked and verified. Observation must be verified with usual criteria of reliability, validity and usability. It may be possible to check the findings of the observation by comparing the results of different observers by repeating the study.

8.3.2 Organization of Observation Method

In organizing an observation one has to go step by step in a systematic manner. The following is an adequate sequence of steps, which can be followed for the organization of observation. (1) Determination of the method of study:

If the research is to be conducted with the help of field-observation, the first thing to be decided is whether the phenomena can be studied by observation or not and whether the respondent will allow it to be observed by an outsider or not.

When this has been solved, a plan of action for observation has to be decided as is required for the success of the study. Generally it should focus on the topic of the study and hypothesis. The observer should also decide what kind of information would be beneficial for the test of his hypothesis or for making proper generalizations on the topic.

Once the observer has decided the above mentioned procedure, he has to choose about the proper method of study; whether he is going to use participant or non- participant observation; controlled or non-controlled observation. A great care has to be taken for choosing the methods of study because a wrong choice of method will make the entire research fruitless. Usually the observer should select the method of study in accordance with the nature and objectives of research problem.

Planning for observation

Observation as a research technique must always be directed by a specific purpose. It requires the expert knowledge of the observer to plan it systematically much before the start of the actual process. So observation is neither haphazard nor unplanned. The planning of an observation requires so many things. The factors one must consider in detail while planning to employ observation method are:

(i) **Determination of nature and limitation of observation**:

Definition of specific activities or units of behaviour to be observed should be determined by the researcher much before the observation. This helps him to decide what should be observed and what may be left out.

(ii) Determination of time, place and subjects of the study:

Before the observation, the observer has to take right decision regarding the time, place and subjects of the observation. The observation may be of a short duration or may continue for a longer duration. The observation may take place in a natural surrounding or on a non-controlled basis or it may take place on a laboratory type experimental basis. If the observer has to go for a non-controlled observation, he has to find out a proper place where he can study the proper incident and if he wants to conduct a controlled laboratory experiment, he has to go for the necessary arrangements. For any type of observation, the observer has to determine the right type of people and the right place for his observation.

(iii) Determination of investigator

Observation is a technical job. It can be either carried on by the researcher himself or requires a team of trained persons. If the observation has to be carried on by a team of field workers the researcher has to select the right type of field workers and he has to arrange proper training for them.

(iv) Training of the observer

It is necessary for anyone who conducts an observational study to undergo extensive training in order to ensure validity and reliability in his observations. Training in observation is particularly important in social sciences, because the observer is frequently faced with determining which factors are significant out of the multiple causations occurring simultaneously.

The observer should be carefully selected and in the course of training, a check should be made of their suitability for the observation of the particular phenomenon.

(v) Tools for observation

Various tools have been devised to help the observer in making more objective and reliable observations and to systematize the collection of data.

According to Kulbir Singh, a tool for observation includes the following:

(a) Check Lists and Schedules

These instruments make a list of items which are significant for the observation. After each item a space is provided for the observer for brief description about that particular item. These tools enable the observers to record different information quickly and rapidly and ensure that they do not miss any relevant information. It also helps for the uniform classification of data. Some check-lists are designed in such a manner that the researcher can arrive at a score that enables him to make comparisons with other data.

Schedules are also commonly used for this purpose. The researcher has to take great care for the drafting of these schedules. Before the actual operation one should test these schedules and make certain changes if necessary.

(b) Time sampling

This technique helps the observer to record the frequency of observable forms of occurrences during the number of definite time intervals that are systematically spaced. For example, if a Professor desires to know the type of activity of a student, he can record observable forms of behaviour that his student exhibits during a specified five minute interval in Sociology class each day for a fortnight rather than recording everything the student does. The Professor may only tabulate the occurrences or non-occurrence of one objectively defined form of behaviour such as "the frequency of classroom participation".

Time sampling is an adequate technique because it permits observable instances of behaviour to be quantified directly. By taking into account the number of observations, a score can be obtained, which shows the number of times the subject exhibited a particular form of behaviour. These obtained scores lend themselves rapidly to statistical treatment.

(c) Behavioural diaries

Behavioural diaries are the informal methods used to collect data. When a respondent is participating in a significant incident the observer may note down a factual statement about what the subject said or did, record various information from this incident or describe various situations in which it occurred. After collecting a series of information over a period of time, the observer may gain considerable insight regarding the life of the respondent.

Some sort of daily diaries must be filled by the observer at the end of everyday observation. It should contain some of the important headings and sub-headings. It helps for the recording of different information in an easier way and helps for the classification of data.

Anecdotes: According to Lokesh Raul, the anecdote has been the most widely used mthod for describing naturalistic behaviour. It is a word description of a behaviour episode. There is no set pattern for anecdotal writing, and various styles have been used for it.

Anecdote descriptions have served as useful tools in behavioural research. Such descriptions have been

extensively used in examining classroom practices; in analyzing community influences on development; in assessing change in interpersonal behaviour of hyper aggressive children undergoing residential treatment.

(d) Mechanical Instrument:

When several researches describe the incident, their reports often vary because of their personal bias, selective perception, emotional involvement or capricious memories. But mechanical instruments are unaffected by such factors. These can obtain various information of an event in an accurate way.

Motion picture and sound recording, for example, preserve the details of an incident in a reproducible form which can also be checked by other research workers. Films can be used to analyze audience reactions, to make slow-motion analysis of complex activities that could not have been studied under normal conditions and to serve many purposes. Many mechanical instruments not only give a reliable account of what happened, but also report it in a quantified form.

But although mechanical devices provides more refined and reliable data than human observers, they are subject to certain limitations, these can only be employed more easily in carefully controlled laboratory experiments. The use of these instruments sometimes alters the behaviour and activities of the respondents. It is also very expensive and time consuming.

Data Collection:

After arranging all necessary equipments required for research the researcher collects data through observation to test the hypothesis. However, one should remember that the data collected should be thorough and no significant data should be missed.

According to Good (1966) planning for observation includes the following factors:

(i) An appropriate group of subjects to observe.

(ii) Selection and arrangement of any special condition for the group.

iii) Length of each observation period, interval between periods and number of periods.

iv) Physical position of the observer and its possible effect on the subjects.

(v) Definition of specific activities or units of behaviour to be observed.

(vi) Entry of frequencies or tallies in the record, as a total for the entire observation period or by sub-division of time within the observation period.

(vii) Scope of observation, whether for an individual or for a group.

(viii) Form of recording, including consideration of mechanical techniques and such factors as number, time, distance and spatial relationships.

(ix) Training of the observer in terms of expertise.

(x) Interpreting observation.

3. **Execution of Observation**

A good observation plan may not lead to success unless it is followed up with skill and resourcefulness. An expert execution demands:

(i) Proper arrangement of special conditions for observing.

(ii) Assuming the proper physical position for observing.

(iii) Focusing attention on specific activities or units of behaviour under observation.

(iv) Observing discretely, the length and number of periods and intervals decided upon.

(v) Handling well the recording instruments to be used.

(vi) Utilising the training received in terms of expertise.

(4) **Recording and interpreting observation:**

There are two common procedures of recording available for observation. They are :

(i) **Simultaneous Recording**: When the observers carry on recording their observation simultaneously with the occurrence of the phenomena observed, it is called as simultaneous recording.

(ii) **Post-Recording**: At times the observer undertakes to record his observations not simultaneously with the actual observation process, but immediately after he has observed a unit of time, when the details are fresh in his mind. Using any method out of these two depends on the nature of group, the type of activities or behaviour to be observed and the skill of the observer.

The use of various devices, such as checklists, rating scales, score cards etc. help in the proper analysis and interpretation of data collected through observation. All the data should be classified and tabulated to facilitate in drawing general conclusions.

(iii) **Generalization:** When the observer has interpreted his data, it becomes easier for him to draw various generalizations. While generalizing, the observer should follow the law of logic and statistical method.

8.3.3 Types of Observation

The observer needs to know beforehand the type of observations he is to make; whether he has to simply note the occurrence of certain events or to make a judgement of their intensity duration as well as the apparent effect. Observation may be classified into different types according to the method used and the type of control exercised. The following are the chief types of observation.

(1) **Participant Observation**:

The participant observation means watching the events or situation or activities from inside by taking

part in the group to be observed. He freely interacts with the other group members, participates in various activities of the group, acquires the way of life of the observed group or his own, and studies their behaviour or other activities not as an outsider but by becoming a member of that group.

Goode and Hatt define participant observation as "the procedure used when the investigator can go disguise himself as to be accepted as a 'member of the group". So in this kind of observation the observer has to stay as a member in the group he wants to study.

According to P.V. Young, "the participant observer using non-controlled observation, generally lives or otherwise shares in the life of the group which he is studying".

Some of the examples of studies using the method of participant observation are

White's study of Cornville social and Athletic Club and P.V. Young's study of Molokan people. The famous studies of Margaret Mead on primitive societies were also based on participant observation.

For the success of participant observation it is essential that the respondents being studied should not have any doubt about the intention of the research worker. A fruitful result of participant observation is very much dependent upon the resourcefulness, tactfulness, personality manners and wit of the research worker.

- **Merits of Participant Observation**

The following are the merits of participant observation:

(1) Observation of natural behaviour :

The natural behaviour of the respondent can be studied by participant observation. When a group knows that they are going to be observed by a stranger, they feel conscious, uncomfortable and therefore naturality in their behaviour and activity is lost. But in case of the participant observation, the respondents do not know that they are being observed. So their behaviour is not constrained by the conscious feeling of being observed by a stranger.

(2) **Closeness with the group:**

In participant observation, the observer has a very good rapport with the respondents. He has a very close primary relationship with the group members. Because of this he can participate in all activities from a close angle and thus can better interpret the situation than a non-participant observer.

(3) **Studying the real character**:

Often in order to study the actual behaviour, the group research requires close participation and contact with the group members. Through participant observation the observer can make an intensive and inclusive study of the group and can gain into the real character of such group.

(4) Better Understanding:

In participant observation the observer can better understood the feeling of the respondents than an

outsider. For example, a person who is actually living in a slum area can realise the feeling and hardship of the slum dwellers in a better way than an outsider.

(5) Participation provides opportunity to learn more about an event

The chief advantage of participant observation is that in it the observer gets an opportunity to interact with the group regarding various activities of them. He can thus learn the significance of these activities that are actually not open for observation. For example, if an observer participates in a religious ceremony of a tribe, viz. "Chaitra Parba" of Gadaba tribe, he can not only observe different aspects of the cereftiony but also clear his doubt by asking various questions to the group members or learn more about that ceremony by discussing with the group in ""this regard. It is generally easier for the respondent to describe about the event on right occasion than before or after it.

- **Disadvantages of Participant Obsesvation**

Inspite of above advantages of participant observation it has also many disadvantages. The following are the disadvantages of the participant observation.

(1) Lack of objectivity:

By becoming members of group and participating very closely in it, the observer may lose his objectivity. His emotional and sentimental association with the group kills his impartiality and unbiased analysis. He may develop some soft corner for those group members and because of this; he may often justify their evil activities as just activity.

(2) **Often close association brings biased interpretation**:

Because of his close association and emotional participation with the group members the researcher creates a special position for himself in that group. He may be influenced or pleased by this and begins to support them blindly. Due to this he observes the things from his own personal point of view rather than scientific point of view.

(3) Misses important issues due to familiarity

Due to much familiarity many crucial events appear to the participant observer as of little or no significance. Therefore, he misses many of the important issues. But a stranger pays much attention even to a small thing, as this appears new to Kim.

(4) Limited range of experience

In participant observation the observer is confines himself to a particular group. So his experience becomes very deep, but the range of his experience becomes very limited.

(5) Involvement in groups

The active participation and proximity of the observer with the group may involve him in quarrels and group factionalism. He can not avoid taking side of one faction. But if he does so, he' loses his status as an impartial observer whom everybody is ready to co-operate. So it destroys the very purpose of the

research and the researcher finds it very difficult to get proper information from the group.

(6) Limits of participant observation

There are certain situations in which the participant observation is not possible. For example, it is not possible to observe criminals or prisoners.

(2) Non-Participant Observation

When the observer observes the group passively from a distance without participating in the group activities, it is known as non-participant observation. Here he does not try to influence them or take part in the group activities.

However, purely non-participant observation is extremely difficult. One cannot penetrate into the heart of a matter without proper participation in it. One really cannot imagine a kind of relationship, when the researcher is always present but never participates. This situation is hardly conducive for both the observer and the group. A combination of both participant and non-participant method is sometimes selected. The observer actively participates in some of the ordinary activities and observes passively from distance in others. Many sociologists therefore treat a non- participant observation in practice as only a quasi-participant observation. It is easier for the observer to perform both the roles than to disguise himself completely.

- **Disadvantages of Non-participant**

Observation:

The following are the disadvantages of non-participant observation.

(1) **Subjectivity;** In non-participant observation the observer does not have a clarity about certain events on activities. He cannot clear his doubts by asking various questions to the group members. Therefore he has to simply understand and interpret what he sees. This lack of understanding may make some of his findings biased and coloured by his personal prediction, belief and pre-conception.

(2) **Inadequate observation**: The observer can observe only those events which take place in front of him. But that is not enough and only a part of the phenomena as a vast range of information required for the research. He can know many things about the group when he participates in the group and interacts with the group members.

(3) **Unnatural and formal information**: The members of a group become suspicious of a person who observes them objectively. In front of an outsider or stranger they feel conscious and provide only some formal information in an unnatural way. It creates bias and what the observer collects is not actual or normal thing but only formal information.

(4) Inconvenience to the respondents : The members of a particular group always feel uncomfortable

when they know that their behaviour is critically analyzed by an outsider. Therefore in some cases the tribes, they do not allow an outsider to watch their socio-cultural activities. It is always better for a researcher to become a member of the group in order to learn much about it.

- Advantages:

However, non-participant observation also has some advantages. Following are the merits of participant observation:

(1) Objectivity and neutrality

If an observer participates in the event actively and emotionally he may try to justify the evil things of the group as just things. In this frame of mind he cannot analyze the phenomena with neutrality. But in non-participant observation, the objectivity or neutrality can be maintained. The observer in this type of observation gives a detached and unbiased view about the group.

(2) Command respect and co-operation

In case of non-participant observation the researcher plays an impartial role. Therefore every member of the group gives him a special status and co-operate with his study.

(3) More willingness of the respondent

Often people do not feel shy to disclose their secrets, weaknesses or informal things to a stranger. But they always become reluctant to disclose these things to a known person.

(4) Careful analysis:

In participant observation because of the much familiarity with the events, sometimes the observer does not realize the significance of same events and neglects them. But in non-participant observation the researcher does not even miss a minute thing. He carefully judges the merits and demerits of each and every phenomenon under study.

(5) Freedom from groupism :

In non-participant observation the researcher always maintains his impartial status. His aloofness from petty conflicts helps him to carry his research work more smoothly.

MIXED OR QUASI-PARTICIPANT OBSERVATION

Many sociologists remark that there can be no pure non-participant observation. While observing in the field one has to be involved in the group activity. In the same way purely participant observation is also difficult, because there are certain activities, in which the observer can not participate. People do not allow an outsider to study and participate in their private activities.

Therefore, a deliberate mixture of both participant and non-participant observation is always superior to either of the above two. It can bring a fruitful result for the researcher. This mixture of both the type of observation is called as mixed or quasi-participant observation. Goode and Hatt hold that in

quasi- participant observation, at the beginning, the researcher works as a member of the group for some days and later on quasi-participate in the main activities of the group and simultaneously carries on his observation programme. In this way the observation will be more successful and the researcher will not have to waste his valuable time unnecessarily by participating in the whole activities of the group.

- **NON-CONTROLLED OBSERVATION:**

Observation in social science by and large is uncontrolled. When the observation is conducted in the natural surroundings or in their usual course and the respondents performs their activities without being guided by any outside force or influenced by the observer it is known as non-controlled observation.

In uncontrolled observation the observer just visits the place where the required event in going on. For example, he can go to a tribal area in order to observe the tribal cultural practices. According to P.V. Young, "in non- controlled observation we resort to careful scrutiny of real life situations making no attempt to use instrument of precision or to check for accuracy of the phenomenon observed".

Non-controlled observations are usually not very reliable because we do not have proper method to verify its findings. Therefore it sometimes becomes a biased observation. The subject matter of uncontrolled observations are so subjective that various researchers may observe the same thing differently and draw different findings. The precision and accuracy of n on-con trolled observation is limited. One of the chief limitations of uncontrolled observation is that it is not appropriate to study the complex facts, because in this the observer does not have any control over the factors of it. In uncontrolled observation sometimes the observer misses many significant facts or causes; even a highly complex phenomenon or a significant event does not appear so to the researcher.

However, in spite of all these limitations uncontrolled observation can not be rejected as a valid research technique. P.V. Young says, "Life situations which can be adequately studied under controlled and artificial conditions are relatively few".

Most of the social phenomena have to be observed in an uncontrolled way, because social events or situations can not be artificially induced into laboratory and we have to carefully watch them only when they occur.

CONTROLLED OBSERVATION

Controlled observation is developed to reduce the defects and difficulties of non-controlled observation. These observations provide better precision and objectivity.

The most significant advantage of the controlled observation is that with the help of it the researcher can arrive at valid generalization and understand the cause-effect relationship between

different phenomena.

By it one can verify the bias, inadequate data and thereby maintain objectivity.

The control exercised in the observation may be visualized in a couple of ways:

(a) Control over the observed phenomena.

(b) Control over the observer.

(a) Control over the phenomena

In this type of observation, the subject is put to laboratory type of test with different controls. Usually this type of laboratory experiment is not adequate for social phenomena which are so complex, abstract and relative by nature. Still in order to attain objectivity, researchers try to examine these social phenomena with the help of various controls.

This kind of observation is very useful to study the behaviour of children. The observer provides various stimuli to the children and examines their reaction to these stimuli. Various studies aiming at examining the working condition also use controlled observation method.

(b) Control over the observer

Goode and Hatt say, "It is rather difficult to control the object under investigation but he can at least control himself. As we have discussed earlier that there are many social events or situations which can not be controlled or experimented by guided conditions, therefore it is always better that the observer should try to control and guide carefully his own interpretation, perception and analytical mind in order to avoid bias in social research.

The following are the various controls used for this purpose.

(1) Detailed observation plan

Observation is not haphazard. It is always systematic. Therefore the researcher should make a detailed plan for the observation. He should decide in advance what situation is to be observed in what sequence he has to proceed, which method is appropriate for his study etc. This will save his time, money and effort and the observation would be conducted each time under standardized identical conditions.

(2) Use of schedule

In observation method the researcher can also use schedule simultaneously. It is difficult on the part of any researcher to remember each and every significant information. Therefore he can use schedule in the form of various blank tables and fill the relevant information under different heads of tables. It helps in valid classification of data.

(3) Use of mechanical appliances

The observer can use a variety of mechanical tools to make valid observation. Mechanical devices like photographs, films, sound recorders etc. not only preserve the details of an incident but also

reproduce it even after the actual observation process has come to an end. Various mechanical devices can be studied later on- and if the observer has failed to record some of the important events he may cheek it at that time. By using this researcher even can study a minute thing objectively at his leisure.

(4) Maps

Maps and other devices are used successfully in social research to control the observation situation. This describes the graphical view of an event or situation. Through it we can very easily show different aspects of a social situation or structure. This can also provide us the knowledge about the situation in which controlled observation is possible.

(5) Socio-metric scales

These scales are employed to afford to statistical analysis in observation. These scales render qualitative observations to mathematically precise numbers. Thus they present greater objectivity in observational analysis.

(6) Formulation of hypothesis

The formulation of hypothesis in advance is very much essential for any observation. It makes observation more systematic, pointed and focused. It specifies exactly what things are to be observed. Therefore hypothesis should be properly planned in an observation.

(7) **Group observation**

Another control over the subjectivity of the observer can be eliminated through team or group observation. A single observer's analysis may be biased but a group observer's perception can never be biased one. Therefore, sometimes a number of observers are employed for the observation of the some phenomena. Their records are compared after the observation. If any differences are noticed, the "same must be connected or a cogent reason for the differences is found out. Again there are some situations whose full meaning cannot be analyzed unless they are viewed from various angles. For this inter-disciplinary approach can be employed and the knowledge of the experts of various branches like economics, history, anthropology, history, psychology etc. may be required to undertake the task of observation. This combined effort is highly valuable for getting reliable conclusions.

(8) Control group

In order to determine the cause-effect relationship and draw valid generalization, control group is used for observation. In order to understand the nature and value of a specific factor, the researcher has to stabilize all other factors and keep changing this specific factor. The factor which is being changed is technically called as the controlled group. By varying this factor the researcher learns the actual fact about it. This technique helps the researcher to study various interwoven causes

operating in a situation separately. For example if we wish to analyze about the effect of violent movies on children, we can expose some children to those movies and compare their post-film behaviour with non-viewing children having the same rank and status as that of viewing group. Thus control group is very much useful for comparing two types of group, their behaviour and to draw a valid generalization about it.

8.3.4 Limitations of Observation as a Method of Social Research

Observation, although a widely used method in social research, has its own limitations. According to **P.V. Young,** "not **all** occurrences are open to observation, can be observed when the observer is at hand, not all occurrences lend themselves to study by observational techniques".

The following are the chief drawbacks of the observation method:

(1) Some **of the Occurrences** may **not be open to observation:**

There are many personal behaviors or secret activities which are not open for observation. For example, no couple will allow the researcher to observe their sexual activities. In most of the cases people do not allow the outsider to study their activities.

(2) Not all occurrences open to observation can be **observed when observer is at hand**

Such problems arise because of the uncertainty of the event. Many social events are very much uncertain in nature. It is a difficult task on the part of the researcher to determine their time and place. The event may take place in the absence of the observer. On the other hand, it may not occur in the constant presence of the observer. For example, the quarrel and fight between two individuals or groups is never certain. Nobody knows when such an event will take place.

(3) Not all occurrences lend themselves to observational study:

Most of the social phenomena are abstract in nature. For example, love, affection, feeling and emotion of parents towards their children are not open to our senses and also can not be quantified by observational techniques. The researcher may employ other methods like case study; interview etc. to study such phenomena.

(4) Lack of reliability:

Because social phenomena cannot be controlled or used for laboratory experiments, generalizations made by observation method are not very reliable. The irrelativeness' of the social phenomena and the personal bias of the observer again create difficulty for making valid generalization in observation. P.V. Young remarks that in observation, no attempt is made to use instruments of precision to check the accuracy of the phenomenon.

(5) Faulty perception:

Observation is a highly technical job. One is never sure that what he is observing is the same as it appears to his eyes. Two persons may judge the same phenomena differently. One person may find something meaningful and useful from a situation but the other may find nothing from it. Only those observers who are having the technical knowledge about the observation can make scientific observation.

(6) Personal bias of the observer

The personal bias, personal view or looking at things in a particular way, often creates obstacle for making valid generalization. The observer may have his own ideas of right and wrong or he may have different pre-conceptions regarding an event which kills the objectivity in social research.

(7) Slow investigation:

Observation is a time taking process. P.V- Young rightly remarks that the valid observation can not be hurried; we can not complete our investigation in a short period through observation. It sometimes reduces the interest of both observer and observed to continue their observation process.

(8) Expensive:

Observation is a costly affair. It requires high cost, plenty of time and hard effort. Observation involves traveling, staying at the place of phenomena and purchasing of sophisticated equipments. Because of this it is called as one of the most expensive methods of data collection.

(9) Inadequate method:

According to P.V. Young, "the full answers can not be collected by observation alone". Therefore many suggested that observation must be supplemented by other methods also.

(10) Difficulty in checking validity:

Checking the validity of observation is always difficult. Many of the phenomena of observation cannot be defined with sufficient precision and does not help in drawing a valid generalization. The lack of competence of the observer may hamper validity and reliability of observation.

8.3.5 Advantages of Observation

Observation is one of the most commonly used methods of data collection in social science. The following are the some of the important advantages of the observation.

(1) Simplest method:

Observation is probably the most common and the simplest method of data collection. It does not require much technical knowledge. Although scientific controlled observation requires some technical skill of the researcher, still it is easier than other methods. Everybody in this world observes many

things in their daily life. A little training can make a person perfect, to observe his surrounding.

(2) Useful for framing hypothesis

Observation is one of the main bases of formulating hypothesis. By observing a phenomena continuously, the researcher may get well acquainted with the observed. He came to know about their habits, likes, dislikes, problems, perception, different activities and so many other things. All these help him a lot to form a hypothesis on them. Any researcher, therefore, has to be a good observer.

(3) Greater accuracy:

In other methods like interview, questionnaire etc., the researcher has to depend on information provided by the respondents. So these are indirect methods and here the investigator does not have any means to examine the accuracy of the data supplied by them. But in observation the observer can directly check the accuracy from the observed. He can apply various devices to test the reliability of their behavior. So very often the data collected through observation is more reliable than these collected through interview or questionnaire.

(4) A universal method

Observation is a common method used in all sciences, whether physical or social. So it has greater universality of practice. As a common method, it is very easily followed and accepted.

(5) Observation is the only appropriate tool for certain cases

Observation can deal with phenomena which are not capable of giving verbal information about their behaviour, feeling and activities simply for the reason that they cannot speak *e.g.* infants or animals.

Observation is indispensable for studies on infants who can neither understand the queries of the researcher nor express themselves clearly. In the case of animals observation is the only way out. For deaf and dumb persons, for serious cases of abnormality or mad persons, for non-cooperative persons, for too shy persons and for persons who do not understand the language of researcher, observation will be the only appropriate tool.

(6) Independent of people's willingness to report

Observation does not require the willingness of the people to provide various information about them. Often some respondents do not like to speak about themselves to an outsider. Some people do not have time or required skill to provide important information to the researcher. Although observation cannot always overcome such problems, still relatively speaking it requires less active co-operation and willingness of respondents. Observation is ever possible without the knowledge of the respondents.

8.3.6 Uses and Importance of Observation

Observation is probably the most refined method modern research techniques. Direct observation is recently regarded as one of the best tools of scientific procedure.

Goode and Hatt nave rightly remarked that "Science begins with observation and must ultimately return to observation for its final validation".

Observation is the basis of science. It is the pivot around which all scientific analyses revolve. It is undoubtedly the first procedure of science as all scientific data must originate in some experience or perception. As a scientific tool it may range from the most casual and uncontrolled stage to the most scientific and precise ones, involving modern mechanical and electronic means. It can be made progressively more scientific to meet the needs of the particular situation. Observation is also a fundamental tool even at the most advanced levels of science.

Science has been popularly defined as an accumulation of systematic knowledge. So undoubtedly the goal or objective of science is to gain knowledge, to reveal the truth and explore the reality behind a phenomenon. Science has to make much valid generalization for the growth of knowledge. In order to accumulate systematic knowledge science has to follow certain scientific methods. In this regard Karl Pearson has rightly remarked that "There is no shortcut to truth; no way to gain knowledge of the universal except through the gateway of scientific method".

A branch of knowledge can be called science only when it can be studied through scientific method. Observation is regarded as the chief tool of scientific analysis. It is the primary procedure of science for collecting various information regarding any phenomenon.

Man's first knowledge of the universe around him starts with observation. When a new born baby opens his eyes, he finds an unknown world. His curiosity forces him to observe them. He perceives them, interprets them, gives a meaning to each situation and in this way he learns many things. So by observation only a child begins to experience many things about his world. By looking at a situation he guesses certain things, verifies it and finally realizes it as a truth.

On the basis of observation we all form an idea; whatever vague it may be. Everyday, in each moment an individual observes many events. Some are old, others are new. We learn it and accordingly predict certain things on the, basis of it. Then of course we proceed to find out the validity and reliability of that. They may be totally correct, only partly correct or may be altogether false, but they help us to gain knowledge. This guess on prediction about certain things is nothing but called as simple hypothesis. Scientifically it is a proposition which can be put to test for determination of its validity.

Without hypothesis the research is unfocussed, a random empirical wandering. It is the necessary link

between theory and investigations which leads to discovery of additional knowledge.

Observation not only helps the scientist to draw the valid hypothesis, but also to test their validity. Thus observation helps the scientist to make valuable scientific laws, generalizations or discoveries.

However, the task of the scientist never ends with formulating hypothesis. This is merely the beginning of scientific investigation. The final objective of any science is to make valid generalization. In order to fulfill this objective the scientist again requires observation. By taking recourse to careful, unbiased and objective observation a researcher can collect various information. Through different modern scientific and mechanical devices he has to check the accuracy and reliability of phenomena which he has observed and finally he can draw a valid generalization or establish a universal and objective fact. A simple or scientific discovery has come to this world only through this process.

Detailed discussion regarding the various tools for checking the objectivity, validity and accuracy of collected information has been given in the initial pages of his chapter but some guiding-rules may be summarized below.

(1) The aim and objectives of the observation must be known to the observer.

(2) The basis for the scientific judgment to be made by the observer must be clearly defined.

(3) To increase the range, depth, accuracy of his observations and guard against errors in perception, a scientist requires a broad background of the field in which he works.

(4) To sharpen his perceptive power, he has to acquire abundant practice in the art of examining the phenomena with an alert and questioning mind.

(5) Since emotional and intellectual biases can present accuracy of observation, the observer should make a impartial study of the phenomena. Whenever possible, he should repeat observations to see whether the results will be the same on each occasion or not.

(6) Because human biases may introduce errors, the observer should use the mechanical devices to collect data whenever possible.

(7) He should write his descriptions carefully in precise and concrete terms, so that no other interpretation can possibly be placed on his words.

(8) The recording should be accurate. While recording he should not leave any important information.

If all the above mentioned conditions will be fulfilled, there is no doubt that science can successfully begin with observation and finally make valid generalization, so as to embark upon

objective facts or various discoveries on the basis of it.

8.4 Summary

Observation is the basis of science. It is the pivot around which all scientific analyses revolve. It is undoubtedly the first procedure of science as all scientific data must originate in some experience or perception. As a scientific tool it may range from the most casual and uncontrolled stage to the most scientific and precise ones, involving modern mechanical and electronic means. It can be made progressively more scientific to meet the needs of the particular situation. Observation is also a fundamental tool even at the most advanced levels of science.

8.5 Self Assessment Questions

1. What is observation?
2. What are the various types of observation?
3. What is participant observation?
4. What is non-participant observation?

8.6 Key Words

Observation- observation refers to the indepth looking upon a particular situation.

Participant observation- it refers when observer participate the community to experience the happenings

8.7 Study Guide

1. Kalton & Moser, Survey Methods in Social Investigation
2. Goode & Hatt, Methods of Social Research
3. Young. P.V., Social Survey and Social Research
4. Sjoberg, G and Roger, N., Methodology of Social research

Unit-09 Interview

Structure

8.1 Learning Objectives

After completion of this unit the learner will be able-

1. To be acquainted with the concept of interview.
2. To understand different type of interview.
3. To know the use of interview technique.

8.2 Introduction/ Assessment of Prior Knowledge

An interview is a structured conversation where one participant asks questions, and the other provides answers. In common parlance, the word "interview" refers to a one-on-one conversation between an interviewer and an interviewee.

8.3 Meaning of Interview

Interview as a technique of data collection is very popular and extensively used in every field of social research. The interview is, in a sense, an oral questionnaire. Instead of writing the response, the interviewee or subject gives the needed information verbally in a face-to-face relationship. The dynamics of interviewing, however, involves much more than an oral questionnaire. Interview is relatively more flexible tool than any written inquiry form and permits explanation, adjustment and variation according to the situation. The observational methods, as we know, are restricted mostly to non-verbal acts. So these are understandably not so effective in giving information about person's past and private behavior, future actions, attitudes, perceptions, faiths, beliefs thought processes, motivations etc. The interview method as a verbal method is quite significant in securing data about all these aspects. In this method a researcher or an interviewer can interact with his respondents and know their inner feelings and reactions. G.W. Allport in his classic statement sums this up beautifully by saying that "if you want to know how people feel, what they experience and what they remember, what their emotions and motives are like and the reasons for acting as they do, why not ask them".

Interview is a direct method of inquiry. It is simply stated as a social process in which a person known as the interviewer asks questions usually in a face to face contact to the other person or persons known as interviewee or interviewees. The interviewee responds to these and the interviewer collects various information .from these responses through a very healthy and friendly social interaction. However, it does not mean that all the time it is the interviewer who asks the questions. Often the interviewee may also ask certain questions and the interviewer responds to these. But usually the interviewer initiates the interview and collects the information from the interviewee.

Interview is not a simple two-way conversation between an interrogator and informant. According to P.V. Young, "interview may be regarded as a systematic method by which a person enters more or less imaginatively into the life of a comparative stranger". It is a mutual interaction of each other. The objectives of the interviewer are to penetrate the outer and inner life of persons and to collect information pertaining to a wide range of their experiences in which the interviewee may wish to rehearse his past, define his present and canvass his future possibilities. These answers of the interviewees may not be only a response to a question but also a stimulus to progressive series of other relevant statements about social and personal phenomena. In similar fashion. W.J. Goode and Hatt have observed that interviewing is fundamentally a process of social interaction", the interview two persons are not merely present at the same place but also influence each other emotionally and intellectually.

8.3.1 Objectives of Interview

The following are some of the important objectives of interview method,

(1) Direct contact :

The first and foremost aim of the interview method is to abolish a direct contact between the researcher and the interviewee, so that both can understand each other's feeling, attitude and needs. After the interviewer establishes a friendly relationship with the subject, certain type of confidential information may be obtained, that an individual might be reluctant to put in writing.

The interviewer can explain the purpose of his investigation, and can explain more clearly just what information he wants if the subject misinterprets the question, then the interviewer may describe it with a simple clarifying question and collect various information from them.

(2) Eliciting intimate facts:

In modern complex society, experiences are highly heterogeneous. Few people share a common lot, but their attitudes and values are quite varied. Many People can live within the protective wall of anonymity. There are many facts of personal life, one does not like to reveal. All other methods are not so effective in order to collect this intimate or personal information from a respondent which he does not want to share. But P.V. Young has rightly observed that interview is the most effective method through which the interviewer can penetrate into this protective mask and elicit these intimate facts. By establishing a rapport or a friendly relationship with the interviewee, the interviewer can gain his confidence and may be able to extract various confidential information from him.

(3) Establishing hypothesis:

Through the interview techniques the researcher may stimulate the subject to have greater insight **into** his own experiences, peculiar attitudes, outlooks, aspirations and thereby explore significant areas not anticipated by him. These new revelations help him in forming new hypothesis about personal and social behaviour. P.V. Young says, "Every verbal response and non-verbal reaction may be an "eye opener" for a whole new train of thoughts. An answer may not only be a response to a question but also a stimulus to progressive series of other relevant statements about social and personal phenomena which might indicate cause-effect relationships and at times may lead to formulation of hypothesis regarding socio-personal interaction".

(4) Verification of unique ideas:

When a researcher elicits a novel idea about certain type of behaviour, it is always desirable to conduct interview with the concerned person and see how far the ideas elicited are true or valid facts. So one can examine its validity through interview method and safely conclude about it.

Various sociologists have remarked that the objective of interview is two-fold :

(i) eliciting certain information from the interviewee^ which is known only to him and cannot be collected from any other source, *(ii)* psychological study of verbal and non- verbal behaviour under given circumstances. As regards the first objective, the interviewer clarifies the topic or area of study to the interviewee. Then interviewee narrates the experience of his life and his reactions pertaining to it. The interviewer listens to these descriptions carefully and tries to collect useful informations out of it.

For the second objective the researcher plays more the role of a social psychologist than a sociologist. His attention is more centered on the attitude and expressions of the interviewee than the actual facts. It is basically to learn about what T.W. Adorno terms "levels of personality" of the interviewee.

8.3.2 Interview guide

Apart from his skill, training and understanding of the problem, the interviewer must have a clear conception of just what information he needs. Then he has to prepare appropriate questions to extract the desired data. He has to clearly outline the best sequence of questions and stimulating comments that will make the respondent feel comfortable and stimulate his flow of conversation. All these require the help of an interview guide.

Interview guide is a brief written handbook of instructions prescribing an outline of different aspects of interview to be studied. According to P.V. Young, "when a prepared guide is

judiciously used by the interviewer as a suggestive reference, it helps the conduct the interview in four ways:

(i) Focuses attention on salient points of the study.

(ii) Secures comparable data in different ^interviews by the same or by various interviewers and thereby maintains uniformity in interviews.

(iii) Gathers the same range of items essential in the analysis of data or in testing the hypothesis formulated.

(iv) Accumulates specific concrete details as a basis for quantitative studies of life histories.

However, she also remarked that the guide is not an oral questionnaire. The guide becomes a hindrance, instead of aid, if too much attention is paid to it. When too many questions are asked from the guide and fixed replies are expected the atmosphere of the interview becomes chocked and free self- expression vanishes and everything becomes artificial. Precautions should therefore be taken to see that interview guide does not become too much rigid or structured with too many details.

Guiding the interview is one of the important tasks of the interviewer. It is the duty of the interviewer to guide the interviewee as well as the whole process of interview. It is very important especially in narrative type of interview. In such type of discussion, sometimes the respondent becomes very emotional and he becomes so absorbed that he may drag the story to a point which is not relevant and very much detached from the matter. In that case it is the responsibility of the interviewer to bring the discussion to the original matter without hurting the emotions of the interviewee. Guiding an interview is a very delicate task which should be undertaken with utmost care. Sometimes if the interviewee will be stopped from what he wants to speak (even if that is irrelevant) he may lose interest in the process and may not respond the rest of the questions. Therefore the interviewer should deal all these matters very delicately. He should be a patient listener and should take care of the liking and taste of the interviewee rather than his own At the same time care should be taken so that no important point is slipped.

8.3.3 Interview Schedule

Schedule is one of the very commonly used tools of data collection in scientific investigation. P.V. Young says "The schedule has been used for collection of personal preferences, social attitudes, beliefs, opinions, behaviour patterns, group practices and habits and much other data". The increasing use of schedule is probably due to increased emphasis by social scientists on quantitative measurement of uniformly accumulated data.

Schedule is very much similar to questionnaire and there is very little difference between the two

so far as their construction is concerned. The main difference between these two is that whereas the schedule **is** used in direct interview on direct observation and in it the questions are asked and filled by the researcher himself, the questionnaire is generally mailed to the respondent, who fills it up and returns it to the researcher. Thus the main difference between them lies in the method of obtaining data.

Goode and **Hatt** say, "Schedule is the name usually applied to a set of questions which are asked and filled by an interviewer in a face to face situation with other person".

Webster defines a schedule as ('a formal-list, a catalogue or inventory and may be a counting device, used in formal and standardized inquiries, the sole purpose of which is aiding in the collection of quantitative cross-sectional data".

From the above discussion it is clear that in schedule method interview occupies a pivotal place and plays an indispensable role. So the success of schedule largely depends on the efficiency and tactfulness of the interviewer rather than the quality of questions posed. Because the interviewer himself asks all the questions and fills the answers all by himself, here the quality of question has less significance.

- Objectives of Schedule

P.V. Young has emphasized on the following objectives of the schedule. According to her a researcher "makes the schedule a guide, a means of delimiting the sense of his enquiry, a memory tickler, a recording device". These may be discussed elaborately.

(1) Aids to delimit the scope of the study:

The schedule always focuses on a definite item of inquiry, single and isolated subject, rather than a subject in general. The researcher asks about one item and writes down answers about it. Therefore schedule delimits and specifies the subject of inquiry. It also focuses the attention of the interviewer on salient points of the study.

(2) Acts as a memory tickler:

Another objective of schedule is to act as a memory tickler. In interview, the interviewer has to ask a wide range of questions to the respondent. While doing this he may forget to ask about some important aspects of the research problem and then may require to go for the whole process again to collect that missing information. Usually most persons do not have good memories. Because of this there is always a possibility of missing certain important points. But in the schedule method an interviewer is not dependent upon his memory. Because the schedule is all planned, a formal written document of various questions which keeps the memory of the interviewer or observer refresh and keeps him reminded of the different aspects of the study which are to be observed. It also economizes the time, money and effort of the interviewer and observer.

(3) Helps in classification and analysis:

Another objective of schedule is to help in the work of tabulation classification and analysis. In case of narrative interview, the interviewee provides the information in a story form. It becomes very difficult afterwards to sort out the important points and classify them into different categories for purpose of further analysis.

The researcher may ask different types of questions. So the answers collected from the respondents are also varied. All these varieties of replies are classified under various heads. The schedule puts the entire thing in a structured form and facilitates in better tabulation and analysis.

(4) Standardized device:

Schedule also provides a standardized device for observation and interview. In a structured schedule every respondent gives reply to the same question, put in the same language, in the same sequence. So the entire process of interview takes place under standardized conditions. The data received from this is perfectly comparable and helps in an objective study.

Interview schedules are used for the interview purposes. These are the most common and important schedules used by many researchers to secure information from the interviewees. It consists of some standard questions which the interviewer asks to the respondents and then fills up the form after getting the information from the respondents.

8.3.4 Steps or procedures for forming a schedule

A good schedule requires certain planning and preparation. In most of the cases schedule is combined used with the interview method. So this is more than a series of casual questions and their replies. Rather it is a dynamic, interpersonal experience that has to be done carefully. The researcher should follow certain procedures and take certain precautions before framing a schedule. Some of the steps which are to be followed by the researcher in this regard are:

(1) Knowledge about the different aspects of problem:

While framing 'the schedule the first step is to have proper knowledge about the different aspects of the problem- The researcher has to put a great deal of thought into the selected research problem.

However, the following are the some of the necessary factors; one should take into consideration before framing a schedule on a particular topic.

(1) The researcher must have interest in the topic of research.

(ii) The nature of the problem or topic must have some social reference.

(iii) he should understand the problem thoroughly.

(iv) The problem must be defined in clear and explicit manner. (u) The problem must be defined unambiguously, so that it will help to differentiate relevant data from irrelevant ones.

(vi) existing literature on the subject should be studied.

(vii) The problem under study should be split up into various aspects; the determination of these aspects depends upon the clear understanding of the problem. Thus, for example, if the survey of the effect of family disorganization upon the criminal behaviour of children is to made, then the different aspects of the problem would be the family background of the children, the parental relation, the socialization process, family value, the authority structures etc. The researcher has to study all these aspects in complete details before framing a schedule.

(2) Knowledge about the information to be studied:

While framing a good schedule the second important step is to decide what information is necessary for a valid generalization on each aspect of the problem. An extensive literature survey usually helps the researcher to get a proper knowledge about different aspects of the research problem. By studying the previous studies in the related field the researcher gets knowledge about relevant information needed for his current study. He can again subdivide each aspect of the topic. Thus, in the above illustration family value may be further subdivided into respect for morals, tolerance, fear of religion and authority, adjustment with others, learning manners, building character and personality etc. Required information may be collected about each of them.

(3) Framing the actual questions:

The third step is the framing of the actual questions. This is the most essential part of the schedule and any error in it may invalidate the whole research study by providing biased, incorrect, incomplete or irrelevant information.

While framing the actual questions in a schedule the following are the some of sub-steps one must take into consideration.

(a) Nature of questions **to be** given

For framing a schedule there is no exclusive rules and regulation regarding the selection of nature of questions to be asked. It all depends on the nature of the research topic, the skill of the researcher, kinds of respondents and other factors. The following points are some of the general guidelines about the nature of questions.

(i) Specific questions

A common error is to ask a general question when an answer on a specific issue is wanted. For example, if one is interested specifically in a canteen's meal prices and the quality of its service, the

question "Are you satisfied or dissatisfied with your canteen?" is unsatisfactory. In the above example, the general question was framed because it failed to specify the required frames of references. But when there are occasions when no required frame of reference is needed, the general question may be appropriate. However, the researcher should try to give specific questions to the respondents as much as possible. One way to make questions more specific is to frame them in terms of the respondent's personal experience rather than in general terms.

(ii) *Simple language:*

In choosing the language for a schedule, the population being studied should be kept in mind. The aim in question wording is to communicate with respondents as nearly as possible in their own language. A survey of the members of a particular profession, for instance, can usefully employ the profession's common technical terms. Not only such terms form a part of the informant's common language but they also normally have a single precise meaning. Technical terms and jargons are however obviously to be avoided in surveys of general population. The first principles in wording are that the questions should use the simplest words that will convey the exact meaning and that the phrasing should also be as simple and informal as possible.

It is not indeed enough to know that a word or phrase is commonly used, one must equally be sure that it is used in the same sense by all groups of respondents. Even a common word 'book' has different meanings in different parts of the country. A simple case is the 'book' which in some parts of the population is taken to include magazines. Hence while forming a schedule an interviewer should ask—"During the past week, roughly how many hours you spent reading books, I mean books, not magazines or papers 7"

Clarity can still be further ensured by remembering that a simple question is more readily understood than a long complex one. So rather than relying on a single complex question, a series of simple questions should be asked. The number of such questions depends on the degree of simplicity required. Household composition is generally a complex subject. To present it in a simple way, a series of descriptive indices are required. The information can usually be best obtained by using a 'household box' on the schedule in which the household members are listed together with their relevant characteristics *viz.* age, sex, marital status, working status, educational status etc.

(iii) *Attention to be given to questions involving **memory**:*

Most factual questions, to some extent, involve the respondent in calling information. His degree of success in presenting this accurately is thus a basic determinant of the quality of his response. With certain questions such as "Are you married, single or widowed?", there is no such problem, but with a large range of survey questions recalling information does bring a problem, the severity

of which depends on what is to be recalled. Two factors of primary importance in memory are the length of time since the event took place and the event's importance to the respondent.

Even what the respondent considers insignificant are likely to be forgotten **almost** immediately and even the re-collection of significant events decreases as time elapses. Moreover, for events not forgotten completely, memory acts selectively, retaining some aspects and losing others, thus producing distorted images. For questions dealing with the past, serious attention must therefore be given to the respondent's ability to recall the required information accurately and to the ways by which they can be helped to do so.

(iv) ***Questions must be within the intellectual capacity of the respondent:***

The questions included in the schedule should be within the respondent's intellectual capacity to give answer. The researcher should not expect any reply which is beyond his informational scope. For example, an illiterate cannot reply about e-commerce, internet etc.

(v) ***Inter-relation of questions:***

Various questions asked by the researcher should be inter-related with each other. They should be asked in a proper order, so that it will be systematic, interesting and continuous one.

(vi) ***Cross-checking questions;***

In **a** schedule the researcher should include certain questions for cross checking. It will provide a scope of verification to the researcher and he can check the incorrect or bias answers of the respondents.

(b) Questions to be avoided:

Following types of questions should be avoided for a better response in schedule.

(i) ***Ambiguous questions:***

Ambiguous questions are to be avoided at all costs. If an ambiguous word creeps in, different people will understand the questions differently and will in effect be answering differently to the some question. The following example is taken from a University Research Survey.

"Is your work made more difficult because you are expecting a baby?" The question was asked to all women in the survey, irrespective of whether, they were expecting a baby or not. What **then,** did a 'No' answer mean? Depending on the respondent, it might have meant—"No, I am not expecting a baby" or "No, my work is not made more difficult by the fact that I am expecting a baby". Such ambiguity has to be avoided in any social research; otherwise it **will** minimize the objectivity of research.

(ii) ***Double barreled questions***

Ambiguity may also arise with double barreled questions, such as the following question on public transport, "Do you like traveling on trains or buses?" Respondents liking one and disliking the other

would be in a dilemma in answering this question. Clearly it needs to be divided into two separate questions, each concerned with a single idea, in this case with a single mode of transport.

(iii) ***Vague words***

Vague questions encourage vague answers. If the respondents are asked whether they go to the cinema regularly or occasionally, the meaning of their answers will be vague. (This common choice of alternatives is strictly illogical. Because the word "occasional" refers to frequency, the word 'regular' does not. However this may be the case where logic can give way to common usage). But the meaning can easily be made more precise, if the researcher will ask "How often these days do you go to the cinema? Would it be nearer to twice a week or more often, once a week, once a fortnight, once a month, three or four times a year, less often, or do you never go these days?"

Vague words and phrases like 'kind-of, 'fairly', 'generally', 'often', 'many', 'much the same', 'on the whole', etc. should be avoided. If one asks—"What kind of house do you have" ? Without specifying a frame of references, some people will answer that is semi detached, others that it is sub-urban, others that it is very pleasant and so on.

A similar type of vagueness occurs in 'why' questions. In answering the question "Why did you go to the cinema last night? Some respondents will say that they wanted to see that particular film, some that 'they did not want to stay at home', others that 'the wife suggested it' or that 'they had not been since last week[1]. The word 'why' in this question—as the phrase 'Kind of in the previous one—can mean so many different things and thereby produce a useless mixture of answers.

(iv) ***Leading or Suggestive questions ;***

Leading or suggestive type of questions should be avoided as they result in biased answers. A leading question is one which, by its content, structure or wording, leads the respondent in the direction of a certain answer. For example "You don't think do you ?" as obviously leads to a negative answer and the question form like "Should not something be done about?" leads to a positive one.

In addition to 'leading word', there is the risk that the general context of a question, the control of these preceding it and the tone of the whole schedule or interview can lead the respondent in a given direction and may bring bias in research. Therefore, while framing a schedule, the interviewer should try to avoid these types of leading questions as far as possible.

(v) ***Presuming question :***

While forming a schedule, the researcher should not presume anything about the respondent. For example questions like "How many cigarettes you smoke a day?" or "How did you vote in the last election?" are best asked only after a 'filter question' has revealed that the respondent does smoke cigarettes and did vote in the last election. Without knowing this the researcher should not presume anything about the respondent. Otherwise the respondent may feel insulted and become reluctant to

provide various information on research topic.

(vi) ***Hypothetical questions :***

Hypothetical question like "Would you like to live in a flat?" one of very limited value. Another kind of hypothetical question is "Would you like a more frequent bus service?" or "Would you like an increase in wages?" Such questions are unlikely to be of any value because the respondent is being asked if he would like something for nothing. It is hard to see how he could possibly say "No". If he did, it could be because he has taken into account some hidden factors of his own, or because he has failed to understand the question.

(vii) ***Personal questions:***

Questions regarding personal, private or secret things of a respondent should be avoided unless they are relevant for the inquiry. People are usually reluctant to disclose their personal matters regarding marital or sex life, various diseases etc. to a stranger.

(viii) *Embarrassing questions:*

Questions that may put the respondent in an embarrassing position should also be avoided. Subjects which people do not like to discuss in public create a problem to the schedule designer. Respondents are often embarrassed to discuss their personal matters, to give low-prestige answers, and to admit to socially unacceptable behaviour and attitudes. If, for instance, questions on sexual behaviour, frequency of taking bath, cheating in examinations or attitudes to communism were asked in the usual way, many respondents would probably refuse to reply and other would distort their answer.

One method of reducing the threatening nature of a question is to express it through a third person, instead of asking the respondent for his views. Here he can be asked about the views of others. An example from market research of an indirect question of this sort is—"Some women who use this cleanser find a lot of faults with it, I wonder if you can guess what they are objecting to". The purpose of this wording was to make the housewives feel free to criticize the product. The aim of such questions is to obtain the respondent's own views but he may, of course, answer the question asked, and give what he believes to be views of others. For this reason it is often advisable to follow the indirect questions.

There are several other indirect methods which can be useful in dealing with embarrassing topics. The respondent can, for instance, be shown a drawing of two persons in a certain setting with "balloons" containing speech coming from their mouth, as in comic strips and cartoons. One person's balloon is left empty and the position of that person and to fill in the missing words.

Another method is that of sentence completion; the respondent is given the beginning of a sentence and is asked to complete it, usually in a limited time to ensure spontaneity. Beison (1968)

describes a study of randomly derived sample of London teenage boys on the sensitive subject of stealing. A variety of procedures were employed in this study to make it easier for the boys to admit that they had stolen things. <3n arrival at the interviewing centre a boy chose a false name to the interviewer, who knows him only by that name. After an extended initial phase the interview proceeded to the card-sorting technique by which the information on stealing was to be obtained. The interviewer and the boy sat on either side of a table, with a screen in between so that they could not see each other. Through a slot in the screen the interviewer passed to the boy a card on which one type of stealing *{e.g.* I have stolen cigarettes) was recorded. The boy was asked to put the card in a box labeled 'Yes' if he had ever done what was recorded on it and in a box labeled "Never" if not. This was repeated for 44 kinds of theft. At the end of this sorting stage, the, interviewer went through a procedure which tried, to reduce the force of a boy's resistances and to strengthen his feeling of willingness, to admitting thefts. Then the boy was asked to resort all the cards he had put in the 'never' box. Finally he was asked for further details or each type of theft he had admitted. This detailed procedure elicited reports of many types of theft from many boys with, for example, 69% of boys admitting "I have stolen something from a shop", and 58% '(I have stolen money" at least once in their life.

(ix) ***Too long questions:***

Too long questions are boring and respondents do not follow it easily. If a researcher feels the necessity of giving a long question then he should break it into some interrelated parts, so that it will be easier on the part of the respondent to reply it.

(x) ***Question causing suspicion:***

Question which creates suspicion in the mind of the respondent like question about one's private relation, neighborhood relations, monthly income, accumulation of wealth etc. should be avoided as far as possible unless they are absolutely necessary.

(xi) ***Question on sensitive issue:***

Question creates ill feeling for others or hurt one's emotion like "Are religious practices unscientific?" "Is Islam religion better than Hinduism?" etc. should be avoided.

(xii) ***Question against universally accepted norms:***

Every society is having its own accepted normative structure. The members of that particular society always show respect to these norms. In case a schedule contains some questions which go against these accepted norms it creates dissatisfaction among the respondents. So these questions should be avoided by the researcher as far as possible. Unambiguous and uncontroversial questions should be included in the initial page of a schedule. Usually the researcher

should start from a simple question and then proceed towards complex questions. Because if complex or ambiguous questions are included in the initial pages, the respondent may refuse to give interview.

xiii) At the start of the interview the respondent is unsure of himself and so the opening questions should be one to put him at ease and build up rapport between him and the interviewer. They should be interesting questions which he will have no difficulty in answering. These should not be on sensitive topics, otherwise he may refuse to continue with the interview.

(xiv) Question seeking the advice of the respondents may be given in the beginning, so that the respondent will feel that his information is valuable and he will be more willing to extend his co-operation for rest of the interview.

(xv) It is always better to divide the entire schedule into some sections and each section should deal with a particular topic.

(xvi) The entire schedule should be regarded as a coherent unit. There should be a proper co-relation between each question and different sections of schedule. Various parts of the questionnaire should be arranged in such a way that they wouldn't be different from each other rather would make an entire schedule as an integrated whole.

(xvii) The shift from one section to another section should be very natural or smooth. Sudden jumping from one topic to another may badly affect the response of respondents.

(c) **LANGUAGE:**

While framing a schedule the researcher should be careful about the proper wording or language. Following types of word should be avoided as far as possible.

(i) ***Abbreviation:*** **In** order to reply a question the respondent should understand it clearly. A particular abbreviation given in schedule may be known to the researcher but the respondents may not understand it. Therefore, the researcher should try to avoid such abbreviations. If such abbreviations are used then its meaning and full form should be given in the schedule for the better understanding of the respondents.

ii) ***Value-loaded words:*** Words carrying different values *viz.* good and bad should be avoided as far as possible.

(iii) Native ***or unusual words:*** The researcher should try to avoid highly localized languages in his schedule. It is always better to use the words which can be understood by everyone.

(iv) Multi-meaning words: Words carrying different meanings should be avoided.

(d) Sequence of Questions

Although no hard and fast rule exists for giving a particular sequence, still in order to get a proper response the sequence of questions in a schedule needs to be planned. A proper sequence of questions may reduce the refusal rate and there is plenty of evidence that it may also influence the answer obtained. One can take into account the following factors for preparing a perfect sequence of questions. It is always good to start with a simple, general and broad questions about the topic and then to narrow down to the specific issues3 using what is known as a "funner sequence" of question. Thus a general open question on the achievement of the present government may be the beginning of a sequence, then leading to specific questions on the government's action in the field of labour relations.

(e) Types **of Questions:**

(i) ***Open*** *end question:* The open form, open end or unrestricted type of questions call for a free response in the respondent's own words. The respondent is having much freedom leisure to provide his own response. No clues are provided. It probably provides for gathering depth of response. The respondent reveals his mind, provides his frame of reference with the reasons for his responses. This type of question is sometimes difficult to interpret, tabulate and summarize in the research report. When the respondent is allowed to give free response, his expression may take any unique direction which may not find any uniformity with other responses.

However they are used mostly in pilot studies to get an idea about the research area and the possible replies. The following are the some of the examples of open end questions:

Example—1: What is your view about the current budget?

Example—2: Is it beneficial for the poor people?

Example—3: Here question 3 (b) is a typical open question not only in its form and content but also in that it opens the interview. It is often desirable to start the interview with an open question to get the respondent talking and to make him feel at ease.

3 (a) We are from the Survey Research Unit and we are trying to find out a few things about what people do in their spare time. Would you mind telling me, are there any things which you would like to spend more time on?

Yes—1

No—2

Don't know—3

3 (b) If answer yes (1) to question 3 (a), what for instance? (Tell in details).

(ii) ***Closed form of question:*** The questions that call for short, limited responses are known as restricted or closed form of questions. They provide for marking ayes or no, a short response, or checking an item out of a list of given responses. It restricts the choice of response for the respondents. He has simply to select a response out of supplied responses and has not to frame responses in his own way. The following are the illustrations of closed form of questions.

Example 1: Are you literate ? Yes/No. *Example* 2: Are you a housewife? Yes/No.

Many of the questions here are opinion questions, in which the respondents are given choice between 'good' and 'bad', 'very bad', 'important', 'very important' and 'not at all important'. Such questions are very common in Opinion Research.

(iii) ***Factual*** *question:* George A. Lundberg has mentioned this type of question. It requires certain information of facts from the respondent without any reference to his opinion or attitude about them.

(iv) ***Opinion question:*** This type of question collects data about one's opinion, attitude or preferences regarding some phenomena.

(v) ***Dichotomous*** *question:* When a question is given with only two possible alternative answers, that is called dichotomous questions For example, Do you belong to reserve category? Yes/No.

(vi) Multiple choice questions: These questions are otherwise known as cafeteria questions. These are just opposite of previously described dichotomous questions. In these questions the reply is not confined to two alternatives only, but to a number of possible alternatives. *For example* "What, according to you is an important cause of poverty in India ? *(a)* population growth (6) lack of education

(c) lack of governmental initiative for its eradication *(d)* illness of people (e) lack of industry *if)* any other (specify).

4. **Content of Schedule**

The fourth step in forming a schedule is to prepare the content of a schedule. It is nothing but the systematic structure of a schedule. The whole schedule may be divided into three parts *viz.* (a) Introductory part, (6) Main schedule and (c) Instructions to the interviewer/observer.

(a) ***Introductory part:*** This part includes introductory information about the schedule and its

respondents.

In this opening part, the following type of information with regard to inquiry and respondent are sought:

(i) Name of the survey with the name and address or its conducting authority.

(ii) Reference or case number.

(iii) Name of the respondent, his address, age, sex, education, profession etc.

(iv) Place of interview.

(v) Time and date of interview.

(b) ***Main Schedule:*** This is the main and vital portion of the schedule. It has to be prepared with great care. This part of schedule contains with different questions, columns, as well as blank tables where information supplied by the respondent has to be **filled.**

(c) ***Instruction to interviewer:*** In this part the field worker (interviewer or observer) who has to present the schedule and collect data is given elaborate instructions regarding the presenting the schedule and the method of interview. The field workers are given detailed instructions about the use of various units, technical terms, general method of fulfilling the schedule and the way in which the interview is to be conducted smoothly. Instructions are given in details in order to ensure uniformity of recording the responses.

(5) The fifth step is the general layout of the schedule.

The layout or physical design of the schedule is very important. If it is planned properly the interview will bring high response. A bad, unsystematic and a schedule without a proper layout may create errors frequently.

The following are some of the steps which may be taken to achieve this objective.

(i) **Size of Schedule**: Usually small sized schedule is preferred by the respondents because they can follow a small sized schedule easily. The schedule should not be too long as it may be difficult on the part of the respondents to spend their valuable time in it. Therefore, the length of schedule should be made in such a manner that it will be taking just less than half an hour in filling it up.

(ii) ***Paper:*** The paper used for printing of schedule should be of high quality. The letters printed on it should be visible clearly and must not be broken or the ink should not spread over the paper. If the paper is rough or of low quality, the letters printed will be poor in visibility and are liable to be broken. When the researcher fills it by ink and the ink may spread.

Therefore the paper printing must be of excellent quality. Under-economy, in this respect, may cause series of problem of response for schedule.

(iii) ***Margin:*** The margin on the left should be about 1—"and on the right it should be 1/2". This makes

the schedule an attractive one. Besides the researcher can take some notes in this marginal space. Absence of margin may create problem for punching. Because punching without any margin may "destroy some of words.

{iv) **Spacing**: **In** between the questions, titles, subtitles and columns there should be reasonable space for noting the responses and demarcating one from the other.

(v) ***Printing:*** A printed schedule is obviously more desirable as printing makes a schedule more attractive. But if the number of respondents is small or the researcher wants to reduce the cost of research, he can also use cyclostyled or type written schedule. However, in both these cases the schedule must be neat and free from over writing.

(vi) Use ***of picture:*** Sometimes the use of pictures in schedule influences the respondent in right manner and the respondent takes greater interest for giving replies. Therefore, it is desirable to insert suitable pictures whenever possible.

(6) Testing the Validity of Schedule

The last step for forming a schedule is testing the validity of schedule. After the schedule has been prepared the investigator should test it on a sample population in order to examine its validity, and to find out any discrepancies in it. Thus various mistakes, unsatisfactory or unnecessary things, can be located only when the schedule has been operated on trial basis. Thereafter if such things are noticed then the investigator can bring some changes to make the schedule more accurate. If all these steps will be taken into consideration then definitely the researcher can frame a qualitative and accurate schedule. By considering the above steps he can also be able to check problem of response in schedule. Except all these above discussed steps, according to P.V. Young, the essentials of a good schedule can be divided into two parts. They are: (a) accurate communication (6) accurate response.

Accurate communication is achieved when the respondents understand the questions clearly without any ambiguity. According to her, the basis of accurate communication or clear understanding is presentation of questions with proper wording. The researcher should try to frame the schedule with those words that will clearly carry the desired sense without any ambiguity.

Accurate response can be achieved when the researcher will get unbiased and true data from the respondents. An adequate length, attractive physical structure, clear wording, right type of questions etc. can be taken into consideration in order to fulfill these objectives.

8.3.5 Merits of interview schedule

Schedule as a method of social research has been used extensively everywhere. Following are the chief merits of the schedule.

(1) Higher percentage of response:

In fact the return of the questionnaire depends exclusively on the goodwill of the respondents. If they have slightest doubt or suspicion they would not respond. But in the schedule the research worker is present, who can explain and clear the doubts and motivate the respondents to give replies. Therefore, getting responses in schedule method is much higher than other methods.

(2) Personality of research worker motivates respondents:

In case of schedule the research worker is takes the job of filling the schedule. He is a well educated and trained person in the concerned field. Here the researcher also knows the general habits, attitudes, behaviour, likes, dislikes etc. of the respondents. This prior knowledge about the respondents and his own presence in the field always help him to get proper responses from the respondents. With his pleasant personality and contact the researcher can also get very sensitive and personal data from the respondents.

(3) Personal contact:

Only a good researcher who is able to establish sympathetic contact with the respondents can better elicit proper responses. The researcher should create enthusiasm in the respondent towards the research topic. This can be done **through** a personal contact with the respondent. Schedule as a method of data collection provides enough scope for an interviewer to establish rapport or a healthy primary relationship with the respondents. By establishing rapport he comes to know about many details of respondent's life. His personal contact also helps him to collect much valuable information, private, secret and personal data from the respondents.

(4) **Creates a proper atmosphere for getting response:**

A proper atmosphere for research is very much essential in order to get correct replies. Through a schedule an interviewer may, initiate different kinds of informal and formal discussions, clear the doubts of the respondents, motivate them for participating in the entire research project.

(5) Schedule requires less time to be filled in:

In case of questionnaire, it is sent to the respondents by post, the respondents take their own time to fill it. Sometimes they do not fill it. So it takes lot of time. The difficulties of bad writings, spelling mistakes etc. may lead to the problem of response in questionnaire. But in case of schedule it is filled by the investigator himself. He may follow any means or any shortcut method of recording. So the interview can take place quickly and data collected without any unnecessary delay.

(6) Human touch:

In other methods, the respondents do not feel a human touch because the researcher is not present there. Again sometimes reading a thing does not impress so much. But when the same is listened or spoken by experts, it becomes more effective. When the respondents listen to the same thing from an expert, they rather feel the importance of the issue and it greatly helps the researcher in eliciting a better response.

(7) Minimizes errors:

In case of schedule the answers are filled by the research workers who are socially and technically trained for this job. So they commit less error. But in case of questionnaire the responses are filled by the untrained respondents and therefore they are likely to commit more errors.

(8) Applicable to all:

Questionnaire is limited to the educated people. But schedule is applicable to all types of people.

(9) Sampling errors can be corrected:

Here the personal contact of the field worker may unmask any defect in the sampling method. Even if some significant cases are not covered in sampling, that can be included later at the time of actual interview with the help of a schedule.

(10) Left out questions can be discussed:

If any important questions have been left out in a questionnaire, the researcher may not be able to get any response for that question but if some important questions or important aspects of the topic have been left out in schedule, the same can be discussed by direct conversation with the respondents during the visit of the researcher.

(11) Doubts can be cleared:

In questionnaire if the respondent cannot understand the meaning of a question, he either leaves it blank or fills that with some biased answers. But in schedule if there is some doubt, it can be made clear by the interviewer. He can also check other biases through different cross examination or by asking various cross questions.

8.3.6 Demerits of schedule

In spite of the above mentioned merits of the schedule method, it also has some limitations like any other method. The following are some of the important limitations or demerits of schedule method.

(1) Expensive

As compared to questionnaire, schedule is quite costly, The cost for a case is much higher in the schedule than in case of questionnaire. This is again a serious problem when the respondents are not found in a particular region but scattered over a wide spread area. To approach them all is always expensive for a researcher. Schedule needs a large number of field workers for the collection of information from the respondents. Extra staff may also be required to supervise other works. All these need a lot of expenditure, but the investigator with limited finance a faces lot of difficulties to meet these expenses.

8.4 Summary

Interview is a direct method of inquiry. It is simply stated as a social process in which a person known as the interviewer asks questions usually in a face to face contact to the other person or persons known as interviewee or interviewees. The interviewee responds to these and the interviewer collects various information .from these responses through a very healthy and friendly social interaction. However, it does not mean that all the time it is the interviewer who asks the questions. Often the interviewee may also ask certain questions and the interviewer responds to these. But usually the interviewer initiates the interview and collects the information from the interviewee.

8.5 Self Assessment Questions

1. What is interview technique in research?
2. How interview technique is helpful?
3. What schedule?
4. How schedule is used to extract data?

8.6 Key Words

Interview- is method of collection of data from the respondent while research is conducted.

Schedule- it is a set of question prepared by investigator to collect data from respondent.

8.7 Study Guide

1. Kalton & Moser, Survey Methods in Social Investigation
2. Goode & Hatt, Methods of Social Research
3. Young. P.V., Social Survey and Social Research
4. Sjoberg, G and Roger, N., Methodology of Social research
5. Cocharam. W.G., Sampling Techniques
6. Lundeberg, Social Research
7. Galtung, John, Theory & Methods of Social Research

Unit-10 Questionnaire

Structure

10.1 Learning Objectives

After going through this unit the learner will be able-

1. To understand what is questionnaire.
2. To know advantages of use of questionnaire.
3. To examine disadvantages of questionnaire.

10.2 Introduction/ Assessment of Prior Knowledge

A questionnaire is a research instrument that consists of a set of questions for the purpose of gathering information from respondents through survey or statistical study. A research questionnaire is typically a mix of close-ended questions and open-ended questions.

10.3 Meaning of questionnaire

Questionnaire provides the most speedy and simple technique of gathering data about groups of individuals scattered in a wide and extended field. In this method, a questionnaire form is sent usually by post to the persons concerned, with a request to answer the questions and return the questionnaire. According to **Goode** and **Hatt** "It is a device for securing answers to questions by using a form which the respondent fills in him. According to **G. A. Lundberg** "Fundamentally the questionnaire is a set of stimuli to which illiterate people are exposed in order to observe their verbal behaviour under these stimuli".

Often the term "questionnaire" and "schedule" are considered as synonyms. Technically, however, there is a difference between these two terms. A questionnaire consists of a set of questions printed or typed in a systematic order on a form or set of forms. These form or forms are usually sent by the post to the respondents who are expected to read and understand the questions and reply to them in writing in the spaces given for the purposes on the said form or forms. Here the respondents have to answer the questions on their own. On the other hand schedule is also a form or set of forms containing a number of questions. But here the researcher or field worker puts the question to the respondent in a face to face situation, clarifies their doubts, offers the necessary explanation and most significantly fills their answers in the relevant spaces provided for the purpose.

Since the questionnaire is sent to a selected number of individuals, its scope is rather limited but within its limited scope it can prove to be the most effective means of eliciting information, provided that it is well formulated and the respondent fills it properly.

A properly constructed and administered questionnaire may serve as a most appropriate and useful data gathering device.

Characteristics of a Good Questionnaire;

1. It should deal with an important or relevant topic, so that it will motivate the respondents to give free and spontaneous response. Its significance should be carefully stated on the questionnaire itself or on its covering letter.
2. It should elicit only those data which cannot be obtained from other sources like books, reports and records.
3. Questionnaire should be as short as possible. It should be only long enough to get the essential data. If it is too lengthy the response will be poor. Long questionnaires are frequently thrown into the waste paper basket.
4. It should be at the same time as much comprehensive as necessary so that it does not leave out any relevant and crucial information.
5. It should be as attractive as possible in appearance, systematically arranged and clearly printed.

(6) Direction should be clear and complete, important terms should be clarified, each question should deal with a single idea and the questions must be worded in as simple and clear manner as possible which will provide an opportunity for easy, accurate and unambiguous response.

(7) The questions should be of objective type and the researcher should not give any hints or suggestions in order to get his desired responses.

(8) Questions should be presented in a good psychological order proceeding from general to more specific responses. This order will help the respondent to organize his own thinking so that his answers are logical and objective.

(9) The opening question should create a favourable attitude before any progress is made towards the questions, which are a bit delicate or intimate.

(10) The questions included in a questionnaire should be within the respondent's intellectual capacity to give answer.

(11) Various questions given in a questionnaire must be asked in a proper sequence, so that those will be more systematic, interesting and continuous ones.

(12) The offending, embarrassing, ambiguous, double barreled, vague, suggestive, presuming, personal, hypothetical, sensitive and too long questions are to be avoided.

(13) As far as language is concerned, various abbreviations, value-loaded words, native or unusual words, multi-meaning words etc. are to be avoided.

(14) In the beginning of the questionnaire the investigator should include simple questions which will put the respondent at ease and build up a healthy relationship between the investigator and the respondent.

(15) Questions seeking the advice of the respondent may be given in the beginning of a questionnaire.

(16) The general lay out or physical appearance of the questionnaire is very significant. Questionnaire without a descent layout and proper planning may bring problems of response frequently. Therefore, the paper used for printing of questionnaire should be of good quality. It should provide a proper margin. In between different questions, title and columns, there must be a reasonable space.

(17) Items should be arranged in specific categories to ensure easy and accurate responses and to help the respondent to give better justice to any category at a time.

(18) Descriptive adjectives and adverbs that have no agreed upon meanings, (for example, words like frequently, occasionally, rarely etc.) should be avoided as far as possible.

(19) Double negatives, for example, "Don't you disapprove of forced discipline?", should be avoided.

(20) The questions should carry adequate number of alternatives. Questions which carry inadequate number of alternatives, for example, "Are you married ? Yes/No"—should be avoided.

(21) A good questionnaire should facilitate easy tabulation, summary and interpretation of data. It is advisable to pre-construct a tabulation sheet, anticipating how the data will be tabulated and interpreted, before the final form of questionnaire is decided upon. This will help in avoiding ambiguity in the questionnaire.

- **Construction of questionnaire, Concept, types of question, question format and sequence of questions:**

In case of questionnaire the greatest problem is that of response that arises because of the problem of clarity in questionnaire. **In** an **interview** or schedule the field worker is personally present to give a proper clarification or interpretation to the questions and different terms given in a schedule. The respondents can ask about their doubts and understand the meaning of it properly in schedule method. Usually they do not refuse to answer the questions put by the interviewer. But in case of questionnaire this facility is not available. Nobody is there to aid the respondent to interpret a

question or to clarify the meaning of some important terms used in it.

One has to take much care in preparing the questionnaire, the construction of questions and the language to be used. A thorough testing of questionnaire is required before it is finally sent to the respondents. While preparing the questionnaire the researcher should remember that it is not meant for the respondent of high or average .intelligence, rather for the respondents of minimum intelligence. Therefore much care is needed in preparing questionnaire, its general physical outlook and the types of questions given in it, so as to justify it as a special schedule, *i.e.* although the researcher is not present in front of the respondents, the questionnaire will also explain the subject matter to the respondents in a simple and clear manner and facilitate a high response from them. In other words the questionnaire will be self explanatory.

However, in this respect the following are the important points which are to be considered by the researcher.

(1) **Importance of the problem under study or the formulation of the problem:**

The formulation of problem forms the starting point for developing the questionnaire. If the problem under study is an important one, a higher response is expected, but if it is a ordinary one, and which does not have any social relevance for the respondent's life, the response is likely to be low. The problem formulated for study should be relevant for the respondents. A researcher can expect higher response, if the problem under investigation directly focuses on the respondent's problem.

(2) **The type of information required:**

Very extensive bodies of data can not often be secured through the use of the questionnaire. The researcher should first find out the extent to which the desired data are already available in published reports and decide whether all or parts of the needed data can be obtained through a formal questionnaire. In brief, the investigator must decide what aspects of the problem are to be dealt with in a particular study through a formal questionnaire.

(3) Securing help from the people who possess the experience in the related field:

The researcher should secure all the help he can, in planning and constructing his questionnaire. He should study other questionnaires and submit his questionnaire for a critical analysis to other members of his research organization or his colleagues and especially to those who possess the experience of questionnaire construction.

(4) Thorough knowledge about his hypothesis:

He should thoroughly explore his hypothesis, experiences, the literature available in the concerned

topic and other related field to frame his own questionnaire. **It will** help him to probe the crucial issues of his research problem in depth.

(5) Clear understanding of the objective of the study

He should attain a thorough knowledge of the field and a clear understanding of the objective of the investigation and of the nature of the data required for the investigation.

(6) A Proper Scrutiny:

The questionnaire should be properly scrutinized for technical defect, quite apart from biases and blind spots arising out of personal values.

(7) Numerous revisions or pre-testing:

Constructing a questionnaire calls for numerous revisions in which variations of the same question should be given an experimental trial. The same question posed in different ways very frequently may bring out different responses. This trial can be done through a pre-testing or a pilot study. A pre-testing is necessary to find out how the questionnaire works and whether changes are necessary before applying the actual questionnaire. The pre-testing of elements provides a means for solving unforeseen problems in its administration in the field. It may also. Indicate the need for addition or deletion of questions. Sometimes a series of revisions and pre testing is needed. After a pre-testing the final editing has to be done to ensure that every element has been scrutinized. Editing is required to make the questionnaire as clear and as easy to use as possible.

(8) Willingness of the respondent:

The questionnaire is effective only when the respondent is able or willing to express his reactions clearly. The respondents must be chosen carefully. The questionnaire should be sent only to those who possess the desired information and those who are likely to be sufficiently interested to respond. **Goode** and **Hatt** say, "The respondent will not ordinarily answer a questionnaire dealing with a subject with which he is unfamiliar, such as air travel, impending legislation or experience with a particular branch of the government or an occupation".

(9) Precision of the hypothesis:

The questionnaire is mostly useful when a considerable amount of exploratory work has narrowed the questions to be answered. What is more important here is the sharpness of the hypothesis. The more closely focused the hypothesis, the more effective is the questionnaire.

(10) Size of the questionnaire:

The questionnaire should be as short as possible. It should be only long enough to get the essential data. If the questionnaire is too lengthy the response is likely to be poor.

(11) Letter of Appeal:

A cover letter almost always accompanies the questionnaire, requesting it the respondent to provide his co-operation. In the researcher should explain what he is going to do, why he is doing it and for whom he is doing so? This appeal letter generally contains the name of the research institution carrying on research, the objective of research, the benefit that is likely to go for respondent or people in general. However the appeal should be brief, properly worded and impressive. Most of the respondents are not willing to read a long letter and lengthy appeal letter destroys its impact.

(12) Prestige of the research institute:

For the success of the questionnaire the prestige of the research organization matters a lot. Usually if the research organization conducting the study is well reputed, responsible, and one scientific group, the response **is likely** to be high. People generally do not show their interest for giving response if the institution sanctioning the study is not known, reputed or of a doubtful integrity and in this case response is likely to be low.

In questionnaire method the cover letter should explain the character of the research organization and its objective in a few sentences. It should also provide the impression of scientific competence, the address and telephone number of the research organization. Nothing should appear to be hidden, ambiguous and suspicious.

(13) Purpose of the study:

The researcher may include the purpose of the study in his introductory remarks. In questionnaire's cover letter it is essential to explain why research organization requires such type of information from the respondents. However **Goode** and **Hatt** say, "The description of the purpose of questionnaire should be left out unless the respondent asks for an explanation of it".

(14) Appearance or a general layout of the questionnaire

While preparing a questionnaire a significant attention is required regarding the general layout or appearance of the questionnaire. Here unlike schedule the field worker is not present personally in the field to clear the doubts of the respondent. So this task has to be performed by the perfect appearance of the questionnaire itself.

(a) **Quality of paper:** The paper used for printing of the questionnaire should be of high quality. So that it will be durable and the letters printed on it -will be clearly visible. If the paper quality is low, the printing on it will not be visible and the *ink* may spread over it. Therefore the paper should be of good quality. Otherwise it may lead to a series of problems of response for the questionnaire.

(b) Spacing: Between the questions, other titles and sub titles there must be proper space, so that the respondent can clearly and freely write his responses and it will be properly visible to

the researcher also.

(c) **Margin:** A proper margin provides a better look to the questionnaire form. That apart, in order to keep the records systematically the researcher needs to punch and staple the questionnaire form. But if no proper space is provided in the questionnaire, the punching will destroy some of its written words.

(d) Printing: A proper printing is obviously more desirable because it attracts the respondent for a better response. The questionnaire form should be typed or printed carefully. The printed letters must be clearly visible, neat and free from over writing. Otherwise the respondent will not understand the question properly and leave most of the questions without giving, any answer.

(e) **Use of pictures:** Often various relevant pictures should be inserted whenever possible in a questionnaire in order to attract the respondent for a better response. A less educated person may not understand a written question but by observing the picture he may understand it and respond to it.

(15) Language of the question:

Understandably great care is required in using the language of the questions. Various unknown abbreviations, multi meaning words should be avoided by the researcher, because these may be known to the researcher but respondent may not understand it. Again in the questionnaire the researcher is not present in the field. So here the respondent does not get a chance to clarify his doubt. In case he faces any difficulty in understanding some questions, he may not be able to answer those questions. So the language of questionnaire should be simple and unambiguous.

(**16**) Types **of questions:**

The ambiguous, double barreled, complex, suggestive, vague, sensitive, normative, hypothetical, personal and too long questions should be avoided by the researcher as far as possible, because these questions may not bring a proper response from the respondents. Questions whose answers can be secured more accurately from other sources can be excluded.

(17) Sequence of the questions

It is essential to examine the order in which questions are to be asked. While framing questions the researcher should carefully consider the best sequence of the topics in a questionnaire. Questions should be arranged logically so as to determine the directions of the responses. It is always better to start with a simple, general, unambiguous and uncontroversial question and then proceed towards more complexes, specific and personal questions.

Question which might embarrass the respondent or question seeking secret information should be put at the end. The researcher should also give some closely related questions in order to measure consistency and for checking the reliability of responses.

There are some methods through which the researcher can check the problems of response. These are discussed below.

(18) Sending reminder:

The respondents are often slow to return completed questionnaires. To increase the number of returns, a vigorous follow-up procedure is necessary. In some cases a reminder may be sufficient but in extreme cases a telegram, phone call or personal visit may bring rapid responses.

(19) **Inducements:**

Some researchers are of the opinion that in order to get a proper response some kind of inducement is always required. Inducements are broadly divided into two types:

(a) Monetary i n d u c e m e n t ; and (6) N o n -monetary inducement.

(a) Monetary **inducement: In** questionnaire method some inducement i n the form of money may be given to the respondents. The amount i s generally very small. It may be sent to the respondents with the envelope containing the questionnaire form or the researcher may promise to give it after the successful return of the questionnaire. It is always better to send the money in advance than to promise payment on return of the questionnaire.

Another method of monetary inducement is to offer prizes by lottery. For example, the researcher may offer a few prizes on all accurate and completed forms on the basis of lottery.

(b) **Non-monetary inducement**: Often non-monetary inducements are more influential than the monetary inducements in order to get proper responses from the respondent. These may consist of the benefit that the respondent is likely to gain from the outcome of the study. If the respondents feel that the study is beneficial for them, they give more responses. Sometimes encouragement and motivation provided by the researcher works as non-monetary inducement for the respondent.

The researcher should praise the respondent for his valuable responses by saying—"Your information is needed by thousands of scholars attempting to solve today's problem", "You will be Contributing to the advancement of science", "You will help to improve the education of thousands of students" etc. This will encourage him to provide more valuable information.

(20) **Questionnaire through intermediaries:**

Sometimes, the questionnaires instead of being sent directly to the respondents are sent to the head of a villages or an officer in charge of an organization. He gets them filled up and returns them to the researcher. It has been observed that the percentage of response is very high when it is filled up through the intermediaries or the leader of the respondents. But it is also having some negative

consequence as the respondent may feel offended and give unauthentic reply.

(21) **Proper time of sending the questionnaire:**

The researcher should send the questionnaire in such a time that it will reach the respondent on week-end days. Usually the busy respondent gives reply when he is free. So the week-end days are probably the best days to utilize for responding to the questionnaire. But if the questionnaire reaches on the initial days of the week, it may be misplaced by the week-end. Therefore in order to get high response the questionnaire should reach on the week end days.

(22) **Knowledge about** the **correct** address **of** the **respondent**:

Sometimes the respondents are unable to send the answers because they do not'*get the questionnaire. If the researcher sends the questionnaire in wrong address, it may not reach the respondent. Therefore, a proper knowledge about the respondent's address is very much essential for getting proper response.

It is difficult to estimate as to what percentage of responses can be considered adequate for an investigation. Importance of the project, quality of the questionnaire, nature of the project, nature of the group of the respondents selected, the duration and many other factors determine the proportion of responses that could not be considered adequate.

In case of interview or interview schedule, it is the investigator who motivates the respondents for better response. But in questionnaire nobody is present in the field and only it's several pages of paper determines the course of response.

According to **Goode** and **Hatt,** "Only the papers are there to make his plea, and the researcher cannot count on any personal charm or social skill when the respondent opens the envelope".

Therefore the questionnaire maker then must offer as impressive presentation as possible in order to get-adequate response. He must plan carefully and seek professional help before he sends out **ills** questionnaire.

If all the above discussed precautions are taken into consideration, the questionnaire can be thought of as a special schedule, which can enable to bring maximum possible response in spite of the absence of the investigator in the field.

10.3.1 Types of questionnaire

There is a vast variety of questionnaires that has been classified in several ways. P.Y. Young has confined all the major types of **questionnaires** into three types *viz.* structured, unstructured and pictorial questionnaire.

(1) Structured questionnaire: According to P.V. Young, structured questionnaires are those

which pose definite, concrete and pre ordained questions, *i.e.,* they are prepared in advance and not constructed on the spot during the questioning-period.

This questionnaire uses highly standardized techniques and a set of pre- determined questions. It includes both closed end and open ended questions. Closed questions are used when categorized data are required or when the researcher wants to make various classifications for his study. A simple example of closed end question is: "How many from your family are educated?" One only/two/three/four/five or more than five. The respondent goes through all those given responses and chooses one which is true for his situation. The open end questions provide a proper space for the respondent to answer. According P.V. Young "The open end responses are free and spontaneous expression on the part of the informant who is not limited in his replies to a particular question posed on him". Here the subject can write freely and frankly their concrete views with no directions from the researcher, She also remarks that "the open-ended responses are used chiefly for intensive studies of a limited number of cases or for preliminary exploration of new problems and situations. At times, the respondent is asked to write a descriptive essay and express his view points, describe his relationships, attitudes, indicate his problems and report on events, without restrictions imposed as in the case of closed questions". An example of open end question is—"What are you thinking about the educational qualification of your family members?"

Open ended questions are very much essential for exploratory research, for pilot study or where the responses to be collected are qualitative in nature.

The open-ended questions have also its demerits. Since it does not provide any direction and restriction for the respondents to answer, a wide range of answers is usually given, some meaningful and some meaningless, and obviously those meaningless, non-directed and irrelevant answers create some problems of classification and analysis. However in spite of these structured questionnaires are used in a wide range of research works both to initiate collection of primary data or to add and verify data previously collected.

(2) **Unstructured** questionnaire: P. V. **Young** says, "Unstructured questionnaires are frequently referred to as "interview guides", also aim at precision and contain definite subject matters area, the coverage of which is required during the interview". This is characterized by a greater flexible approach in questioning the respondents. It is of non-directive type which involves relatively much less standardization of techniques and operation. Here the respondents have the freedom to express any event that seems significant to them, to give their own definition of an event or a situation and to narrate any particular incident of his life. In unstructured questionnaire the researcher is also having a greater freedom to ask

any supplementary question of the respondents.

Such a type of questionnaire is very much useful for intensive studies and can be used as the major technique of collecting information in exploratory and formulative studies. But at the same time it is also having its own limitations. Such flexibility is not helpful for making a comparative study or to make different classifications and often it is more difficult and time consuming to analyze these non-directive responses.

(3) **Pictorial** questionnaire: Pictures have been used in some questionnaires in order to promote some interest and motivation among the respondents for answering the questions. It is useful for those respondents who are least educated. P.V. Young- says that pictorial techniques have been used extensively studies of social attitudes and prejudices in children.

10.3.2 Disadvantages of questionnaire

The questionnaire is probably the most used and the most abused data gathering device. It has been referred to as the lazy man's way of gathering information. As an method of data collection it is also having many limitations. Let us now turn to discuss the typical disadvantages or limitations of the questionnaire as compared to other major methods of collecting data for research.

(1) **Limited response:**

One of the major limitations of the questionnaire is that it can be applicable only to those respondents who have a considerable amount of education. It can neither be used for illiterate nor for semi-literate persons. The questionnaire quite often fails to cover very busy and pre-occupied persons among the respondents, lazy and indifferent type of persons, the type of respondents who need to conceal a lot about themselves, the easy-going and shirkers among the respondents, the persons who have a unreasonable contempt for research and reform and the persons who unnecessarily doubt the research worker's intentions, sincerity, devotion and commitment. These are the people who constitute a very important segment *of* the respondents to be covered in the collection of data, but they can be seldom caught. Thus questionnaires are hardly appropriate for a larger section of this type of population.

(2) **Lack of personal contact:**

As in case of questionnaire the researcher does not go to the field, he is not able to establish proper personal relationship with the respondents. If the respondent fails to understand some of the technical terms or he has any doubt, there is nobody to clarify these technical terms or doubts. Even though the researcher tries in the best possible manner to make the questionnaire a simple,

precise and convenient one, the aim and objective of the questionnaire can be much better explained personally than through any other means. Without the proper personal contact it is very difficult to motivate the respondent to fill up the questionnaire.

(3) **Poor response:**

In case of mailed questionnaire method, the proportion of return is usually low. The factors which are likely to affect the returns are: the layout of the questionnaire, its size, the organization conducting the research work, the nature of appeal, the kind of respondents chosen for research, inducement for response etc. The causes of poor response have been discussed at length in the early part of this chapter.

(4) **Unreliability:**

The information collected through questionnaire cannot be said to be very much reliable or valid. If the subject misinterprets a question or gives an incomplete or indefinite response, very little can be done to connect such response. As against this, in an interview there is always the possibility of rephrasing questions for further clarification. The questions can be repeated, with adequate elaboration if it is so required. But in questionnaire method there is no opportunity for repeating questions, explaining' them or clarifying the doubts for a particular response. Therefore, in it the validity of respondent's response can hardly be examined. The investigator here is not in a position to observe the gestures and expressions of the respondents. He can not cross check the inconsistencies or misrepresentation of the replies. So in questionnaire method, reliability of responses is very low...

(5) **Illegibility:**

Illegible handwriting of the respondent sometimes creates much difficulty for the researcher to understand the responses. Sometimes the respondents erase and overwrite too much. These create many difficulties in reading the answers,

(6) Incomplete entries:

Often most of the respondents fill up the questionnaire form very poorly. They sometimes leave out many questions altogether or fill in such a way that, it becomes very difficult on the part of the investigator to follow those responses. Other than this, there may be the problem of language, use of abbreviations and ambiguous terms etc. All these make a questionnaire an incomplete one.

(7X **Possibility of** manipulated **entries:**

In case of interview the investigator directly interacts with the respondents personally and intensively in a face to face situation. He can judge-a respondent, his attitude, understanding of the research topic and, if necessary, can ask some cross questions to correct various errors. So usually the respondent can not manipulate his answer. But in questionnaire it is very difficult to detect the errors of the respondents. Here the investigator does not have any facing to check the validity

and reliability of the information. In the absence of the researcher, the respondents may supply manipulated information.

(8) Useless in depth-studies:

In questionnaire method, it is not possible on the part of the researcher to conduct an intensive or in-depth study of the feelings, reactions and sentiments of the respondents. All these require a healthy interaction of the researcher with the respondents. But in questionnaire method, the investigator is not present in the field, so nothing can be done to establish rapport with the respondent. Due to this lack of interaction with the respondent, the researcher cannot go into the details of the, respondent's life. So through questionnaire method one cannot conduct an in-depth study.

(10) Response front improper representative section of people :

(11) The respondents who return the questionnaires may not constitute a representative section of the entire group. Only mere responsible, research minded or those in favour of the issue may prefer to respond. Some of the important sections of the group may totally remain silent. This vitiates the final conclusions and findings.

(10) Lack of rapport with the subject:

There are many people who would not like to share any important information unless and until they are impressed about the rationale of the study and personality of the investigator. The questionnaire does not provide for any opportunity to the investigator to establish rapport with the subject and this cannot attract the respondent for a better response.

(11) Not suitable for delicate issues:

Some of the research areas are so delicate, sensitive, intricate confidential in nature that it becomes difficult to frame questions on them. It is impossible to put down certain delicate issues in writing.

10.3.3 Advantages of questionnaire

Owing to the above mentioned limitations, the questionnaire

Method is unsuitable for the study of many social problems. Its use may bring the conclusion highly unreliable. But in spite of its limitations the questionnaire is regarded as the mos4 useful research tool. As an instrument of science, the - questionnaire has great potentialities when it is properly used. If it is eliminated, progress in many areas of research would be greatly handicapped. The following are the chief advantages of mailed questionnaire. .

(1) Economical: It is an economical way of accumulating information. It is economical both for the sender and for the respondent in time, effort and cost. The

cost of conducting the study with the help of questionnaire method is very low. In questionnaire the researcher has to spend for paper printing and postage only. There is no need to visit each and every respondent personally. So it does not require high cost for conduct of the research.

(2) Wide coverage: It is probably the best method to collect information, compared to the other methods like interview or observation, when the sample population is spread over a large territory. It permits a nationwide or even international coverage.

Questionnaire makes it possible to contact with many people who could not otherwise be reached. It can cover a large group at the same time. Goode and Hatt say that when the researcher has to cover the group of respondents who are widely scattered, he can use the questionnaire in order to minimize the cost. For example, if the researcher wishes to poll the membership of the American Sociological Society, transportation costs for interviewing would be excessive, both in terms of money and time. There may not be enough time to make the necessary interview. However, questionnaires could be distributed to all those members and information could be collected from them. This can be dons by a single researcher without the large funds otherwise required to hire an interviewing staff to carry out the interview.

(3) Rapidity: Replies may be received very quickly in questionnaire method. In this case there is no need to visit the respondent personally or continue the study over a long period. Therefore in comparison w i t h other methods, the mailed

Questionnaire is the quickest method.

(4) Suitable in special type of response: The information about certain personal, secret matters can be best obtained through questionnaire method. For example, information about sexual relationship, marital relationship, secret desires etc. can, be easily obtained by keeping the names of the respondents anonymous.

(5) Repetitive information: Compared to other methods like schedule, interview or observation, questionnaire method is regarded as more useful and cheap, where the repetitive information has to be collected at regular interval.

(6) An easier method: Questionnaire is comparatively an easier method to plan, construct and administer. It does not require much technical skill or knowledge.

(7) It puts less pressure on the respondents: It puts less pressure on the respondents for immediate response. He can answer it at his own leisure, whereas interview or observation demands specific fixation of time and situation.

(8) Uniformity: It helps in focusing the respondent's attention on all the significant items. As it is administered, in a written form, its standardized instructions for recording responses

ensure some uniformity. Questionnaire does not permit much of,-variation.

(9) Useful preliminary tool: Questionnaire may be used as a preliminary tool for conducting a depth study later on by any other method.

(10) Greater validity: Questionnaire has some unique merits as regards validity of information. In methods like interview and observation, the reliability of responses depends on the way the investigator has recorded them. Here they may present biased or prejudiced information of their own. But in questionnaire method, the responses given by the subjects are available in their own language and version. Therefore, it cannot be wrongly interpreted by the researcher.

(11) Anonymity: Questionnaire ensures anonymity to its respondents. The respondents have a greater confidence that they will not be identified by anybody for giving a particular view or opinion. They feel more comfortable and free to express their view in this method.

(12) Most flexible tool for data collection: Questionnaire is no doubt the most flexible tool in collecting both quantitative and qualitative information.

10.4 Summary

Questionnaire makes it possible to contact with many people who could not otherwise be reached. It can cover a large group at the same time. Goode and Hatt say that when the researcher has to cover the group of respondents who are widely scattered, he can use the questionnaire in order to minimize the cost. For example, if the researcher wishes to poll the membership of the American Sociological Society, transportation costs for interviewing would be excessive, both in terms of money and time. There may not be enough time to make the necessary interview. However, questionnaires could be distributed to all those members and information could be collected from them. This can be dons by a single researcher without the large funds otherwise required to hire an interviewing staff to carry out the interview.

10.5 Self Assessment Questions

1. What is questionnaire?
2. What are the advantages of questionnaire?
3. What are the disadvantages of questionnaire?

10.6 Key Words

Questionnaire- A questionnaire is a research instrument that consists of a set of questions for the purpose of gathering information from respondents through survey.

10.7 Study Guide

1. Kalton & Moser, Survey Methods in Social Investigation
2. Goode & Hatt, Methods of Social Research
3. Young. P.V., Social Survey and Social Research
4. Sjoberg, G and Roger, N., Methodology of Social research

Block-04 Scaling Techniques in Social Science Research:

Unit-11 Scaling Techniques

Unit-12 Likert

Unit-13 Thustern

Unit-14 Bogardus

Unit-11 Scaling Techniques

Structure

11.1 Learning Objectives

After going through this unit the learner will be able-

1. To be acquainted with the meaning of scaling technique.

11.2 Introduction/Assessment of Prior Knowledge

Scaling involves creating a continuum upon which measured objects are located. Scales of measurement in research and statistics are the different ways in which variables are defined and grouped into different categories. Sometimes called the level of measurement, it describes the nature of the values assigned to the variables in a data set.

11.3 Meaning of Scaling Techniques

A scale is an instrument with the help of which a concept is measured. It has a wide range of application in social research for measuring the attitude, behaviour and other qualitative characteristics. In social research it becomes essential to make distinctions in terms of degree rather than of quality. The scalability of a phenomenon is dependent upon its continuum, because a scale is a continuum from the highest to lowest points.

It also possesses some intermediate points between these two extremes. Broadly there are two types of scales: rating scales and attitude scales. The rating scales and attitude scales both have the object of assigning individuals to numeric positions in order to make possible the distinctions of degree. Let us now consider some of the various types of rating scales used in social research. As has been pointed out, in the rating scale the rater places the persons or object being rated at some points along a continuum and a numerical value is attached to the point. The different types of rating scales are the graphic rating scales, itemized rating scales, comparative rating scale, rank order scale.

In a rating scale the rater makes a judgment about some characteristics of the subject by placing him directly on some point on the scale. On the contrary, the attitude scales are carefully constructed sets of rating scales which are specifically designed to measure one or more aspects of an individual or group attitude onwards some object. The researcher sums up the individual's responses to various scales and thereby provides a single attitude: the individual or the researcher may also examine the responses to each scale item or sub-group of scale items - dependency of the other scale items. It is said that the attitude scale are constituted of various statements or items relevant to an issue. (Like co-education, inter-caste marriage, divorce etc.) the individual subjects respond in a particular manner to the statement. To

these modes of response, particulars scores are assigned. Let us consider what criteria are used in selecting statements or items for inclusion in an attitude scale. There are two such criteria.

11.3.1 Types of Scaling Techniques

(i) Likert's Summated Scale.

ii) Thurstone's Equal Appearing Intervals Scale,

iii) Bogardus's Scale of Social Distance.

We will describe these three different attitude scales in subsequent units accordingly and consecutively.

11.4 Summary

A scale is an instrument with the help of which a concept is measured. It has a wide range of application in social research for measuring the attitude, behaviour and other qualitative characteristics. In social research it becomes essential to make distinctions in terms of degree rather than of quality. The scalability of a phenomenon is dependent upon its continuum, because a scale is a continuum from the highest to lowest points.

11.5 Self Assessment Questions

1. What is scaling technique?
2. Discuss the utility of scaling technique.

11.6 Key Words

Scaling technique- a scale of measurement is used to assess the qualitative concept.

11.7 Study Guide

1. Young. P.V., Social Survey and Social Research
2. Sjoberg, G and Roger, N., Methodology of Social research
3. Cocharam. W.G., Sampling Techniques
4. Lundeberg, Social Research

Unit-12 Likert Scale

Structure

12.1 Learning Objectives

After going through this unit the learner will be able-

1. To understand the meaning and utility of Likert scale.

12.2 Introduction/Assessment of Prior Knowledge

A Likert scale is a psychometric scale named after its inventor, American social psychologist Rensis Likert, which is commonly used in research questionnaires. Researchers often use this psychometric scale to understand the views and perspectives towards a brand, product, or target market.This type of scale uses only the definitely favourable and unfavourable statements and does not take into account the intermediate position, the subject is asked to respond to a certain number of statements. He indicates the degree of agreement or disagreement, such as 'strongly agree', 'agree', 'undecided', 'disagree', and 'strongly disagree'. Each statement is given a numerical score and each statement is construed a scale having five points on it.

12.3 Meaning of Likert Scale

An elaborate procedure for obtaining summated ratings was developed by Likert, which is frequently used in the measurement of social attitude. This type of scale uses only the definitely favourable and unfavourable statements and does not take into account the intermediate position, the subject is asked to respond to a certain number of statements. He indicates the degree of agreement or disagreement, such as 'strongly agree', 'agree', 'undecided', 'disagree', and 'strongly disagree'. Each statement is given a numerical score and each statement is construed a scale having five points on it. The respondent indicates where he stands on this scale in respect of each statement. The total score of a respondent is calculated by summing up his different scores for different responses. The total of his scores on all statements indicates his position in the continuum and is also taken as the measurement of his attitude.

Nearly half of the statements (usually 15) included in the questionnaire are favourable and the rest ones are unfavourable. For strong approval of the favourable statement the highest score value, (usually 5 or + 2) is given. For strong disapproval of the favourable statement the lowest score value (usually 1 or - 2) is given. Other points on the scale, such as agree, undecided and disagree are accorded the score values 4 or + 1, 3 or 0 and 2 or -1 respectively for favourable statements. But, the scoring pattern is just the reverse in case of unfavourable statements. For unfavourable statements the values are 1 or

— 2, 2 or — 1, 3 or 0, 4 or + 1, and 5 or + 2 respectively. Thus the scoring pattern is such that agreement with favourable statements and disagreement with unfavourable statements are created as equivalent. However, the score values are not indicated in the questionnaire. The following Likert type scale will make it clear:

Statement I: Family Planning should be made Compulsory

1	2	3	4	5
Strongly Agree (5 or + 2)	Agree (4 or + 1)	Undecided (3 or 0)	Disagree (2 or - 1)	Strongly Disagree (1 or - 2)

1. Likert Scale

Likert-type scale, the researcher gathers a large number of statements which only have the ability to discriminate among persons with favourable and unfavourable attitudes. For determining the discriminating ability of each statement, the researcher first administers a large number of statements to a small sample of subjects who represent the respondents to whom the questionnaire is to be finally administered. If it is found that the possessor of favourable attitude and the possessor of unfavourable attitude respond similarly to some statements, those statements are eliminated. Thus only those statements having better discriminative power are finally retained. This procedure is called 'Item Analysis'. It rests on the premise that there should be consistency in the response pattern of any individual.

Thereafter the questionnaires containing the statements are administered to the respondents who indicate their responses implying various scores on each five point scale. Arrangements of the scores are made consistently either from the highest to the lowest or from the lowest to the highest. Then the researcher calculates the total score, in respect of each respondent,

by adding up his different scores for different statements.

The main task of the researcher, in the construction of Likert type of scale is that he should be able to identify the items possessing high discriminatory power. In order to achieve the following procedure is adhered to:

(i) At the outset, subjects are divided into a couple of arbitrarily defined groups. For instance, those subjects with the top 25 percent of all total scores and those with the lowest 25 percent of all total scores are construed to be in possession of the most favourable and the least favourable attitudes respectively.

(ii) Thereafter, the researcher calculates the mean score for each statement separately.

(iii) At the next stage, the difference between the two mean scores, in respect of each statement, is calculated.

(iv) At the end, all statements are ranked on the basis of their difference in mean scores. The statements whose mean differences tend towards zero are eliminated because of their poor discriminative power.

The main advantages of the Likert-type scale are as follows:

(i) This procedure enhances the internal consistency or the degree of homogeneity in the set of statements.

(ii) The method of construction of Likert-type scale is less difficult.

(iii) Since a wide range of answers are given to the subjects, they don't find it difficult to respond and express the intensity of their feeling. This is an advantage over other type of scale where there are only two alternatives *i.e.,* agree or disagree.

(iv) Since there is no involvement of the outside group of judges in selection of the statements and assignment of values to them, it does not suffer from the problem of subjectivity.

However, the Likert type of scale also has its own disadvantages, such as:

(i) The judgement estimated on the basis of total score to find out the mean or median, does not appear to be scientific. Ties in ranks are likely to occur quite frequently due to equality in total score values.

(ii) The response pattern of two persons having exactly identical scores may be significantly different.

(iii) The subject is required to respond to all statements, whereas in the Thurstone's scale, he is required to check only those statements with which he agrees.

(iv) Likert's scale suffers from the problem of interpretation, which does not arise in Thurstone's scale.

12.4 Summary

A Likert scale is a psychometric scale named after its inventor, American social psychologist Rensis Likert, which is commonly used in research questionnaires. Researchers often use this psychometric scale to understand the views and perspectives towards a brand, product, or target market.This type of scale uses only the definitely favourable and unfavourable statements and does not take into account the intermediate position, the subject is asked to respond to a certain number of statements.

12.5 Self Assessment Questions

1. What is Likert scale?
2. Discuss the utility of Likert scale?

12.6 Key Words

Likert's scale- is a special measurement scale for social science research.

12.7 Study Guide

1. Kalton & Moser, Survey Methods in Social Investigation
2. Goode & Hatt, Methods of Social Research
3. Young. P.V., Social Survey and Social Research
4. Sjoberg, G and Roger, N., Methodology of Social research
5. Cocharam. W.G., Sampling Techniques
6. Lundeberg, Social Research

Unit-13 Thurstone Scale

Structure

13.1 Learning Objectives

After going through this unit the learner will be able-

1. To understand the use of Thurstone scale.

13.2 Introduction/ Assessment of Prior Knowledge

In psychology and sociology, the Thurstone scale was the first formal technique to measure an attitude. It was developed by Louis Leon Thurstone in 1928, originally as a means of measuring attitudes towards religion. Today it is used to measure attitudes towards a wide variety of issues. The technique uses a number of statements about a particular issue, and each statement is given a numerical value indicating how favorable or unfavorable it is judged to be. These numerical values are prepared ahead of time by the researcher and not shown to the test subjects. The subjects then check each of the statements with which they agree, and a mean score of those statements' values is computed, indicating their attitude.

13.3 Meaning of Thurstone's Equal Appearing interval Scale

Thurstone is the inventor of this scale. It consists of 15 to 20 statements which form a continuum of attitudes toward a subject, ranging from the most favourable to the least favourable. The position of the statements on the scale is determined by the judges by the method of equal appearing intervals. The procedure of equal appearing interval scale is as follows:

(1) At the outset, the researcher collects a large number of statements relating to attitudes about a particular issue from review of literature, discussion with knowledgeable people, personal experience or through any other means which one may use for developing insight into a phenomenon. Thurstone himself **used** 130 statements. While collecting the statements, care must be taken by the researcher to meet certain criteria as prescribed by L.L. Thurstone:

(a) As far as possible, the statements should reflect the present attitude of the subject rather than his attitudes in the past.

(b) As far as possible, each statement should express only one thought or idea.

(c) The statements which are evidently applicable to a very restricted range of endorsers are to be avoided.

(d) As far as possible the statement should be free from confusing concepts.

(e) Slang should be avoided except where it serves the purpose of describing an attitude more briefly than it could otherwise be stated.

2. At the next stage preparation of two types of slips are made: (a) Slips bearing each statement, and *(b)* Slips bearing letters from A to K, eleven in all.

3. A large number of judge's are selected to work independently to classify the statements into eleven groups. Each judge is provided with one set of each type of slips and is asked to arrange the eleven alphabet slips before him in sequence. He is also asked to sort the statement slips into eleven piles represented by these alphabet slips. The judge places all the statements which are most favourable to the specified issue in the first group *i.e.* on Slip—A. He places the next unfavourable statements on Slip—B *i.e.* in the second group. The sixth position on the continuum (Slip—F) is the neutral point and therefore the slips which express the neutral point are placed on Slip—F. The judge must put all those statements which express the most favourable attitude on Slip—K. As regards the rest of the alphabet slips, he arranges the statement slips in accordance with the degree of favour or disfavor expressed in them. The judges are asked to evaluate the statements on their own merits. As such their agreement or disagreement within the statements must not be reflected in the arrangement. Statements conveying ambiguity, irrelevance, vagueness and wide difference with regard to evaluation of judges **are** discarded.

4. Finally, the researcher finds out a scale value for each statement. He performs this by finding out the median of different values, in respect of each statement, which the group of judges has assigned to it.

While administering the scale questionnaire, the respondents are asked to check the statements with which they agree. The statements are arranged randomly in the questionnaire and the scale values are not shown in it. The mean or the median of the scale values of the items which are checked by the respondent indicates his position in the scale. Social scientists extensively use such a scale in order to measure the attitude towards various social phenomena. If the responses of a subject are scattered, the researcher interprets it as the indicator of unorganized attitude of the subject towards the particular social phenomenon.

Although Thurston's scale is considered appropriate and reliable in measuring a single

attitude which is sought to *he* measured, the following criticisms may be raised against this scale.

(i) Kelley, Hoviand and Sheriff, on the basis of some studies, have come to the conclusion that the scale values are influenced by the attitudes, intelligence and background of the judges.

ii) The construction of the scale involves a complicate process, such as collection of a large number of judges, making proper selection out of a large variety of attitudes and choosing the most reliable statements to form continuum.

Although different individuals may have similarities ii terms of score on the basis of 'Mean' or 'Median', their attitudes differ from each other.

13.4 Summary

The Thurstone Scale is a method used to measure and quantify the opinions or attitudes of people being surveyed, using a format of 'agree-disagree' questions. In psychology and sociology, the Thurstone scale was the first formal technique to measure an attitude. It was developed by Louis Leon Thurstone in 1928, originally as a means of measuring attitudes towards religion.

13.5 Self Assessment Questions

1. What is Thurstone scale?

2. What is the utility of Thorstone scale?

13.6 Key Words

Thurston's scale- The Thurstone Scale is a method used to measure and quantify the opinions or attitudes of people being surveyed, using a format of 'agree-disagree' questions.

13.7 Study Guide

1. Kalton & Moser, Survey Methods in Social Investigation
2. Goode & Hatt, Methods of Social Research
3. Young. P.V., Social Survey and Social Research
4. Sjoberg, G and Roger, N., Methodology of Social research
5. Cocharam. W.G., Sampling Techniques
6. Lundeberg, Social Research

Unit-14 Bogardus

Structure

14.1 Learning Objectives

After going through this unit the learner will be able-

1. To be acquainted with the scaling technique.
2. To learn about Bogardus's scale.

14.2 Introduction/ Assessment of Prior Knowledge

The Bogardus social distance scale is a psychological testing scale created by Emory S. Bogardus to empirically measure people's willingness to participate in social contacts of varying degrees of closeness with members of diverse social groups, such as racial and ethnic groups. For Bogardus, social distance is a function of affective distance between the members of two groups: in social distance studies the center of attention is on the feeling reactions of persons toward other persons and toward groups of people. Thus, for him, social distance is essentially a measure of how much or little sympathy the members of a group feel for another group.

14.3 Meaning of Bogardus's Scale of Social Distance

Bogardus used the cumulative scale containing a number of questions regarding particular issue. The respondent is required to express his agreement or disagreement over that issue. The arrangement of the items is made in such a manner that the respondent who responds favourably to the second item also relies favourably to the first item and who replies favourably to the third item also rep favourably to the earlier items, *i.e.* first and second items. Hence it is obvious that the subjects who answer favourably have highline aggregate score than those who answer unfavourably. The researcher computes the score of an individual by counting the number of items which have been responded favourably by the subject. The subject is placed on a particular position on the scale on the basis of his scores. Although the intervals between different positions may not be equal, the items may either be arranged systematically in the descending order of favourableness or the selection of the items may be made at random.

Bogardus used this cumulative scale to know social distance by measuring the attitude of individuals towards a particular social group or groups. Therefore, this scale is known as Bogardus's scale of social distance in which a number of suggested relationships are listed to which members of an ethnic group may be admitted. The subject is asked to indicate as to which racial group is admissible to him for each of the specified relationships. The social scientist measures the closeness of relationship in terms of his willingness to accept the social

distance that he may like to maintain.

Bogardus scale

Relationship I would accept	Group-1 English	Group-2 Negro	Group-3 French	Group-4 Chinese
1. Marriage	**1**	**1**	**1**	**1**
2. Friendship	**2**	**2**	**2**	2
3. Neighbour	**3**	**3**	**3**	3
4. Employment in my occupation	**4**	**4**	**4**	4
5. Citizenship in my country	**5**	**5**	**5**	5
6. Visitors to my country	**6**	**6**	**6**	6
6. Exclusion from my country	**7**	**7**	**7**	7

The respondent is asked to circle or tick off each of the seven categories of relationship to which he is willing to accept the average member of a particular ethnic, racial or nationality group, because the respondent's first feeling reactions can be known by this. In this scale, the seven categories indicate a gradually increasing social distance. Therefore, if a respondent circles for a group, he is also expected to circle 5 and 6 for the same group. In case the respondent declines to circle 4, he is most likely to note circle 1 and 2, because these are the indicators of closer relationship for the same group.

In the Bogardus Scale, the respondent has to express his reaction to each race as a group without having any regard to any individual member of a group, whether he likes or dislikes. Of course, some practical reversals may be noticed on this cumulative scale. For example, a group may not be accepted as neighbour, but it may be accepted as a friend in a club.

In order to calculate the social distance mathematically, weights are assigned to different categories

of relationships. For example, if there are five categories or relationships, the weights 1, 2, 3, 4 and 5 can be attached to the first five categories respectively. While measuring social distance, the following procedure is to be generally followed:

(I) The weights and percentage response in respect of each category are to be placed in rows.

(ii) The percentage responses are to be multiplied by its weight.

(iii) The products are to be summed up so as to indicate the social distance.

Limitations:

The Bogardus type scale has the following limitations:

(i) Although it is expected that the respondent has to express his reaction to each race as a group without having any regard to any individual member of that group, in real terms the influence of any individual member or members may not be wiped out from the mind of the respondent while giving preferences.

(ii) Like any ordinal scale, the score in the Bogardus type scale does not indicate the actual extent or the exact degree of preference of a group over the other.

(iii) It is not always possible on the part of the respondent to be acquainted completely with a group. Therefore, he may find it difficult to express his attitude towards that group.

14.4 Summary

The Bogardus social distance scale is a psychological testing scale created by Emory S. Bogardus to empirically measure people's willingness to participate in social contacts of varying degrees of closeness with members of diverse social groups, such as racial and ethnic groups.

14.5 Self Assessment Questions

1. What is Bogardus scale?
2. What is the utility of Bogardus scale?

14.6 Key Words

Bogardus's scale- The Bogardus social distance scale is a psychological testing scale created by Emory S. Bogardus to empirically measure people's willingness.

14.7 Study Guide

1. Kalton & Moser, Survey Methods in Social Investigation
2. Goode & Hatt, Methods of Social Research
3. Young. P.V., Social Survey and Social Research
4. Sjoberg, G and Roger, N., Methodology of Social research
5. Cocharam. W.G., Sampling Techniques
6. Lundeberg, Social Research