

MBA Rural Management

Course outline- 2nd Semester, 2020

Course name: Social Research Methods

Course Credit: 2.0

Course Code: MRM-511

Instructors: Prof. B. Kumar, Dr. Mohit Sharma

Course description:

Today rural development has become a vital issue. About six decades of investment on rural areas is yet to remove the poverty and privation in rural areas. One of the tools of rural development problems is research. Research in rural areas is crucial to identify the problems and to give a right solution. Present course on Social Research Methods is aimed to introduce various research approaches, methods and report writing in context of contemporary research issues and challenges. Students will go through a journey of selecting a research question and trying to bring its answers through scientific methods. Students will establish and advance their understanding of social research through critical exploration of research language, ethics and approaches.

Course Objective:

- To develop an understanding about research terminology
- To create an insight into the current critical disclosure of participatory research techniques and methods
- To acquainted the students on quantitative and qualitative methods for both data collection and analysis in context to rural environment
- To identify the components of literature review process
- To develop competency in research report writing and publishing

The various research methods, techniques will be illustrated by examples from the agri- rural environment and management areas. At the end of the course students are expected to develop a researcher approach and analytical thinking towards decision making, and learn to use as an aid to decision making.

Course learning outcomes

At the end of the course students will be able:

- To understand the use of various research tools and techniques and their application in context to rural environment and management.

Required course materials and readings:

1. Research methods in Rural Development, S. Nakkiram and G. Ramesh.
2. Marketing Research, Malhotra N., Dash SB
3. Investigating the Social World: The Process and Practice of Research, Russell K. Schutt
4. Research Methodology: By C.R. Kothari

Other readings: These readings will include journal articles, news articles, book sections etc.

Evaluation

- Exam: There will be two examinations – mid-term exam and end-term exam.
- Quiz: There will be only one surprise quiz.
- Class participation/individual and group assignments

Grading Scheme

Mid- Term	30%
Quiz	10%
Assignment/Viva	10%
End – Term	50%

Academic dishonesty

Academic dishonesty or misconduct is cheating that relates to an academic activity. It is a violation of trust between the Institute and its stakeholders. Plagiarism, fabrication, deception, cheating and sabotage are examples of unacceptable academic conduct.

Attendance:

Attendance in lecture and recitation is required. Above 75% attendance is compulsory to all the students with no exception. If someone violates the above rule then final grade will

not be higher than F. If one is at the borderline grade, perfect participation in class and in recitation may be the deciding factor between the two grades. Participation is welcome in both lecture and recitation.

Module I: Research Foundation

Module II: Quantitative Research

Module III: Qualitative Research

Module IV: Research Proposal development

Module V: Research report writing and publication

SESSION PLAN

Session	Topics	Assessment Criteria
Module I	Course introduction: Research and scientific research, Research ethics and dilemmas	Assignment/Quiz
	Essential features and typologies of social science research	Assignment/Quiz
Module II	Introduction to quantitative research, study designs and methods	Assignment/Quiz
	Analysis and interpretation of quantitative data	Assignment/Quiz
	Critical appraisal of quantitative data	Assignment/Quiz
Module III	Introduction to qualitative research, study designs and methods	Assignment/Quiz
	Analysis and interpretation of qualitative data	Assignment/Quiz
	Critical appraisal of qualitative data	Assignment/Quiz
Module IV	Research proposal development	Assignment/Quiz
	Literature review	Assignment/Quiz
	Research design	Assignment/Quiz
Module V	Data collection and analysis	Assignment/Quiz
	Methods for data interpretation	Assignment/Quiz
	Writing the research report	Assignment/Quiz

Student responsibilities or Tips for success in the course

1. Come to class in a timely manner and stay for the duration of the class.
2. Prior to class, read the assigned readings, print and review the relevant study material.
3. Participate in class discussions sharing your insights through your questions and comments.
4. Prompt willingness to participate in groups while clearly reflecting individual's contribution in the group.
5. Complete and turn in course assignments at the scheduled time.
6. Come to exams prepared.

BEST WISHES

Social Research Methods

Module I: Orientation to Rural Development and Management Research

- Rural Development Problems and Research
- Rural development vs Non development?
- Contemporary rural problems?
- What can be the research in rural development?
- Why, how and what research can add to rural development?

Development

Development is the process by which some system, place, object or person is changed from one state into other. The term carries the connotation that change is in the direction of growth or improvement.

Todaro (1997, p.18) associates the following objectives with development:

- To increase the availability and widen the distribution of basic life sustaining goods such as food, shelter, health and protection
- To raise standard of living, including higher incomes, more jobs, better education and a great attention to cultural and humanistic values.
- To expand the range of economic and social choices available to individuals and nations by freeing them from servitude and dependence.

Rural Development

Rural development is understood to be multi- dimensional encompassing improved provision of services, enhanced opportunities for income generation and local economic development, improved physical infrastructure, social cohesion and physical security within rural communities, active representation in local political processes and effective provision for the vulnerable. Rural development in this context is much more broader than poverty alleviation through social programs and transfers. Rural development aims at increasing the opportunities of rural people in respect of health, knowledge and skill development, income and participation in decision-making. Rural development therefore, refers to all those activities that affect the well being of

rural populations, including the provision of basic needs and services, i.e. access to food, health services, water supply, basic infrastructure (roads), and the development of human capital through education. Rural Development encompasses a broad spectrum of subjects related with both natural and human resources in an integrated manner, most probably; this is the reason research studies available on these areas have yet to be compiled in an exhaustive manner. We can, however, group the areas of research in rural development as follows: Rural Development, Voluntary Actions in Rural Development, Integrated Rural Development Programme, Development of Women and Children in Rural Areas, Employment Generating Programmes, Area Development Programmes, Rural Infrastructure Development Fund, Public Distribution System, Labour and Wages, Status of Employment, Agricultural Wages, Education, Health, Social Development, Gokul Gram Yojana, Integrated Wasteland Development, Integrated Tribal Development Agency, Jawahar Gram Samridhi Yojana, Concurrent Evaluation of Million Wells Scheme, Poverty Alleviation Programmes, District Rural Development Agencies, Panchayati Raj in Rural Development, People's Participation, Employment Guarantee Schemes, Role of Cooperatives in Rural Development and Socio-Economic Surveys.

Connection of Research in rural development

Research re-examines the special body of knowledge, concepts and theories and tries to evolve a systematic theory and valid concepts. In the area of rural development, research is conducted to know the efficacy of different programmes of rural development so as to search for alternate strategies/interventions for effective implementation of the programmes. Identification of needs and resources, evaluation of programmes and services in the areas of rural development of governmental and non-governmental organisations/ agencies are some of the areas in which researches are undertaken. Research may be conducted to find out the problems faced by development professionals /workers in governmental and non-governmental organisations/agencies and communities in its concern with rural development. Thus, research in rural development embraces the entire gamut of rural development; concepts, theories, methods, programmes, services and the problems faced by development professionals /workers in their practice.

There have been several research studies in the area of rural development. Some of the common finding from these studies is that the organizational structures for rural development are

generally integrated within a larger system of overall economic growth and social development. Each approach/strategy of rural development follows certain overall policy statements on their roles and functions. The systems, however, have unique policy making models. Many evaluation studies have been conducted on Rural Development Programmes. Researchers have questioned the administrative targeting approach, the excessive centralisation in decision-making and utilisation of loan by the poor and concluded that the programmes hardly made any impact on the poor. Studies concluded that the programmes have not been an unequivocal failure. These studies found that there are regional variations. It was revealed that the more developed regions and those families near the poverty line showed a better performance when compared to others. Elaborate studies based on concurrent evaluations in the mid-eighties, found that the assistance went to the deserving poor, the communities had adequately participated in beneficiary selection, the assets distributed were sectorally balanced and the record of repayment was no worse than that in other government programmes. It is, admitted that the programmes have not been as successful as expected since the numbers crossing the poverty line were few and over dues were very large.

Need for Research in Rural Development

Rural development occupies a significant place in the national development of the country. Government and other agencies are straining all their nerves to improve the lot of the villagers. Research is one area through which we can identify rural development problems and find solutions to solve such problems. The following are some of the needs to undertake research in rural development:

1. As an academic discipline: Rural development as an academic discipline is fast emerging. Numbers of universities in our country have introduced degree and masters programme on this area. To make this discipline stronger, research input must be added. This warrants to encourage research activities in the field of rural development.

2. To study the growth and development: To study the growth and development of rural areas research activities are imperative. Rural areas face problems daily and such problems must be

tackled immediately, we necessitates research activities. Adequate funds for such research activities must be allocated.

3. *To build theories:* Rural development is an emerging and growing subject. This subject has very few theories, otherwise the present theories of rural development are borrowed from disciplines like economics, management, psychology, etc. This subject must build its own theories to enrich rural development as an worthwhile academic discipline. Theories can be built by scholars only by means of undertaking number of relevant research studies.

4. *To study human behavior:* Rural activities are related to the villagers and their aspirations. The villagers have different behavior patterns. Within India, we have different village cultures. These multi-faceted village behavior patterns must be analyzed through research studies in order to channel them for national development. So research activities are very much needed in this discipline.

5. *To solve rural development problems:* Rural development issues are peculiar from urban development problems. They must be solved judiciously in order to improve the lot of the rural population. One way of solving the rural problems is through research.

6. *To identify variables in problems:* Any social problem has significant to two variables, namely, independent variable and dependent variable. To solve problems, social researchers must suggest the severity of the problems to the administrators.

7. *Performance evaluation:* The country is implementing numerous rural development schemes. Huge amount of money is spent on these projects. We have to assure that the money is spent productively and the right target group is getting the benefits. One way of assuring this is to undertake evaluation studies.

8. *Rural Development models:* India is a vast country with huge diversities. We have to develop various rural development models to compare each of them and to refine them. This calls for the need to undertake research. Only by means of research studies models can be built.

General Areas for Research in Rural Development

India lives in villages. The prosperity or otherwise of the country depends on the success and the survival of the rural population. Any neglect of rural area will lead to the very neglect of the country. One of the means of developing the rural areas is to conduct research programmes on issues relating to rural development. Research in rural development is needed to examine the problems of several of rural sector activities and to find solutions to such problems.

Research in rural development can and is undertaken by government, various government departments, universities and colleges, agricultural research centers, voluntary agencies, NGOs and international development agencies. Here below, number of reasons for undertaking research activities in rural development is given:

1. *Importance of rural development:* Rural areas or villages occupy a strategic place in the development of the whole economy, in countries like India. Major part of the national wealth and income are created by rural sector. The major part of export is coming from the rural area. The problems of such sectors must be studied on a priority basis through research studies and solutions must be found to such problems.

2. *Importance of agriculture:* Agriculture plays a dominating role in the economy, culture and society of India. Agriculture has become the major employer of the rural population; it is the major foreign export earner of the country. Agriculture supplies very many raw materials needed for the small and large industries. But the agriculture sector has number of problems to be faced. Low productivity, soil erosion, under utilization of water resources, shortage of agricultural inputs like improved seeds, manures and pesticides, etc. are some of the crucial problems confronting the agriculture sector. Agricultural research stations and the related institutions have greater responsibilities in addressing the problems of agriculture and find solutions to these problems.

3. *Agro- industries:* The surplus population in agriculture and the landless agricultural labourers must be absorbed only by the agro- based industries. Agro- based industries use agricultural produces as raw materials. Such industries are sugar industries, cotton, textiles industries, fruit processing industries, etc. These industries are expected to provide employment opportunities to

the local labourers. Such industries must provide import substitution and conserve foreign exchange. All these things warrant the research activities in these fields of activities.

Specific Areas of Research in Rural Development

1. *Employment and income generation:* In rural areas employment generation must be mooted to discourage the dependence of rural population on agriculture. Research is needed to find out alternative and gainful employment to such rural population. To have a reasonable standard of living, the rural masses must increase their income through income generating activities. Allied agricultural activities like dairy farming, poultry development, bee-keeping, cattle rearing and fattening etc must be encouraged. Research activities in these areas must be undertaken by the relevant agencies and research institutions.

2. *To improve production and productivity in agriculture:* Agricultural production per hectare, which is called as productivity, is very low in India. Production per hectare can be improved by means of using improved seeds and applying manures and fertilizers. The total production of agricultural commodities can be increased by means of extending irrigation facilities, bringing new lands under cultivation and by investing more on land. Research in these areas can suggest ways and means of improving agricultural production and total productivity.

3. *Food security:* Food- security and food self- sufficiency are the major issues that are haunting several developing countries. Though we achieved food self- sufficiency long back, we must take care to feed the increasing population. The farmers and the government must make it challenge to increase agricultural production. During recent years, shortage of food grains occur, for which we have to be cautious.

4. *Improving the marketing facilities for farmers:* The cooperatives and other government agencies must improve their operational efficiency to provide better price to the farmers. The farmers must be protected from the exploitation of the middlemen merchants. The storage facilities and the present capacities of the stores of the cooperatives must be enhanced. The farmers must be provided with the latest marketing information relating to the price of commodities in other markets. Farmers must also be provided with information various types of crops to be grown. All these things necessitate the importance of research in these areas.

5. *The problems of the cooperatives:* The cooperatives in India have become the third sector of the economy and they are facing number of problems like lack of resources, poor loan recovery, administrative problems, etc. which need to be tackled urgently. These problems of cooperatives call for research activities to be undertaken in this sector.

6. *Local administration:* Local self- administration is an aspect of the democratic process that must be encouraged among the villagers and farmers. The Panchayat Raj system must be strengthened and democratized. There are issues like election, finance, infrastructure, coordination with various government departments and agencies. The local self- governments are facing the major problem of resource shortage. Research is needed to find out the financial and other resources for these agencies. One of the important institutions of farmers' development is the farmers' associations. There is need to organize women and youth organizations to create awareness about various community issues.

7. *Village health care and hygiene:* Rural areas are severely affected by health problems. Infant mortality, mother care, control of contagious diseases, malaria control is certain crucial issues. The most imminent problem confronting the villages of is control of malaria, village sanitation and the severity of HIV/AIDS problems. Greater awareness programs must be launched to educate the youth. Research in these areas is very much needed to protect the citizens from the dreadful diseases.

8. *Poverty reduction strategies:* The government has introduced number of poverty reduction steps to remove poverty, especially in rural areas. Such strategies require the collaboration and partnership of the local population. The villagers must be educated about the implications of such schemes, which needs research concentration. The women and children must be safeguarded from such dangers of poverty.

9. *Extension methods:* Extension activities for the propagation of improved agricultural practices, marketing practices, health care schemes, HIV/AIDS control and awareness etc. are needed to improve the living standards of the farmers and other population in villages. To introduce the right type of extension methods and to know the effectiveness of various extension methods research and demonstration activities are needed.

Concept and understanding of research

- What is the existing image of research in the mind of students?
- Explorations of various definitions of research and students view point on that?
- Identification of areas of rural development in which research is being increasingly undertaken

Research introduction

When we observe certain objects or phenomena, we are often unaware of our biases, we do not question them and so we attribute our observations entirely to the objects or phenomena being observed. In this process, it is possible to arrive at right decision on the basis of wrong reasons or vice versa. This questions the process of observation. Was the observation error free? Every method of knowing has certain limitations. While observing are we aware of our limitations? Any study to create new knowledge or aims to increase existing fund of knowledge may it be through observation or by some other methods, is called research if it takes into account the biases, the errors and limitations. As such, research may be described as systematic and critical investigation of phenomena toward increasing the stream of knowledge.

Research is a process by which one acquires dependable and useful information about a phenomenon or a process. It may be broadly defined “as a systematic inquiry towards understanding a complex social phenomenon or a process”.

It follows the scientific approach to gain knowledge. The most important characteristic of this approach is its thrust on objectivity. To what extent is the research using scientific approach is useful in studying the problems of society? How can we acquire reliable knowledge about the various aspects of human experience? To be more specific how can the scientific approach be of value in understanding social phenomena?

What is research?

The term research brings before mind the image of machines, laboratories and scientists clad in white aprons. For a common man research is synonymous with experiments and new inventions. Research is a method of inquiry into truth. Truth or real knowledge is essential for living life effectively. Human beings need facts about things to use them tactfully to fulfill human needs. Human mind has been inquisitive about the happenings around them .A sound

understanding about the nature and social surroundings form the basis for modern developments. There are different ways to find the answer of natural questions. Religion looks out for truth of life through the path of faith in God, guru (Master) or scripture. Common men also like to understand things through hearsay and trial and error. Philosophy claims to arrive at truth through logical analysis and synthesis of facts from different disciplines. Research or searching again signifies in-depth, systematic investigation for truth or real knowledge. Research is entirely different from other types of investigation because it does not take truth for granted. It believes in finding out the truth through careful, systematic, rigorous and formal procedure, leaving nothing to chance. Research is finding cause and effect relationship between two variables through scientific approach. Scientific approach of inquiry presumes that the world is organized in a definite order.

Some definitions of research:

Webster's international dictionary: "A careful critical inquiry or examination in seeking facts or principles; diligent investigation in order to ascertain something"

Encyclopedia of social science: "It is the manipulation of things, concepts or symbols for the propose of generalizing and to extend, correct or verify knowledge, whether that knowledge aids in the construction of a theory or in practice of an art"

Francis Rummel: "Research is a careful inquiry or examination to discover new information or relationships and to expand and to verify existing knowledge.

Characteristics of research as pointed out by John Best

1. Research gathers new knowledge or data from primary or first hand sources. It is not research when one merely relates or recognizes what is already known or what has written.
2. Research is expert, systematic, and accurate investigation. There is no place for approximations and ambiguities in research.
3. Research is carefully recorded and reported. Every term is carefully defined, all procedures are described in detail, all limiting factors are recognized, all references are carefully documented and all results are objectively recorded.

What is Science?

“Accumulation of scientific body of knowledge through application of scientific approach is called science”. Science is not an activity. It is frame of mind or way of looking at things. It is ever questioning attitude towards natural phenomena. Systematically gathering of facts through empirical methods leads to collection of precise and objective data and help in finding proof for the assumed facts.

Scientific research

Scientific research is systematic, controlled, empirical and critical investigation of natural phenomena by theory and hypothesis about presumed relationship regarding such phenomenon.

Motivations for conducting research:

Why conduct research? Research is long and grueling process. Still many people commit their lives to research. In fact, research fascinates the questioning minds.-Finding truth can be vocation for many people. This is the path of exploration. At the same time people fired with the motive to serve society and find solution to problems faced by the humanity may like to peruse research as their vocation. Research is a profession and a respectable one in the current times. Thus people like to conduct researches for degree, respectable job and a comfortable academic life full of creativity. However it is not a path of roses. Research demands patience, keen observation, long hours of work and little physical reward in the short turn. It takes lot of time to produce something significant for the society. The intervening period is more of trial and tribulations and great mental agony.

Social Research

“Social research is a systematic method of exploring, analyzing and conceptualizing social life in order to extend, correct or verify knowledge, whether that knowledge aids in the construction of a theory or in the practice

Anthropology: It is a study of human race, especially of its origins.

Political Science: It is a study of government, policies and public affairs.

Economics: It is a study of how society organizes its money, trade and industry

Psychology: It is a study of the mind and how it influences behaviour of human being.

History: It is the study of the all events that happened in the past concerned in the development of a particular place, subject, war etc.

Education: It is a study of a process of teaching, training, and learning to improve knowledge and skills.

Sociology: It is a study of the nature and development of the society and social behavior.

Rural Sociology: It is a study of the nature and development of the rural society.

Some of the specific purposes of social science research are:

Social Control: Control over society is possible only when we have complete knowledge of the organization and working of the society and its institutions. All this can be achieved only through scientific study of society. Everybody knows that there is lots of corruption in government work. If you want to remove the corruption from this department, the first and foremost task which you have to do is to collect the information regarding the cause behind it.

Social Cohesion: The study of society creates better understanding between different social groups. Similarities between the groups can be brought out.

Social Welfare: Social welfare is achieved through social research helps. In order to remove evils there is need to judge the magnitude of social evils. Child labour is prevailing in the society. There is need to find out the causes behind using small children. By knowing magnitude and cause of the problem, the government can make policies to remove it.

Social Prediction : Social research helps us to formulate social laws which show relationship between social facts and their cause. Once the existence of causative factors known we can predict the result. Although accurate prediction in majority of cases is not possible due to complexity of social phenomena and variety of causative factors.

By seeing the growth rate in the population, Government can predict that with this growth rate in population every year, how much infrastructure will be needed to fulfill the basic need of people of the country. Accordingly Govt. can formulate the policies to face the situation in advance.

Social Growth: Social research helps in the growth of society on right lines. Growth of direction depends by its own structure, institutions, social values and motivation etc but it is equally affected by knowledge of own and other society also.

Areas of Research in Rural development

Research in rural development is the application of research methods to the production of knowledge that rural development professionals need to solve problems they confront in the practice of rural development. The knowledge is useful in appraising the effectiveness of methods and techniques of rural development. It provides information that can be taken into consideration by development professionals prior to making decisions, that affect their clients, programmes, services or agencies such as use of alternative intervention techniques or change or modification of programme/client objectives and so forth.

Following are some of the examples where research methods are used in rural development:

- A community worker is interested in obtaining information about the actual or potential effectiveness of the individuals, couples or families in a rural community,
- A group worker wishes to assess the extent to which the technique of role play is more or less effective than group discussion in increasing knowledge of members of a self-help group;
- a community organiser wants to know the views of the community before he/ she takes a decision to change the programme objectives;
- the director of a community welfare centre wants to know whether an income generation scheme is as effective as a self-help group in enhancing women's empowerment; and
- An administrator is concerned about effectiveness of implementation of new programme launched. These are some of the situations, which call for application of research methods and techniques in rural development.
- Research offers an opportunity for all development professionals to make differences in their practice. There is no doubt about the fact that development professionals will be more effective practitioner guided by the findings of research. Research deals with those methods and issues, which are useful in evaluating programmes and practices.

Module III: Rural social research vs other researches

- CONCEPTS
- Conceptual foundations of scientific research (Facts and theory, hypothesis and theory, purpose of theory, developing a theory)
- Scientific method of research in social sciences

Scientific Research

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Science aims at description, explanation, and understanding of various objects or phenomenon in nature. Research is a special endeavour, which involves systematic and critical investigation towards increasing the stream of knowledge. Now it is easier to define scientific research. One can define scientific research as a “systematic and critical investigation about the natural phenomenon to describe, explain and finally to understand the relations among them.”

Conceptual foundations of scientific research

Facts and Theory: Social sciences primarily deal with human behaviour, which is, by and large, complex and dynamic in nature. One cannot, therefore investigate under guided conditions as in natural and physical sciences. This creates many problems to the researcher such as the problems of subjectivity and individualistic generalisations etc.

Scientific research starts with facts and then moves towards theorising. To be useful, facts must be organised, and the primary purpose of the scientific method is to develop a mechanism of organising the facts, as they accumulate, and become meaningful from the standpoint of their objectives.

Theory may be defined as “a set of interrelated constructs (concepts), definitions and propositions that present a systematic view of a phenomena by specifying relations among variables, with the purpose of predicting and explaining the phenomena (Kerlinger,1973).

Hypothesis and theory

A hypothesis, when accepted, explains a small number of facts and the relationship between them. Generalisation, as the term denotes, is a hypothesis based on broader phenomena. Theory explains even more facts and their inter-relations. Theories themselves range from the simple to the more sophisticated. Finally there are laws, which have the greatest scope and generality.

In spite of the strong case that has been made for the role of theory in research, it will be appreciated that a theory has to be amended or abandoned when the discovery of new facts can no longer accommodate it. Alternatively, it may be subsumed by a wider, more embracing theory when it is realised that the situation which is contained by the theory is one instance of a more general case. Theories generated by the means that we have indicated, do not lead to ‘eternal truth’; rather, they should be looked upon as useful conceptual frameworks which are adequate

for present purpose or a given situation. Thus every theory is subject to modification as and when we get new facts and evidence that contradict the generalisations made earlier on.

Purpose of theory

There are several purposes to be served by a theory in the development of science. We shall briefly consider three of them here. First, theory summarizes and puts in order the existing knowledge in a particular area. It permits deeper understanding of data and translates empirical findings into a more easily retainable and adaptable form. The theory of oxidation for instance, places into focus many of the chemical reactions common to everyday life.

Secondly, theory provides a provisional explanation for observed events and relationships. It identifies the variables that are related and the nature of their relationships. A theory of learning, for example, could explain the relationship between the speed and efficiency of learning and such other variables as motivation, reward and practice.

Lastly, theory permits the prediction of the occurrence of phenomena and enables the investigator to postulate and, eventually, to discover hitherto unknown phenomena. At the time when the 'Periodic Table' was being completed, for instance, certain gaps were noted in the sequence of the elements. Since theory provides that, there should have been no gaps, scientists were spurred on to look for the other missing elements. In time, these were found, anticipated by theory. Theory, therefore, stimulates the development of new knowledge by providing the lead for further inquiry.

Developing a theory

It is important to stress that good theories are not born out of imagination; they do not originate merely through arm chair reflection. A theory is built upon collected facts. The investigator then searches, makes intelligent guesses as to how the facts are ordered, adds missing ideas or links, and puts forward a hypothesis; deduces what consequence should follow from the hypothesis and looks for further facts which are consistent or otherwise with the deductions; builds a wider generalization or conceptual framework on more facts; and eventually outlines a theory. Theories are solidly based on evidence. And they are important practical tools which enable us to advance our knowledge still further. Once a theoretical framework has been elaborated we know what

facts to look for to confirm or to deny the theory; also, we have a conceptual framework inside with which our evidence can be tested.

Theories always involve terms that refer to matters that cannot be directly observed. For example, gravity itself cannot be directly observed, though the effects of gravity can be. Gravity and gravitation are both theoretical terms. The terms of a theory or theoretical statement are sometimes referred to as constructs. Thus, many theories of learning refer to a motivational factor in behaviour. Now motivation is not directly observable. It is a theoretical term; or, we may refer to it as a construct. The term implies that it is a construction of the scientist's imagination.

Scientific Approach

It is obvious that it would be impossible to comprehend the nature and content of research without an appreciation of a method. The method used in scientific research is usually designated as scientific method. According to George Lundberg (1946), scientific method consists of three basic steps; systematic observation, classification and interpretation of data. Through these steps, scientific method brings about not only verifiability of the facts, but also it lays the confidence in the validity of conclusions.

The definition requires some more explanations. First when Lundberg (1946) says that scientific method is systematic observation, he means, the scientific investigation is not ordered, it aims only at discovering facts as they actually are and not as they are desired to be and as such the investigators can have critical confidence in their conclusions. Second, the scientific method is concerned with 'classes of objects' not 'individual objects' especially universality and predictability. The method makes it possible to predict about a phenomenon with sufficient accuracy.

Use of Scientific method in social science

Social sciences primarily deal with human behaviour, which is, by and large, complex and dynamic in nature. One cannot, therefore investigate the human behaviour under guided conditions as in natural and physical sciences. This creates many problems to the researcher such as the problems of subjectivity and individualistic generalisations etc.

The problem arising out of the nature and content of social sciences do not seriously diminish the importance of scientific method for social scientists. Notwithstanding the inherent defects of social sciences, scientific method can be acceptable with its own limitations for the study of social phenomena so far, as it helps to arrive at valid generalisations.

Module IV HOLISTIC VIEW OF RESEARCH

- Classifications of research (Exploratory or formulative research, Descriptive research, Diagnostic research, evaluative research)
- Types of Research (Fundamental research, applied research)

Classification of Research

Though each research has its own specific purpose, we can classify research studies by its purpose into the following categories:

Exploratory or Formulative research

Studies with a purpose of gaining familiarity with a phenomenon or to achieve new insights into it, often in order to formulate a more precise research problem or to develop hypotheses are known as Exploratory or Formulative research studies.

Descriptive Research

The research studies which are intended to portray accurately the characteristics of a particular situation or a group or individual are termed as descriptive research. The chief purpose of these studies is to describe reality. Descriptive researches, for example, might deal with such questions

as, what are people's attitudes toward development. What is the extent of child labour? Or, how many people avail the services of the primary health centres?

Diagnostic Research

Diagnostic studies are concerned with determining the frequency with which something occurs or with which it is associated with something else. That is, these studies are concerned with discovering and testing whether certain variables are associated, e.g., do more rural people vote for a particular political party than the urban people? Are students with public school background better placed in jobs than those who had not had this background?

Evaluative Research

Evaluative research focuses on evaluation or monitoring of programmes/services to determine whether and to what extent they achieve their goals and whether they do so in the least costly and most expeditious fashion. Evaluation research can also determine whether a programme has unintended consequences that are either desirable or undesirable (Monette, et.al.,1986).

Types of Research

Research studies may be broadly classified into two categories, namely, fundamental or basic research, and applied research. This classification is based on the goal or objective of the research study.

Fundamental Research

This type of research aims at obtaining the empirical data that can be used to formulate, expand or evaluate a theory. This type of research study is not oriented in design or purpose towards the solution of practical problems. Its essential aim is to expand the frontiers of knowledge without any intention of practical application. Of course, the findings may be eventually applied to practical problems that have social value. For example, advances in the practice of medicine are dependent upon basic research in biochemistry and microbiology. Likewise progress in rural development has been related to progress in the discovery in the general laws of development through basic research in economics and sociology. The primary concern of basic research, however, is the creation of knowledge solely for the sake of knowledge. Its design is not hampered by considerations of special usefulness of the findings.

Applied Research

Applied research is directed towards the solution of an immediate, specific and practical problem. This is a research performed in relation to actual problems and under conditions in which they are found in practice. Through applied research, development professionals are often able to solve their problems at the appropriate level of complexity. For instance, to understand group dynamics in a rural setting, we may depend on basic research for discovering the more general laws of group dynamics operating in the rural setting, but applied research must be conducted in order to determine how these laws operate in the rural setting. This approach is essential if scientific changes in rural development are to be effected.

It needs to be noted that there is not always a sharp line of demarcation between basic and applied research. Certainly, applications of theory help in solving practical problems. We apply theories of group dynamics in the community. On the other hand, basic research may depend upon the findings of applied research to complete its theoretical formulations. An experiment in group dynamics in a community could shed some light on a group dynamics theory. Furthermore, observations in a practical situation serve to test theories and may lead to the formulation of new theories.

Suggested and additional Readings:

- Research in rural Development retrospect's: National and international Perspectives, IGNOU study matter
- Introduction to research: purpose, nature and scope
- Research methods in rural development by Sivagurusamy Nakkiran, G. Ramesh

Student assignments:

1. Figure out development issues in your local areas and address?
2. List out the areas of research in rural development which are yet to be explored?

Steps in conducting social research

Social research is a systematic process. It is not random. Thus; well delineated steps have been identified to conduct any research, however, the following order concerning various steps provides a useful procedural guideline

- (1) Formulating the research problem
- (2) Literature review
- (3) Developing the hypothesis
- (4) Preparing the research design
- (5) Determining sample design
- (6) Collecting data
- (7) Analysis of data
- (8) Hypothesis testing
- (9) Generalization & interpretation
- (11) Preparation of the report

Description of various steps is mentioned here as under:

Selection of Problem

Selecting a research problem is a crucial decision and takes time. A research problem is selected first on the basis of prior experience, survey of literature, discussion with experts or personal exposure. All the problems of real life or field do not make researchable problems. Researchable problems must be feasible in terms of actual investigation in the field and availability of measurements. It takes time to decide the problem. The research problem should always be novel, contemporary and interesting. Novelty does not mean that it should be path breaking. It may be new in content, methodology or application to a particular target group. Repetitive, mundane or stereotype research does not make significant contribution to the fund of knowledge in a discipline. Often theses for M.Sc. or Ph.D. degree are done on repetitive themes for the sake of convenience. It is not uncommon to see adoption of innovation or impact of a programme as common running theme research in extension. A researcher may like to answer the following questions before selecting a problem.

- Is it novel? A new problem attracts the attention of the fellow researcher and paves way for the other researches thus, a researcher can get recognition and acceptance.

- Is it contemporary? The problem may not always be new but if it is relevant for the discipline in which it is conducted, it may still attract attention.
- Is it capable of solving a nagging problem? If you are able to solve a problem which has been realized by the professionals but no attempts have been made to solve in past, you may contribute significantly to the field of knowledge.
- Is it Relevant and interesting to the researcher? It is essential that researcher also feels deeply interested about the problem to devote himself fully to the task. Thus, if the researcher finds the problem meaning ful ,s/he can put the best efforts possible.
- Does it takes into account researcher's, academic training? No matter how new, important or interesting a problem is but if it is not matching with the competence and knowledge of the researcher s/he may feel lot of difficulties on the way to handle it? Thus, from feasibility and convenience point of view knowledge and experience of researcher in the related field is essential.
- Is it convenient in terms of time, money and other resources? Research is expensive affair. It requires time ,money ,human labour and thus availability of resources matching with the task is essential consideration.

The title of research should be descriptive in the sense that one should get an idea about the problem being studied in concrete terms. The title should be brief and not mouthful

Commonly used terms related to Research Aims

Term	Definition
Research aim	A statement indicating the general aim or purpose of a

	research project. Usually a research project will have only one broad aim
Research objectives	Specific statements indicating key issues to be focussed on in a research project. Usually a research project will have several specific research objectives
Research questions	An alternative to research objectives, where the key issues to be focused on in a research project are stated in the form of questions
Research hypothesis	A prediction of a relationship between two or more variables, usually predicting the effect of an independent variable on a dependent variable. The independent variable is the variable assumed to have causal influence on the outcome of interest, which is the dependent variable.

Illustration on defining the research problem

The technique of defining a problem can be illustrated with the help of following example:

Let us suppose that a research problem in a broad general way is as follows:

“Why is productivity in Japan so much higher than in India?”

In this form the question has a number of ambiguities such as: What sort of productivity is being referred to? With what industries the same is related? With what period of time the productivity is being talked about? In view of all such ambiguities the given statement or the question is much too general to be amenable to analysis. Rethinking and discussions about the problem may result in narrowing down the question to:

“What factors were responsible for the higher labour productivity of Japan’s manufacturing industries during the decade 1971 to 1980 relative to India’s manufacturing industries?”

This latter version of the problem is definitely an improvement over its earlier version for the various ambiguities have been removed to the extent possible. Further rethinking and rephrasing might take place the problem on a still better operational basis as shown below:

“To what extent did labour productivity in 1971 to 1980 in Japan exceed that of India in respect of 15 selected manufacturing industries? What factors were responsible for the productivity differentials between the two countries by industries?”

With this sort of formulation, the various terms involved such as ‘labour productivity’, ‘productivity differentials’, etc. must be explained clearly. The researcher must also see that the necessary data are available. In case the data for one or more industries selected are not available for the concerning time- period then the said industry or industries will have to be substituted by other industry or industries. The suitability of time- period must also be examined. Thus, all relevant factors must be considered by a researcher before finally defining a research problem.

Some examples of research questions:

- Does students’ fruit/vegetable intake vary between schools and does this between- school variation remain after adjusting for the student composition of schools?
- Are school- level effects consistent across different measures of fruit/vegetable intake?
- Does school availability influence intake of fruit/vegetables among boys and girls differently?
- Do students from homes with low availability consume more fruit/vegetables if enrolled in schools with high availability of fruit/vegetables versus schools with low availability?

Source: Krolner, Due, Rasmussen, Damsgaard, Holstein, Klepp, et al. 2009, p.1417

Let’s take another example:

Do certain foods provide comfort under different situation in people’s lives? E.g. does chicken / vegetable soup make people feel better on a rainy day or when they have cold?

Research Question 1: What foods are considered to be comfort foods?

H1: Potato chips are considered comfort food.

H2: Ice cream is considered comfort food.

Research Question 2: When do people eat comfort food?

H3: People eat comfort food when they are in good mood.

H4: People eat comfort food when they are in bad mood.

Research Question 3: How do people become attached to comfort food?

H5: People are attached to comfort foods that are consistent with their personality.

H6: People are attached to comfort foods because of past associations.

➤ **Exercise for Self Assessment**

ABC Inc. is a chain of fast food restaurants located in near metropolitan areas in the south. Sales have been growing very slowly for the last 2 years. Management has decided to add some new items to the menu, but first they want to know more about their customer behaviour and their preferences.

- List two hypothesis?
- What kind of research design would be appropriate here and why?

Formulation of Research Objectives

Objectives are direction of movement. They guide the researcher for deciding type of data to be collected. Objectives are formulated on the basis of research questions raised to understand the problem. Good research objectives must be conceptually clear and indicate .what is to be measured? They give direction to the study: Clearly worded objectives help the researchers in deciding the variables and tools of data collection

- Must be chosen carefully based on the questions raised. Objectives have direct relevance with the research title and the nature of questions raised. Objectives must be related to the theme of the problem
- Must be few and not too many so that in – depth study can be carried out. Be relevant to the problem.

- Must be stated clearly to convey meaning so that reader can understand what is to be achieved. We must ensure that the terms are specific and identifiable.
- Each objective must relate to type of data to be collected. Like a research objective stating “To study profile of farmers is not appropriate because it does not clearly indicate what is to be measured. It is vague and gives an impression that probably the author is not clear why this is being studied. Thus statement of objectives in clear terms indicating what is the expected data to be collected makes more sense?”
- Be measurable: we must choose objectives which can be measured through available tools and techniques. Empirical testing is a prime requirement for research.

Research Design

Research design is an outline or plan of research prepared before conducting actual research to provide guidelines for details of the project. It refers to the arrangements for conducting research. It comprises series of prior decisions, which taken together, provide a master plan from executing a research project. Research design is a framework or blue print of actual research. This gives detailed description about the locale of research, sampling techniques, choice of variables- their operationalization and measurement, methods of data collection, method of data analysis, timeline etc. Thus, research design provides a synoptic view of the total research and helps in anticipating the results and nature of analysis to convert data into useful finding.

“Thus, research design is arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to research purpose with economy in procedure”. A good research design must have the following features:

-It should be stated so precisely that it can be tested empirically.

-It should enable researcher to answer research questions objectively, accurately and economically.

-It should help in deciding the steps of research process under given conditions.

-It should provide guiding points to keep problem at the minimum.

-It should help in controlling external and error variances.

In summing up, design should be able to clarify what data need to be taken from where and how. Further, how these data are to be analyzed to lead to conclusions.

Types of research designs

There are different types of research designs. The research design and type of research design is not the same thing. While research design refers to arrangement regarding research process, type of research design refers to the extent of rigidity or flexibility in research process. Can everything be determined in advance or there is scope of exploring and trying. The types of research design vary on the two attributes as describe below.

Exploratory Research Design:

As the name indicates this is used when the problem under study is entirely new and little or nothing is known about it. The research studies subject about which either no information or little information is available. Generally, this type of research is qualitative which becomes useful in formulating hypothesis or theories. In this situation variables or hypothesis cannot be determined beforehand. Precise measurements of variables may not be available. Thus a researcher has to follow a loose research design to allow for exploration of information from different sources. One can survey pertinent literature or consult people related with the problem and analyse relevant document. Well formulated hypothesis, control variable or strict sampling techniques are out of question here. Such researches are done in order to formulate more precise research projects and develop hypothesis. In nutshell exploratory research design is an initial step in the continuing research process, it helps in enhancing familiarity with the phenomenon, getting conceptual clarity, establishing priority and obtaining necessary experience in the case of a new problem. Variables may be assumed in this case but they are largely not known.

As an example, in an exploratory study of a prison, the researcher points out how a prison is divided in barracks and wards; what type of work is assigned to different types of prison officers; what recreational, medical, educational etc., facilities are provided to prisoners; what rules they have to follow in interacting with other inmates or with officials; how are they to maintain contacts with the outside world and so on. The researcher also comes to explore how prisoners reject the prison norms and come to follow the norms of inmate world, say, always keep grumbling about the food, work and the facilities provided, always work less, do not reveal the secrets of inmates to prison officials and so forth.

Or, suppose a researcher is interested in exploring students' unrest in a university campus. He will study dissatisfaction of students regarding various problems they point out, administrator's apathy to these problems students organising under a leader for demonstration, gherao, strike etc., type of students who become active, the support they seek and get from outside agencies, how widespread the unrest becomes, how it is suppressed by the police, how leaders are arrested, and how authorities are pressurised to concede some demands.

Zikmund (1988:17) has pointed out the following areas of exploratory research in business:

1. General Business Research

- i. Business trends
- ii. Short/long range studies
- iii. Import/export studies
- iv. Acquisition studies

2. Financial and Accounting Research

- i.** Impact of taxes
- ii.** Loan and credit risk studies
- iii.** Return risk studies
- iv.** Research on financial institutions

3. Management Research

- i. Leadership style
- ii. Structural studies
- iii. Physical environment studies
- iv. Job satisfaction
- v. Employee morale

4. Sales and Marketing

- i. Measuring market potential
- ii. Sales analysis
- iii. Advertising research
- iv. Buyer behaviour research

5. Corporate responsibility research

- i. Ecological impact
- ii. Legal constraints
- iii. Social values

Some other examples can also be pointed out for exploratory research:

- A manager notices that workers' grievances are increasing and production is decreasing. He wishes to investigate reasons
- The manufacture of dish washing machine wishes to forecast sales volume for the next five years
- A publisher wishes to identify the demographic characteristics of teachers who wish to spend more than 2,000 Rs. Per year on books
- A financial analyst wishes to investigate whether monthly income scheme or cumulative scheme or mutual fund scheme has a higher yield
- An academic researcher wishes to investigate if India is losing its competitive edge in carpet trade

Chief shortcoming of the exploratory studies is that they seldom provide satisfactory answers to research questions, though they can give an insight into the research methods that could provide definite answers. Failure to give definite answers is because this type of research lacks representativeness.

Descriptive Research Design

This is a type of research meant for describing the characteristics of group or phenomena. Opinion polls, demographic profile of community; attributes of a group of people or consumer study are some of the examples of this type of research design. It is possible to study association between the characteristics of people/institution and social behaviour. Hypothesis may be formulated. However, there is no need for control. However, this is not an issue to study association. Most of the survey researches fall under this category.

Take, for example, the research on drug abuse. The ministry of social welfare, GoI assigned this study in 1976, 1986, 1996 to teams of scholars (doctors, sociologists, criminologists) to study the extent of drug abuse among college students, nature of drugs taken, causes of taking drugs, sources of getting drugs, effects of taking drugs, and so on. Since collecting data on scientific basis for descriptive studies is careful and deliberate, scientific descriptions are typically more accurate and precise than casual ones.

Another example of descriptive study is the census in India. The census data describe accurately and precisely a wide variety of characteristics of the population of different states and different communities. The voting forecast given on the basis of survey conducted by different organizations/TV channels before and after the parliamentary elections described the voting pattern of the electorate. The productive marketing survey also describes people who use or would use a particular product.

Explanatory or causal research

The research explains the causes of social phenomenon. Describing the magnitude and nature of crimes committed by females in India is one aspect of female crime but why do they commit crime is explanatory aspect. Similarly, why the rural poverty is not being

eliminated, why do some states (like Rajasthan, Gujarat, Andhra Pradesh etc.) face frequent drought, why and how communal riots take place, why do students agitate- all these are the explanatory studies. In simple terms, explanatory research aims at establishing a relationship between variables i.e. how one is the cause of other or how when one variable occurs the other will also occur. Explaining relationship between broken families and juvenile delinquency or between drug abuse and lack of family control or between students strike in the college and apathy to solving students' grievances are some examples of explanatory or causal research.

Analytical Research Design

The very purpose of this research design is to ascertain cause. Answering questions of how and why are essential for this type of design. This is characterized by formulation of hypothesis, in-depth analysis of data to examine relationships between variables

Experimental Research design

Experimental researches are said to be most rigorous, planned and accurate. It involves deliberate experimentation by manipulation of variables. The methods by which cause and effects are verified are based on pre-determined assumptions and framework. This requires that desired stimulus is exposed to the extent desired and effect of independent variables is studied. It is also the purest form of research because extraneous variables are controlled to measure the effect of causative variables. It demands both experimental and control groups. Experimental research designs are precise and specific because of nature of works carried out. Testing of hypothesis is an important part of this type of design. Thus, this is the most intensive design of research calling for rigorous sampling, formulation of hypothesis and control as well as manipulation of variables. All variables are summed to be known.

Types of Experimental Designs

Type of Experimental design	Description	Situation in which used
1. 'After only' design	Difference between the experimental group's response before and after the experiment	Measurement of advertising recall, day after recall, etc. Or measurement of increase in sales after a sales promotion scheme
2. 'Before After Design'	The experimental group's reaction is first measured before and after the experimental variable is introduced to them to check out the differences in behaviour. The disadvantages is that some uncontrollable variables might be responsible for the change in opinion or behaviour	A consumer entering a departmental store, having various brands of shirts, may be asked his brand preferences. The salesman at the store would be instructed to influence the choice towards a particular brand. The brand purchased by the consumer finally would indicate whether the sales people have been successful in influencing the brand choices of the consumer. A consumer's intention to purchase earlier is compared with any changes at the time of final purchase on account of external stimuli like an advertisement or influence

		of the dealer, etc.
3. Before after with control group	The design consists of having a control group which is not subjected to the variable, versus the experimental group which is subjected to the variable. The differences of their difference of their differences would give an idea of the extent of uncontrollable variables present.	In the experiment described earlier, there could be consumers to whom the salesman does not deliberately push a particular brand. This would constitute the control group. The differences between the purchase behaviour of the control group and that of the experimental group would indicate whether uncontrollable variables had caused the change in behaviour
4. Four Group Six Study Design	To remove the bias which exists on account of the 'before' measurement four groups are made, two as in the before after with control group when the before measurement is not made – one control group and the other experimental. Theoretically, it will be the solution of four unknown quantities to find their differences.	The experiments of four groups six study design are difficult to set up and difficult to interpret and have little practical application although they are the ideal.
5. After only with control group	In this case, no 'before' measurement is made but only the after measurement is made on the	The experimental group may be sent certain privileged discount coupons

	experimental group. The difference between the two would indicate the effect of the experimental variable.	groups are not. The results of the sale would indicate whether the discount coupons are indeed useful in increasing the sales of the product.
6. The latin Square design	If the effect of a single variable is to be studied over different time periods and different geographic regions a design which takes into account possible combinations is made and the differences arising on account of either the geographic region or the time period are studied	Suppose, the owner of franchised outlets, say Bata, would like to know whether there is a difference in sales occurring on account of differences in three types of display used by three similar Bata stores, situated at different locations in Bombay, for a period of three months. Latin Square designs are extensively used to establish cause-effect relationships in marketing situations.

Disadvantages

- The lapse of time between the ‘before’ and ‘after’ might be too long for the experiment to yield any significant results.
- The experimental and control groups are not easily available and may not be very co-operative.
- Experiments are short- term affairs and do not suggest enduring relationships between variables as a descriptive research would.

- Setting up the experiment and controlling it may prove very expensive.
- The competitors can easily get an idea of the activity of the company when experiments are conducted in the open market place. Often competitors confound experiments by creating abnormal situations like a sudden discount scheme etc.

Review of past literature

Review of past literature is essentially first step in understanding the background, historical developments, studies done so far as well as the critical bases of the problem at hand.

A researcher is keen to know everything to zero in on specific areas which could be undertaken. The review of literature serves two purposes. One, it makes researcher aware about the past works and the gaps in research. Second, it helps to defend one's finding in the light of past works. Various different sources of information can be browsed for the purpose.

Sources of literature review

Book: both theoretical and research based books can be consulted.

Abstract: Clearing house, indexing services and publishers bring out short abstract of different social science fields.

Journal: Recent up to date information can be sourced from journals.

Encyclopedia: Help in clarifying compute and provides general understand ends.

Seminar / Conferences proceedings:

Thesis

Occasional papers

News papers

Purpose of review of literature

A) To benefit from previous works

The works done in the past indicate the dimension of the problem and flaws that exist.

The gaps in the past researches can well be fill the gap potential difficulties in conniver

out the study can be understood emptier of existed steeliest & lure sound's can the judged.

B) To improved methodology

Reviews of mother doping can enhance the capability to reach method appropriate for the reserve both in terms of feasibility, economy & efficiency.

Selection and Formulation of Research problem

“One can produce quality research if it has sprung from within”

Some of the Examples are as hereunder:

1. Buying behavior of rural consumer in reference to Pusa area of Bihar state

Objectives:

- To analyse the demographic status of consumers in rural areas
- To analyze consumer attitude towards purchase of chocopies
- To determine factors influencing the purchase of chocopies
- To suggest strategies to influence the buyer behavior in rural markets to tap the huge potential

Hypothesis

- There is no significant relationship between education of consumer and brand preference for FMCGs
- There is no significant relationship between the monthly income of consumers and consumption of items
- FMCG sales are directly related with advertising

2. An overview of financial inclusion and rural development in India

Purpose of the research is to evaluate the need of financial inclusion in India

Objectives:

- To evaluate the role of different financial institutions towards financial inclusion
- To examine the extent of financial exclusion in rural area
- To enquire into the role of Microfinance in helping rural population in case of Financial Inclusion

3. Feasibility study of computer software integrated packages for retail stores**Research questions:**

- What is the market potential for the product?
- What are the characteristics of target consumers?
- What are the desirable product features?
- What is the price sensitivity of the market?
- What method should be used to approach the buyers?

Hypothesis

- There exists adequate potential for such a product
- Retailers with turnover less than 100 transactions per day would not require the package
- Products like invoicing, stock accounting, financial accounting & MIS would be desired by the target consumers
- The price that a customer is willing to pay is not dependent on the size of retail outlet.

4. Voluntary retirement scheme in an industrial organization**Research questions:**

- Are managers aware of voluntary retirement scheme?
- Are workers aware of this scheme?
- How serious are they about this scheme (more/less)
- How much would this scheme cost?
- Nature of new employment policy

Research objectives:

- To determine managers' awareness
- To measure managers' satisfaction with existing personnel objectives
- To identify perceived benefits and disadvantages
- To measure workers' preference of alternatives and satisfaction with work
- To determine cost associated with the scheme

Hypothesis

- Voluntary retirement will be higher among those who are inadequately paid
- Workers who have served for more than 25 years will be more in favour of voluntary scheme than those who have served for shorter period
- Workers who have fulfilled parental responsibility will prefer voluntary retirement scheme

Assessment: A software company/consultancy firm was approached by a reputed department store of Delhi for assistance in automating daily operations of its retail store. Problems faced by the retailers were:

- Inability to cope with large turnover of customers
- Lack of proper stock status
- Stock accounting
- Cash collection and reconciliation

Other assignments/topics

- Educational issues among girl children
- Role of dairy co-operatives in improving conditions of members
- Effectiveness of extension work in prevention of malaria
- Better access to information can manage agricultural risk
- Promotional activities for small scale industries
- Role and performance of sugar cooperatives in Bihar
- Adoption of improved farming systems by farmers of Bihar

- Scope of agri loans by private sector vs public sector banks in Bihar
- Study of leadership patterns in village cooperatives

Conceptualization in Social Research

Social researches are a shade different from physical researches physical data social data are symbolic representation of actual behavior. Thus, the terms representing the actual behaviour need to be defined systematically, analyzed and formed in a manner that other research can also understand the way they have been conceived and measured. This will enhance the quality of data. Ability to conceptualize clearly and express in operational terms can help in refining tools and techniques of investigator so conceptually action has several purpose as below:

- “To define terms on the basis of context, general meaning, origin and history of term to have clear understanding
- To operationally define the term in a way it is being investigated. This gives meaningful communication to fellow investigators for verification and comparison.
- To develop conceptual framework to exhibit presented relationship between different set of variables (both cause, effect and intervening ones)

What do mean by definition?

Definition is explicit declaring statement. It is agreement about what a term will refer to Definition is explanation of meaning or meanings of words. It is an act of making the term definite and clear. A definition must have the following characteristic.

- It should maintain unique qualities of a term to distinguish from similar other terms. It should not be so, narrow to exclude
- It should have clarity to make meaning definition.
- It should be positively stated.

Operational definition

This is specification of activities of the researcher necessary in measuring the concepts or variable

It is a manual of instruction telling investigator what must be done to measure variables.

Thus operational definition is empirically defined in observable tenure

It should mention steps to measure by laying down procedures required

It is quite near to the accepted definition operational definition gives limited meaning by telling what to do and how.

Concept is abstraction used by scientist as building block for development of proposition and thesis that explain and predict phenomena.

It is short hand representation of phenomena to load it.

Concept is symbol for phenomena. It is group of word/phrases symbolizing the phenomena and help to communicate findings.

Conceptualization is a process of obstruction from raw data. They are distinctive verbal symbols which have been given to the generalized ideas from the scientific perception of society. It provides of framework for what is to observed.

Construct

This refers to concepts with additional meaning which are created for special scientific process.

Construct is a kind of model utilizable in scientific explanations of phenomena, constructs imply a condition or whose existence can be deduced from observable phenomena.

Construct is more obstruct than concept which is specially adopted in context of the scientific process. So defining constructs carefully onto observable incidents.

Variables & Measurement

Measurement

In our daily life we are said to measure when we use some yardstick to determine weight, height, or some other feature of a physical object. We also measure physical objects as well as abstract concepts. The process of assigning numbers to objects or observations, the level of measurement being a function of the rules under which the members are assigned.

It is easier to measure physical objects (i.e. height, weight, etc) using standard rules than abstract concepts such as motivation, attitude, etc. i.e. we are less confident about the accuracy of such measurements. In measuring, we devise some form of scale in the range and then transform or map the properties of the object from the domain onto this scale.

Example: We may want to know what the female attendance ratio of persons who attend some show.

The Variables

Measurement relates to variables. A variable is a single characteristic of the target population that can take 2 or more values; for example: sex (male, female), marital status (single, married, divorced, widowed, deserted), household size, household income, age and education are variables. What is variable? Variables are the traits or properties where provide information or facts. Variable is what varies. It is susceptible to change across individuals and situations. Thus, variable is assigned numerical value. This is the source for collecting mass of data to establish relation.

Types of variables:

There are different types of variables used in social research as given below.

Independent and Dependent Variable

Independent variable is the one which is presumed to be the cause whose effect is to be studied. Independent variable is one that will produce change in behaviour where as dependent variable is the one presumed to be the effect. This is the behaviour to be measured during research. Thus independent variable is like stimulus and dependent one is response variable.

Observable variable are operationally defined and observed.

Intervening variable as hidden. They are in the head.

Active Versus Assigned

Active variables are those which are manipulated in order to see their effect.

Assigned variable are the one which from the basis for assigning samples to different group.

Variables can also be *discrete* or *continuous*. They differ in scale continuity. The former are not continuous but use whole units only, while the latter are continuous and can be fractioned indefinitely.

Discrete variables: For example family size. Can be 3, 4, or 5 and so on, but can not be 2.8 or 3.5. Family size is a discrete variable.

Continuous variable: Weight. It can be 45.8, 53.2 or 85.6 kg.

Discrete variables are counted, not measured. Continuous variables are measured, not counted. Examples of discrete variables are ethnicity, race, sex, marital status, cause of death or blood type. Examples of continuous variables are height, distance, time, age, temperature and IQ scores.

LEVELS OF MEASUREMENT

Measurement can be performed at 4 levels.

1. Nominal level measurement:

Is artificial (nominal) way of coding qualitative or descriptive data in to numerical data. The measurement indicates that there is a difference between the categories considered. It refers to nature, not to magnitude. E.g. dormitory no.10 is not twice as large as dormitory no.5. The numbers assigned to the different categories do not have mathematical meaning. They can not be added, subtracted or manipulated mathematically. So, nominal data do not share any of the properties of the numbers we deal with in ordinary; for example $4 > 2$ or $3 < 4$ in case of marital status

2. Ordinal level measurement:

Ordering of data and ranking of variables in a continuum, according to magnitude (lowest to highest). Data can set up inequalities.

The greater than (>) or less than (<) symbols can be used to differentiate data into 'happier than' 'preferred to', etc.

Examples: *status* – low, middle, high. *Size* – smallest, small, big, biggest.

3. Interval-level measurement

This level of measurement has the same properties as ordinal-level measurement, but additionally provides information about the distance between the values and has equal intervals. This method allows the researcher to judge differences between the respondents and to obtain more detailed information about the research topic.

In other words, interval level measurement allows the researcher to determine whether 2 values are the same or different (as in nominal measurement), whether one is greater than the other (as in ordinal measurement), and the degree of difference between them.

However, it does not have a true zero point.

For example, if the IQ of 2 students are 105 and 125 respectively, in nominal terms this means they have a different IQ; in ordinal terms that the first student has a lower IQ than the second; and in interval terms that the IQ of the second student is 20 points higher than that of the first student. But, one can not say that the one is one-fifth smarter than the other student.

In mathematical terms, the numbers assigned to categories at this level can be used to count and rank, but can also be added and subtracted from each other. This indicates that the interval-level measurement is superior to the other two. However, given that there is no true zero point, they can not be multiplied or divided.

Examples: degrees of temperature, calendar time (day, week, month).

4. Ratio-level measurement.

Measurement at this level includes all attributes of the other 3 forms + the option of an absolute zero-point as its lowest value. A comparison of speed of response of 2 students to a stimulus, say, 10 seconds and 20 seconds, allows the researcher to conclude that the first student is twice as fast as the second. This level of measurement is inappropriate for measuring attitudes and opinions. This is because indicating a 0 option in an attitude scale means no attitude, or no opinion. And even when the respondent has no opinion, this in itself is an opinion.

Examples: number of books owned by persons, number of family members, number of products produced per hour, etc.

Table: Levels of measurement A Summary

Criteria	<i>Nominal</i>	<i>Ordinal</i>	<i>Interval</i>	<i>Ratio</i>
Properties of measurement	Naming	Naming and ranking	Naming, ranking and equal intervals	Naming, ranking, equal intervals and zero point
Nature of measurement	Categorical	Ranking	Scoring	Scoring
Mathematical functions	None	None	Addition and subtraction	Addition, subtraction, multiplication and

				division.
Relevant statistical tests	Lambda test, χ^2 test; CI %	Spearman's ρ , Mann-Whitney U test, sign test	Pearson's r, t-test, ANOVA	Pearson's r, t-test, ANOVA
Nature of underlying construct	Discrete	Discrete or continuous	Continuous	Continuous
Examples	Marital status, gender, race, birth place, residence, ethnicity	Income status, achievement, social class, size	Temperature, calendar time, IQ scores, attitude scales	Length, weight, distance, no. of children, age.
Typical answers to questions	Male, female, single,	Very high, high, moderate, low,	Scores, Likert scales, Degrees	Kilograms, Kilometres

	marri ed, divor ced, wido wed.	very low.		
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Research Methods

INTERVIEWING

Interview is a commonly known method to collect information on a particular topic. It is like conversation between two people with an end in view. Unlike popular perception, an interview is a systematic process with touch of professionalism about it in social sciences. Thus, there is need to understand the intricacy of the delicate relationship between an interviewer and interview.

Interviewing represents an interpersonal communication situation where interviewer (Investigator/Researcher) is the communicator and Interviewee (subject/respondent) is communicate or receiver. The amount and quality of information depends on a variety of factors affecting any communication situation. People may listen to the interviewer as he opens and the way he approaches as well as the topic. Depending on the way interviewee interprets the message, he will decide to respond. Is the person convincing. Is his purpose sincere. Should such information be shared with stranger? What would be the consequences? A number of questions bover in the mind of interviews. Thus, a skilful, interviewer is a technician who not only knows the theme of interview and the tool being used but also the way of approaching the interviewee than he may respond freely, without hitch and with facts desired. Thus, interviewing demands understanding about psychology, language and cultural contexts related with interviewer. It is believed that people do not want to divulge information to outsiders or strangers. There are numerous cases of stray investigators being chased or shown the door. To the contrary this is also true that anyone can reveal information if there is a credible, willing confidant. To communicate is a basics urge. People love to meet strangers, feel like exchanging views.

It requires fact to deal with interviewing situation. Those who take it lightly and leisurely end up with information not worth taking.

Types of Interviews

All interviews are not alike needing detailed Proforma. Interviews from quite informal casual conversation to precise structured questioning with pre-determined set of questions and responses.

Informal: Talking with people with a view to gather ideas without any pre-determined questions. It may be like conversation on a topic.

The idea is to know about the situation first hand to develop a questionnaire or a project or a media programme.

Formal: Formal interview is conducted with the help of pre-structured schedule to get similar data from all the respondents. The plan of analysis of data is pre-determined.

Formal interviews make use of standard pre-tested interview schedule.

In Depth Interview

This is a type of qualitative interview where numbers are not as important as quality of information. It requires several hours of subjective, narrative conversation to gather depth information. The purpose is to know details and reason behind this to get a feeling of the problem under study.

In-depth interviews are more like free flowing conversations to know details of a certain aspect of life of the informant. Thus, understanding local terms, activities, reasons behind them and perceptions of people is essential. So, it calls for interpersonal skill and grasp over subject. This leads to better understanding of the issues.

Advantages of interviewing

Why should interviewing be preferred more as a tool of data collection? There are certain distinct advantages of the method over others, as given below:

it is possible to collect more depth information through this method.

Depending upon the nature of the problem both qualitative and quantitative information can be collected using this method

It is possible to observe the condition of the respondent and verify data.

An interviewer may use his understanding of human psychology to decide the validity of data, crosscheck and supplement with observation.

A wide range of information is possible to obtain because of physical presence of the interviewer. An interviewer can use his fact and wisdom to stimulate respondents to provide information on different aspects of life. This may not be possible by sending questionnaire or other indirect methods where investigator is not in direct touch.

It is possible to adopt the language to the level of the respondents. There are many different types of respondents with different degrees of competency. Thus, an interviewer, may adjust accordingly which is not possible in the case of mailed questionnaire.

Interviewer has opportunity to explain clearly and get desired data. Physical presence enables the interviewer to decide at the moment the strategy correct to encourage respondents for more information.

Limitations of Interviewing

In spite of several benefits interviewing can not be used in all types of problems because it is labour intensive, time consuming and skilled job. All said it proves quite costly because of need to employ trained investigators, organise training specific to the problem, and collect data in the field. It is a common experience that:

People are wary of outsiders collecting data.

In traditional societies interviewing is taken as government's agent.

Rural/illiterates get irritated at lengthy interview schedules

Investigators not rooted in local culture are not able to collect precise data efficiently.

Ethics of Interviewing

Every professional must observe certain ethical principles to preserve the value of their job. A social researcher is in close touch with human being. Human beings are not experimental animals nor are they under any obligation to provide local personal information to outsiders. Thus, there is need to observe certain basic rules, as below:

Respect for respondents

An investigator gets data from respondents and prospers in his job. So he must respect the expertise of respondents. Behave with him as co-equal adult. Observe local culture to greet and make him feel important.

Repay the curtsey in some form

What can you give back to respondent for what you receive from him. In many culture they give money or refreshment or some taken memorabilia. In every religion there is a tradition paying back the services. How can we pay back.

In the western countries, they keep budget for giving to respondent for the time given by them. In many cases, you may give information, general help or some other form of returning the kindness.

Steps in Interviewing

Interview must be done in relaxed and natural manner. It is a type of human interaction. So all the rules of interpersonal communication such as local curtsey understanding of local language, cultural practices, terms, etc must be understood and followed. It is a common experience that strangers have difficulty in getting accepted in a new place. Thus, interviewer must plan to get some reference in the local area to recommended him/interviewing is done in three distinct stages such as Entry, Initiation, Prob, and closer. Build relationship or rapport is initial. The interviewer must approach the respondent politely introducing himself and referring to some known individual in the community to go in acceptance. Often, it may be local Panchayat/block official or some person familiar with the organization

STEPS IN INTERVIEWING

1. Entry

Approach respondent

Correct

Introduce self

Clarify purpose

Make the

2. Initiation

Start with general question

Listen aptly

Understand psychology and proceed accordingly

Get at his pace

Bring him back if he deviates from the topic

3. Probe

Come to the main topic

Probe for details

Crosscheck data

Paraphrase his response to verify

Confront if misleading data is provided

Give him time if the question requires thinking

Encourage to come up the feels different.

4. Closure

Sum up

Check data

Show feeling help

Thank and show friendliness

Follow these steps, mentioned below

1. Introduction and rapport building

Meet or find a person who can provide information you need

The moment you meet greet him appropriately

Introduce yourself and convey the purpose

Explain why you need the information and what you will do with it

2. Use courtesies to make interviewee relaxed

Offer him seat

Ask about his welfare/occupation or anything in general

Let the general conversation develop slowly

3. Start conversation about the topic

It is better to begin with a question about background. In order to know about communication behaviour of students ask about their major goal, How do they spend their time on a normal day.

Listen patiently. Ask him to clarify Lerna you are not familiar with

Keep your questions open-ended in order to get descriptions eg. What do you like about television programmes.

4. Use different strategies to get accurate information, such as repetition paraphrasing, silence, empathy, cross-questions

Repeat a question twice if the interviewee does not reply readily

Paraphrase or put response given by interviewees in your own words like did you say that you like to watch serials because they are conveying social reality? Use this strategy to make sure that you have heard him rightly

Silence Many a times interviewee does not respond. Wait for sometime he might be thinking. Silence builds pressure.

Empathy Some personal/emotional questions are hard to reply immediately. Thus, in order to help him come out, you might talk about something similar you had experienced.

Cross check If you find response of interviewee as incorrect, question him with the help of logic.

Case study

Case study technique provides in-depth understanding of individuals institutions, organisations in socio-cultural setting. It is an in-depth analysis of an individual unit to permit holistic understanding about the interrelationships of various factors over a period of time. It is a method of exploring and analysing life of a social unit that may be person, family institutions, cultural group or over entire community (Young, 1992). Herbert Spencer, a sociologist used ethnographic methods for studying sociological system. Psychiatrist adopted case study method to understand socio-psychological problems,

psychological and personality disorder among children and adults. Anthropologists, historians, researcher in the field of extension education, Development Communication, mass Communication, Communication elicited socio-cultural problems of societies, constraints in adoption and diffusion of technologies, exploring the impact of modern communication technologies on life style of people, effect of development process on social life of people. In nut shell it is microscopic view of the society. In Communication research case study method helps to draw not only socio-cultural implications of communication but the study of sociolinguistics enables the Communication for designing the message.

Purpose of using case study:

Case study method tended to supplement quantitative method. Quantitative method only provide data in figures i.e. more or less, but the underlying reasons why more, why less can only be understood through case study. It elicits causes and consequences of the behaviour.

Committee meeting. In depth interviews with subjects can light on the reasons why women are not coming forward to attend meetings.

It provides exhaustive information about subjects. Unlike quantitative methods where responses are obtained on structured questionnaire or interview schedules by administering it only once. Conclusion or inferences drawn from case study method either by repeated observations semi-structured interviews, and interpretations are also based on life histories, events and interacting with key informants.

The personal experiences of the researcher are widened by being close to the social reality and context in which some events are taking place. Social structure of a family can be observed, how do women and children interact with adult male head of the family.

Formulation of hypothesis. The complete analysis of social phenomena helps in determining cause and effect relationships. These cause and effect analysis enables the researcher to draw tentative hunches or hypothesis in socio-cultural setting. Illiterate women leader of SHG may be influenced by educated higher caste women in decision

making. The hypothesis that education may have some relationship with decision making ability of SHG groups.

Case study conducted in particular socio-cultural context. The investigator get many clues from their cultural symbols, language used, and activities undertaken by the community. These experiences with community enable him to design interview schedule or questionnaire by using local dialect whether some sensitive issues showed be incorporated or not.

Characteristics Of Case Study:

Case study is primarily concerned with either one individual unit of analysis or few of the representative subjects which are elaborated to reveal the understanding causes, attitudes and social actions of particular individual or community. Reasons for particular behaviour and relations among communities are elicited.

Case study is a qualitative method in which information is documented and recorded through observation in depth interviews, semi-structured interviews, field diaries and through photographs. Analysing social situation for formulating Communication strategy and designing message by following participatory approach is possible by analysis social life of individuals events

Sufficient time is required for conducting a case study. The inferences are not based on single visit or an interview with the respondent. The reliability of data are ensured by reinterviews, more number of observations or contacting more persons with homogenous characteristics. The interpretations were made by collecting sufficient evidences over a period of time

It offers greater validity of information by making case data rich in intimate detail. The personal visits of the researcher to the respondents for developing indepth understanding of phenomena context problems from case histories and events provides authentic data.

Diffusion of technologies within the social system help in analysing the roll of

Communication, interpersonal channels and identifying problems in diffusion and adoption of technologies.

Generalizations are based on common sense knowledge and are not subjected to rigid mathematical operations. The meanings are interpreted by gathering experiences from face-to-face interactions and developing relationships common sense knowledge exists in the subjective context of experience. The individual scientist can directly analyse the social cultural situation which cannot be derived from objective information. Emotional side of phenomena are taken into consideration. The researcher deep association and rapport provides insight into emotional view of the subjects regarding particular issue or problem. Women who took loan under IRDP revealed on interaction that marrying her daughter is more important, than buying animals.

Assumptions :

1. Study of a whole rather than a part. The unit under focus is indivisible and can't be studied in piecemeal or and in fragments. It is not possible to study everything at present time but it is important to know the past and background and then relate it to present situation.
2. there are unique characteristics of human beings inspite of diversity. Uniqueness of human nature is true for every individual.
3. complexity of social phenomena : Social phenomena is complex. A greater part of man's life is subjective, unknown and incapable of observation. Some of deep rooted causes are difficulties to probe as individuals are capable of hiding few things which they think are against social norms of society.
4. Case study method mostly probe and collect data by recording and documenting conditions and conducting interview over a period of time. The investigator opinions may be build up over period of time there by loosing objectivity in research.

Step for documenting a case study :

1. Decide about the unit of analysis according to objectives of the study, it may be an individual, group community or institution. Selection criteria should be such that the case selected should be the representation of the total sample.

2. Specify the type of information you are going to collect from selected unit.

Example :

i) You wish to study gender relations among farming community farmers.

ii) Select male and female from the community who seems to you will be more open and are willing to be the subjects.

iii) Information to be collected in this regard by interviewing both male and female farmers may be about which of the farming operation are performed by you. Who does what and when decision making about purchase of seeds marketing of produce.

3. Use more than one method to develop complete understanding about the subjects under study. The methods which are generally used are

i) Life history

ii) Observation

iii) Semi structured interview

iv) Photographs

v) Key informants

4. The investigator may always keep open mind, with critical observation without adding any personal bias.

5. The case study although is not a scientific method but invariably scientific procedure must be used for classifying the information, documenting patterns of behaviour with uniform characteristics.

6. Creating the research text is one of the important dimension of the study. The perspective of case study must be kept in mind according to the type of social situation and context proper explanation with underlying cause and effect relationship must be reworked.

Levels of Measurement

Nominal Level: this is the most basic level of measurement used to sort data into categories or groups. Thus, numbers are assigned arbitrarily for the sake of classification. The numbers are arbitrary, for the sake of sorting into a category. Groups thus formed are mutually exclusive and non-overlapping: Nos are simple designators, names .The only mathematical operation feasible is counting .

Pin code: 263145

Name number as tag: Sex, Age...

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Ordinal Level: Under this level, data are ordered or ranked on the basis of extent of attributes. .The exact amount of character can not be measured. However, relative opposition: define relative position of objects with respect to characteristics. Rather than indicating the exact value of the character, it indicates extent. extent distance: rank-order (weather more/less) but no indication of different between two scale.

Attitude / preference

Greater/looser than's know

Rating (no. to different rating)

Interval Level

Possess quality of nominal and rank order: not only positions are arranged in terms of greater/less but intervals also known.

Plus equal distribution of interval in relation to properties being measured: the distance between two positions known. Marketer can ask more.

Additional subt. Relate to the dist: one would pay. Over2, over3, 2 or1. Distance between ranks are quantizes.

Ratio-Scale

All arithmetic operations are possible. It has a zero base. Exact value of each and its ratio with other are known In addition to character of previous scale, it is a natural zero, which's empirical meaning.

THE SCALING TECHNIQUE

Scale: Refers to a continuum consisting of highest point and lowest point, there being several intermediate points between these two poles. These scale point are so arranged that next point indicates higher degree of given characteristics.

In such a tech. rater places individual on a rating scale rating scales assign individuals places/positions in order to make possible the distinction of degree.

Graphic rating scale: Requires respondent to locate his/her attitude along a line of graphic continuum from one continuum to another she chooses any point. He has to put an x.

Itemized rating: Requires respondent to locate his position on a continuum ranging from one extent to another 3, 5, 10, and 11.

Finer distinction

Equal +ve, -ve satlome

Odd no. of categories

Rank scale

Comparative rating

Scale: Is a set of symbols/numbers so constructed that symbol can be assigned by rule to the individuals or their behaviour, the assignment being indicated by individual's possession of whatever the scale's supported to measure.

Refers to a continuum i.e. a series of points on scale consisting of highest and lowest points to several intermediate points between them. Scales are so arranged to indicate degree of characters posses by individuals.

Several types of scale

Itemized rating requires a respondent to indicate his/her attitude by reflects a position on a continuum that reflects a range of possible views. Various positions are set up in a sequential order in terms of scale positions.

Observation Method

Observation is one of the oldest methods of data collection used for collecting first hand information. We are contently engaged in observation but for research purpose especially for field study systematic observation method is applied. Observation is quite common in everyday life as also in science. Observation as tool of scientific inquiry provides both quantitative and qualitative information. It is important to note that all social phenomena

are not open to observation. It is difficult to have access to private life of people but it can be used along with empirical research. Observation may serve variety of purposes in exploratory type of research and in experimental, descriptive and qualitative type of researches. First research method humans started using.

Observation may be defined as, “A systematic viewing of a specific phenomena in its proper setting for the specific purpose of gathering data for a particular study.

Observation also plays a major role in formulating and testing hypothesis in social sciences. It may be used alone or in combination to confirm data collected from other sources. Act of appraising things and events their attributes and concrete relationship. It is an act of recognizing and recording some facts/occurrence. It includes the following :Attention, Sensation and Perception. One of the issues about use of observation a method of scientific inquiry is how to make it more systematic, precise, specific, step wise, unbiased, quantitative and infallible observation Observation becomes scientific, when it Is planned deliberately and recorded systematically.

It requires identification of significant points /facts for observation
Random observation may not serve purpose of data collection. Fact collected
Free / Unaided or Casual observation may be misleading.

Observation gives first hand opportunity to verify things. In case of cultivation methods used by farmers, an interviewer may know facts by asking but actual problems faced in doing can be understood by observation.

CHARACTERSTICS OF OBSERVATION

It is both a physical and mental activity.

- Observation is selective.
- Observation is purposive and not casual.
- It captures the natural social context in which person’s behaviour occurs.
- It grasps the significant events and occurrences that effect social relationship of the participants.
- Observation should be exact and based on standarized tools of research

Simple observation:

When we carry out observations without a plan/precise objectives. The idea is to familiarise with the field situation to be able to form appropriate question and decide real issues for actual investigation. Thus observation before actual study may sensitize the researchers

Systematic observation It is planned and purposeful process specific objectives of the study and use of observation are determined precisely Decisions regarding what to observe, whom to observe, where to observe, and now are made well in advance

Requirements for systematic observation: Systematic observation is essential because random observation does not provide reliable data. Due to lack of any plan it is not possible to record observed data instantly without losing. Various observers may see differently. The factors of natural surrounding may also interfere with observation.

Planning for systematic observation

Thus to make data collection systematic adequate planning is required;

Precise objectives should be formulated to determine what data must be collected through observation.

□ Use of tools, such as, Diary, Audience meter, structured observation Photographs, Audio-tape recorder, Video tape recorder may help in precise recording of data without loss due to memory or time gap.

□ Careful definition of categories of observation in operational terms may help in accurate recording of data.

-Team observation : Use of two or more observation be made to make it unbiased. The observers should be selected and trained to record along the pre-decided lines..

- Standardization of conditions to be observed. Observation must be done under conditions which will permit accurate results. Observation must cover a sufficient number of representative sample of the cases

- Close scrutiny and instant recording The accuracy and completeness of recorded results must be checked. Recording should be accurate and complete

-Active listening, shorthand writing

Observations are of four types :

Participant Observation :- In this the observer is a part of the phenomenon or group which is observed and he acts as both an observer and a participant. Participant observation . In this method the investigator does not show his real purpose but be a part of the group or community. The respondents are unaware and least likely to be affected. Researcher observes the behaviour in natural setting. The process helps to record the observation. Which could not be obtained otherwise. The information so collected is more authentic and according to the context of the research.

Disadvantages ;

The investigator may develop strong association with the subjects.

The recorded observation may be having investigator's own bias and loses

Objectivity.

Researcher may observe only selected group while others may be ignored.

The researcher may ignore certain important aspects because of too much involvement with the process.

b) **Non-Participant Observation:** - In this method the observer stands apart and does not participate the phenomenon observed.

c) **Direct Observation:** This means the event is personally observed by the observer when it takes place.

d) **In-Direct Observation:** - This does not involve the physical presence of the observer and recording is done by mechanical photographic or electronic devices. There is greater degree of control in conducting observation and hence precision in results. Such observations can be repeated by other researchers under identical condition.

e) **Controlled Observation :-** This involve standardization of observational techniques and exercise of maximum control over extrinsic and intrinsic variables.

f) **Un-Controlled Observation :-** This does not involve control over extrinsic and intrinsic variables. Observations are made without the help of any standardized techniques or rigid guidelines. The researcher observes social phenomena without any control on himself / herself and also on subjects to be observed.

Focus group interview

This is a type of small group discussion to gather information from participants about their beliefs, motivations, and attitudes relating to a particular topic. This is quite popular technique for media researchers and those dealing with advertisement researches.

According to Mata (1992) the focus group is a meeting of no more than twelve people who are representing the population in the subject of research. The group analyses a particular topic based on series of previously defined questions. It is important that all the participants express their views. In fact, people feel it safer to express similar views expressed by others in small groups of homogenous audiences. It is easy to discuss and unravel the hidden reasons behind certain values or ideas.

Characteristics of Focus group discussion.

Focus group discussion is not a normal group discussion. There are lot problems with large group discussions. People may not have right information and experiences needed. They may not open up before elders or youngsters due to cultural reasons. The topic may not allow public discussion. However, a focus group discussion takes into consideration these and other issues that hinder free and frank expressions of ideas. Advance planning and design of the discussion is necessary to ensure selection of right people and handling of the process effectively as given below.

1. Small homogenous group

This is a meeting of small group of 10-12 people from similar background. People must have some past exposure or experience regarding the topic under discussion. Carefully selected criteria are used to select the participants from the categories relevant for the study. It is necessary to ensure that the members selected are able to contribute.

2. This technique aims to get views of people with reasons

The number of people holding certain views is not important here. The researcher is interested to know the intra group differences as well as their causes

3. It requires skilled moderator to handle group dynamics

People normally do not open up easily in groups. It requires skills and sensitivity to put people at ease, pose right questions, observe and control the group process based on the verbal and non-verbal responses of people. The moderator must have fair understanding of the local language and psychology of people. Good motivators and co-coordinators of group process will be suitable for the task.

4. Use of a person as recorder and other mechanical tools help in the process

The accuracy and flow of discussion can be recorded precisely if a person is totally committed to the task. Besides, use of audiotape recorders is helpful in maintaining the objective report.

5. Selection of appropriate audience and venue is important

Every care should be taken to select a group of people who are similar in background characteristic related with the topic of research.

The venue should have appropriate arrangements to accommodate 10to12 members.

There should be adequate provision to keep off unwanted noise and interferences.

Steps in conducting focus group discussion

I. Planning: In order to conduct focus group discussion it is essential to make prior arrangement of space, appointment with the participants and list of questions ready.

II. Climate setting/Beginning: The participants should be introduced with each other.

Formal welcome and light refreshment can set the climate. People should be made aware of the importance of their contribution. Problem should be clarified and rules should be elaborated.

III. Monitor discussion : Pose questions one by one and watch the responses. Do not judge the opinions of people. Encourage people to overcome initial hitch. Identify different opinions and try to understand the reasons behind them. Interpret people's verbal and non-verbal communications. Motivate the silent ones and control the voluble participants. Try to put the discussion on track whenever it wavers. Analyse reactions and keep the discussion moving. Reactions of other focus groups may also be shared to know reactions.

IV. Prepare post-discussion report : The minutes of discussion should be put together by collating different opinions and examining vocabulary of participants.

Projective Techniques In Social Sciences

Why Projective Techniques?

Social scientists are, many times, concerned with knowing about attitudes of people on controversial issues, viz., this, attitudes towards minority, groups, their political beliefs, castes and other prejudices, of questions are posed directly they might arouse antagonisms and resistance on the part of the respondents . Moreover, the response of an individual to a question depends upon his willingness to reveal himself and his understanding of himself. In order to avoid these limitation projective techniques have been devised.

Projective Technique

'Projection'-The term was first used by Freud, in 1894. Freud defines it as a process of ascribing one's own drives, feelings and sentiments to people or external objects. The term projection refers to the mechanism of thrusting forth both the unconscious, undesirable feeling and ideas and the conscious ones on to the external objects.

Bellak (1944) developed a new concept of ' appreciation' for projection which seems more adequate and operational in the development of projection theory.

It's defined as organism's meaningful interpretation of a perception. It's the process by which new experience is assimilated and transformed by the residuum of the past experience to make it a meaningful whole. The residuum is termed apperceptive mass.

In the projective tests a number of ambiguous stimuli (like Rorschach ink-blot, TAT cards) are presented to the subject and he's asked to interpret them in the manner he likes. It's assumed that the interpretation of these stimuli by the testee will projectively literary his own drives, feelings, attitudes, etc. that is, the residuum of his past and present experience..

Projective Techniques and Social Research:

With the realization that the respondents will not or may not reveal their attitudes, ideas, feelings, opinions and prejudices, the projective are more and more useful amongst the methods available for the collection of data

1. T.A.T. or Thematic Appreciative Technique: It is a technique for investigating the interpersonal adjustment of the subject. It consists, in its present form a series of 31 pictures. The subject is required to tell the stories about the situations represented in these cards. The assumption is that the subject will project himself by identifying with the hero of his stories.

The test may be recommended specially when the investigator is interested in comparing the interpersonal adjustment of the peoples of different culture groups.

Srivastava, Kumar and Misra have also modified the TAT card to study the effect of community development programmes on the village people regarding their interpersonal adjustments.

2. Human Relation Test

A similar Test (as TAT) has been developed by cook to study inter-group relations. It consists of ten drawings, each depicting an ambiguous situation of inter group contact.

For example, one picture presents a scene where with a white player lying on the floor the Negro standing above him. The subject are to make short stories about each. With slight modifications, the test may be made useful in the study of the inter group attitudes in our society.

3. Rorschach Ink-Blot Test

Roschack in-blot test may also be used to study the culture-groups. Lewis (1951) has employed is to study the imaginative behaviour of the tribal people Asthama (1956) has also employed it is the study of Indian (Hindi) Social organization. The test may be very useful in situations where the investigator is interested in the study of deeper personality dynamics of the people.

4. Sentence Completion Technique:

The sentence completion' is another projective technique which may be used with ease in the study of attitudes, aspirations, opinions , etc. It is assumed that the person will project himself while completing the incomplete sentences Srivastava, Kumar & Misra (1959) have used it to study attitudes and opinions of the villagers towards Govt. Development Schemes and Panchayat. The incomplete se used in the investigation, such as:

- i. The object of the development schemes.....
- ii. The Govt. officials are.....
- iii. The aim of village panchayat is..
- iv. Govt. of introducing development programme to..... were found quite effective in eliciting such information.

5. Indirect Questioning Technique:

This test too is found to be useful in the study of attitudes, Opinions and prejudices. The underlying assumption is that the respondent will identify himself with the other person in the questing and these this answer will reflect his own attitudes and opinions.

6. Cartoon-Test:

Frenone (1941) has used the ‘ Cartoon Test’ to study the opinions of the people towards war. Some political cartoons with four alternative captions were presented to the subjects who were required to select the captions which they regarded as most appropriate ones. The choice made by them served as a measure of the opinions.

7. Rosenzweig Picture Frustration Test :

Brown (1947) has employed a modified form of the Rosenzweig Picture Frustration Test to study the ethnic attitudes . His test includes a number of pictures in which negroes or Jenes frustrate whites or non -jenes otherwise. The subject has to fill out a blank space indicating what the frustrated person will reply. The type of reply is considered to be indicative of his attitudes towards the question. He indo it fairly effective in eliciting such information.

Conclusion:

Projective techs, are suitable measure to study the complex social behaviour but owing to limitations, as their use is not fully developed.

1. Their analysis and interpretation require specialized tracing on the part of the investigator.
2. It is fairly difficult to establish the reliability and validity on the data by usual statistical procedures and ;
3. Non-availability of norms for non-western culture.

With careful and intelligent handling, an investigator may find this devices quite useful in eliciting information about attitudes, values, prejudices, and opinions, ordinarily not revealed by other direct methods.

Sampling theory and Design

While conducting a survey, a question is usually asked: Should all people (entire population) be studied or only a limited number of persons drawn from the total population to be studied and extend our findings about the sample to the entire population? 'Population' refers to "all those people with the characteristics which the researcher wants to study within the context of a particular research problem." A population could be all students in the college, all patients in the hospital, all prisoners in the prison, all customers in the departmental store, all users of a particular model of car, all households in the village, all workers in the factory, all cultivators using the water of particular canal in the settlement area for irrigational purposes, all victims of a natural disaster in a particular area, and so on. When the population is relatively large and is physically not accessible, researcher survey only a sample. The appropriate selection of respondents as well as their number is essential to apply the results of the research to a larger number of people in the target segment. Due to the limitation of time and cost it is not practically feasible to contact each and every respondent in the target segment. Empirical field studies require collection of first-hand information or data pertaining to the units of study from the field. The units of study may include geographical areas like districts, taluka, cities or villages which are covered by the study, or institutions or households about which information is required, or persons from whom information is required, or person from whom information is available. The aggregate of all the units pertaining to a study is called the population or the universe population is the target group to be studied. It is the aggregate of elements about which we wish to make inferences a member of the population is an element. It is the subject on which measurement is taken. It is the unit of study. A part of the population is known as a simple. The process of drawing a sample from a larger population is called sampling. The list of sampling units from which a sample is taken is

called the sampling frame, e.g. a map a telephone directory, a list of industrial undertakings a list of car licenses etc.

Aims of Sampling

Well-selected sampling may reflect fairly accurately of the population. For example, with a survey of a sample of voters, one can predict the voting intentions of millions of voters. A specified value of the population, such as average of variance is named parameter; the corresponding value in the sample is termed a statistic. The chief of sampling is to make an inference about an unknown parameter from a measurable sample statistic.

A second aim of sampling is to test a statistical hypothesis relating to population. A sample is drawn and the data collected from the sample informants are analysed and on the basis of the result the hypothesis may be accepted or rejected.

Census v/s Sampling:-

The process of designing a field study, among other things, involves a decision to use sampling or not. The researcher must decide whether he should cover all the units or a sample of units. When all the units are studied, such a complete coverage is called a census survey. When only a sample of the universe is studies, the study is called a sample survey. In making this decision of census or sampling, the following factors are considered:

1. The size of the population: If the population to be studied is relatively small, say 50 institutions or 200 employees or 150 households, the investigator may decide to study the entire population. The task is easily manageable and the sampling may not be required. But if the population to be studied is quite large, sampling is warranted. However, the size is a relative matter. Whether a population is large or small depends upon the undertaken and the time and other resources available for it.

2. Amount of funds budgeted for the study:- The decision regarding census or sampling depends upon the budget of the study. Sampling is opted when the amount of money budgeted is smaller than the anticipated cost of census survey.

3. Facilities:- The extent of facilities available-staff access to computer facility and accessibility to population elements – is another factor to be considered in deciding to

sample or not, when the availability of these facilities is extensive, census survey may be manageable. Otherwise, sampling is preferable.

4. Time:- The time limit within which the study should be completed is another important factor, to be considered in deciding the question of census or sample survey. This, in fact, is a primary reason for using sampling by academic and marketing researchers.

Table: Conditions favoring the use of sample vs census

Particulars	Sample	Census
Budget	Small	Large
Time available	Short	Long
Variance in the characteristic	Small	Large
Cost of sampling errors	Low	High
Cost of non sampling errors	High	Low
Nature of measurement	Destructive	Nondestructive
Attention to individual cases	Yes	No

Active Research

Conduct an Internet search using a search engine and your library's online database to determine the population of all airlines operating in India.

If a survey of airlines is to be conducted to determine their future plans to purchase/lease airplanes, would you take a sample or a census? Why?

As the CEO how would you use information on the future plans of airlines to purchase/lease airplanes to formulate your marketing strategy?

CHARACTERISTICS OF GOOD SAMPLE:

Whether the results obtained from a sample survey would be accurate or not depends upon the quality of the sample. The characteristics of a good sample are described below:

1. Representative ness: - A sample must be representative of the population. Probability sampling technique yields a representative sample. In measurement terms, the sample must be valid. The validity of a sample depends upon its accuracy and precision.
2. Accuracy: - Accuracy is defined as the degree to which bias is absent from the sample. An accurate (unbiased) sample is one which exactly represents the population. It is free from any influence that causes any difference between sample value and population value (say, average).
3. Precision:- The sample must yield a precise estimate. Precision is measured by the standard error or standard deviation of the sample estimate. The smaller the standard error or estimate, the higher is the precision of the sample. (see section 6.4 below)
4. Size:- A good sample must be adequate in size in order to be reliable. The sample should be of such size that the inferences drawn from the sample are accurate to the given level of confidence.

BASIS OF SAMPLING:

Sampling is based on two premises. They are:

1. There is such similarity among the elements in a population that a few of these elements will adequately represent the characteristics of the total population. For example, the attitude of postgraduate students towards the examination system can be gauged by studying the attitudes of a few representative postgraduate students in a university.
2. While the sample value (statistic) or some sample units may be more than the population value (parameter), the sample value of other sample units may be less than the population value. When the sample is drawn properly these differences tend to counteract each other with the result a sample value is generally close to the population value.

Thanks to these tendencies, sampling yields almost the same result as that of a census survey.

ADVANTAGES OF SAMPLING:

Why is sampling used? What are its advantages? The advantages of sampling are many.

First, sampling reduces the time and cost and research studies. Thanks to the use of sampling, it has become possible to undertake even national or global studies at reasonable cost and time. Such economy in time and cost improves the viability of several field studies like credit surveys, poverty surveys and marketing surveys.

Second, sampling saves labour. Smaller staffs are required both for fieldwork and for processing and analyzing the data.

Third, the quality of a study is often better with sampling than with a complete coverage. The possibility of better interviewing, more thorough investigation of missing, wrong or suspicious information, better supervision, and better processing is greater in sampling than in complete coverage. No wonder that the accuracy of decennial population censuses in USA, India and other countries is checked by making sample surveys.

Fourth, sampling provides much quicker results than does a census. The speed of execution minimizes the time between the recognition of a need for information and the availability of that information. The speed of execution is vital in feasibility studies, evaluation studies and business research. Timely execution of a study is essential for making use of its findings.

Fifth, sampling is the only procedure possible, if the population is infinite e.g. throws of dice consumer behavior surveys, etc.

Last, statistical sampling yields a crucial advantage over any other way of choosing a part of the population for a study. That is when the estimated of the population characteristics are made from the sample results; the precision of these estimates can also be gauged from the sample results themselves.

Principles of Sampling

The main principle behind sampling is that we seek knowledge about the total units (called population) by observing a few units (called sample) and extend our inference about the sample to the entire population. For purchasing a bag of wheat, if we take out a small sample from the middle of the bag with a cutter, it will give us the inference whether the wheat in the bag is good or not. But it is not necessary that study of sample will always give the correct picture of the total population. If in a class of 100 students, we take out any five students at random and per chance find that all the five students are

third divisioners, it would not mean that all remaining students (95) in the class will be 3rd divisioners. If a few people in a village are found in the favor of family planning, it would not mean that all the people in the village will necessary have the same opinion. The opinion may vary in terms of religion, educational level, age, economic status, and such other factors. The wrong inference is drawn or generalization is made from the study of few persons because they constitute inadequate sample of total population.

The study of sample become necessary because study of a very large population would require a long period of time, a large number of interviewers, a large amount of money, and doubtful accuracy of data collected by numerous investigators.

The important principles of sampling are (Sarantakos, 1998:140):

Sarantakos, S., Social Research (2nd ed.), Macmillan Press, London, 1998.

1. Sample units must be chosen in a systematic and objective manner.
2. Sample units must be clearly defined and easily identifiable.
3. Sample units must be independent of each other.
4. Same units of sample should be used throughout the study.
5. The selection process should be based on some criteria and should avoid errors, bias and distortions.

Key terms in Sampling

Some basic terms or concepts in sampling can be understood by taking an example of research project, say “Awareness of rights Among Women in Rural areas”. Suppose, the study is being conducted in one village which is situated at a distance of 15 kms from the nearest city. It is decided to confine the study to married and unmarried women and widows belonging to the age group of 18-50 years. The total population of the village is 4,800 of whom 2,200 are females and 2600 are males. Of the total females, 834 (38%) belong to 0-18 age group, 970 (44%) to 18-50 age group, 74 are widows, 87 are unmarried and 809 are married. Age is the main variable of stratifying them in groups while educational level, religion, caste, family structure, family income and occupation of the head of the family are the variables chosen for analysis purpose. We will now use this example for understanding various terms and concepts.

Universe or population

The sum total or the aggregate of all units/ cases that conform to some designated set of specifications is called the universe or population. Since the total number of women in the above mentioned example is 2200 in the whole village, our universe of potential respondents will consist of these 2200 women in the village while the target of the study will be 970 women in 18-50 years age group. In other example, the term, 'student' might be the 'target' of study but the delineation of 'student population' would include the particular educational institute, the particular department (say MBA students only) or particular type of students (say, drug- users or alcoholics) who are to be studied. Thus 'population' in this example will be 'students of particular institution and study population' will be only MBA students of that institution. The 'study population' is thus the aggregation of elements from which the sample is actually drawn.

A population may be a group of people, houses, workers, students, consumers, cultivators, registered voters, legislators, and so on. The specific nature of the population depends on the purpose of investigation. If one is studying voting behavior of people in a particular city with a population of 15 lakh, one has to remember that the population of voters in that city is not the same as the population in the city. Even 'all people in that city 18 years of age or older' is not a correct definition of the population of voters because the individual must be a 'registered' voter and all 'eligible' voters may not be 'registered' voters.

Sample

It is a portion of total population. In the above example of women, out of the total population of 970 women in 18-50 years age group, if we use the mathematical formula $n/1+n(e)^2$, where 'n' is 970 (total number of women) and 'e' is 0.05 (confidence level), the number comes to 283. Rounding off this figure, we decide to study 300 women. Thus, our random sample in the above study will be 300 women. We can stratify these women in three groups on the basis of their age: 18-30 years (young), 30-40 years (early middle aged) and 40-50 years (late middle aged). We can take women from each of these three groups.

Sampling element

Each entity (person, family, group, organization) from the population about which information is collected called a sampling element. In the above example, all the 970 married and unmarried women and widows in 18-50 years age group will be sampling elements.

Sampling unit

This is either a single member (element) or a collection of members (elements) subject to data analysis (and selection) in the sample. For example, if the railway department wishes to sample passengers who have filled up the forms for reservation in a particular train during one week, every tenth name on a complete list of passengers may be taken. In this case, the sampling unit is the same as the element. Alternatively, the railway authorities could first select trains (say, for Mumbai, Ahmedabad, Delhi, Chennai, Calcutta) as the sampling unit, then select passengers (seeking reservation in the sleeping coach, II AC coach, III AC coach and chair car coach) on the trains selected. In this case, the sampling unit contains many elements. In our example of awareness of rights among women in the village, the sampling units are married and unmarried women and widows in the age group of 18-50 years registered in the voters' list.

A sampling unit is not necessarily an individual. It may be an event, city, or a nation.

Sampling Frame

It is the complete list of all units/elements from which the sample is drawn, e.g. electoral roll, the list of patients in all ward in the hospital, the list of students in all classes in a college, and so on. For instance, take the issue of 'awareness of rights among women.' The total population of women in the village is 2200. The number of women in age group 18-50 years is 970. This (18-50 years women) would be sampling frame. This number can be voter's list. Of course those women whose name does not appear in the voting list will be excluded. The sampling frame is also called the working population because it provides the list that can be operationally worked with. Thus, sampling frame is not a sample but the operational definition of population that provides the basis for sampling.

Target population

Target population is one to which the researcher would like to generalize his results. In the above mentioned example of awareness of rights among women in rural area, the target

population is 970 women (married, unmarried and widows) in the age group of 18-50 years. In the target population, the criteria are specified for determining which cases are included and which ones are excluded in the population.

We can take an other example. All persons in a village may not be voters. Some may be below 18 years of age, some may not be registered, some may be mentally deranged or physically unable to walk, and so on. Thus, the target population would be only ‘the registered voters in the village’. Similarly, all students in the college may not be drug – users. Only 5 to 7 per cent of the total strength or even less may be using drugs daily or occasionally. These drug users will be the ‘target population’ for the researcher. It is vitally important to carefully define the target population so that it may be a proper source from which the data are to be collected. These could be some selected demographic variables, such as residence, religion, caste, age, education, income, occupation and so on. In the above example, taking into consideration the object of the study, the combined criteria for the target population were: locale (village), gender (women), and age (18-50 years). In other words, our target population was defined as ‘rural women between the ages of 18 and 50 years.’

Two characteristics that always implicitly or explicitly define the target population are geographically boundary and a distinctive time frame.

Sampling Trait

It is the element on the basis of which we take out the sample from the total universe. It could be qualitative (attribute) or quantitative (variable) element. In our above mentioned research, the sampling traits are gender, age (18-50 years) and residence (village).

Sampling fraction

It is proportion of the total population to be included in the sample. For example, in the above mentioned research on women’s right in a village, the total population of women in the village is described as 2200 of whom 283 (or broadly 300) women are to be studied. The sampling fraction thus comes to one- seventh of population.

Sample estimate

It is an estimate from a sample value of what the value would be in the total population from which the sample is drawn. For example, in a college of 1200 students, a sample of

300 is drawn. The average age of students in this sample is found to be 19.1 years. In the total population, it would be 19.6 years.

Biased sample

When the sample is so chosen that some elements are more likely to be represented than other elements, it is called biased sample. Suppose Muslims in one city, though scattered in the whole city yet, are mainly located in two areas where the Muslims of lower and middle classes engaged in traditional occupations dominate. Taking a sample of Muslims only from these two areas for the study will be biased sample in which upper class highly educated Muslims engaged in upper class status service not be represented at all.

Sampling error

It is the difference between total population value and the sampling value, or it may be said that it is the degree to which the 'sample characteristics' approximate the 'characteristics of the total population'. Suppose one parameter of the population pertaining to age is that average age is 20 years. Now, suppose, we have drawn three samples from the population and have calculated the average age for these samples (statistic). In the first sample, the average age is 21 years, in the second, it is 24 years, and in the 3rd is 26 years. Thus, the sampling error in the first sample would be one year, in the second sample would be four years, and in the third would be six years.

In another example, suppose, the average age of drug user students in a university is 22.9 years. In a smaller sample it could be 22.2 years and in a large sample it could be 21.4 years. The logical question becomes: "how well does the specific statistic represent the parameter that is being estimated?" The difference in the statistics and the parameter can be calculated which will give the sampling error. Smaller the sample, greater the sampling error and vice versa, i.e. as sample size increases, sampling error decreases. This holds good only in probability sampling. More precisely, sampling error equals the square root of the sampling variance.

Thus the sampling error is not a measurement error nor is it a systematic bias in the sample. It is the error which depends on the representativeness of the sample. The less the sampling error, the greater the precision of the sample.

LIMITATIONS OF SAMPLING:

Sampling is however not free from limitations:

1. Sampling demands a thorough knowledge of sampling methods and procedures and an exercise of greater care: otherwise the results obtained may be incorrect or misleading.
2. When the characteristic to be measured occurs only rarely in the population, a very large sample is required to secure units that will give reliable information about it. A large sample has all the drawbacks of a census survey.
3. A complicated sampling plan may require more labour than a complete coverage.
4. It may not be possible to ensure the representatives of the sample even by the most perfect sampling procedures.

Therefore sampling results in a certain degree of sampling errors i.e. there will be some difference between the sample value and the population value

Illustration 1:- A researcher desires to study the attitude of students of MBA Rural Management College of education towards semester system. A student of that course is a unit of study. The total of all Master Education Student of that course is a unit of study. The list of MBA student from which a sample will be drawn is the sampling frame.

Illustration 2:- A researcher wants to survey the brand preferences of households regarding toilet soaps in Jayanagar area of the city of Bangalore. A household is the sampling unit. The total of all households in Jayanagar area is the population. Suppose in a detailed map of Jayanagar, but list of households is not available, each block may be considered a sampling unit. A list of such blocks will be used as the frame.

Different types of sampling designs

There exists basically two types of sampling: probability sampling and non- probability sampling.

Probability sampling is the one in which every unit of the population has an equal probability of being selected for the sample. It offers a high degree of representativeness.

However, this method is expensive, time consuming and relatively complicated since it requires a large sample size and the units selected are usually widely scattered.

Non probability sampling makes no claim for representativeness, as every unit does not get the chance of being selected. It is the researcher who decides which sample unit should be chosen. Under this approach, it is not known beforehand or it can not be estimated with confidence, the chance that a sampling unit would be included in the sample.

TYPES OF SAMPLING APPROACHES

Probability Approach

Every unit in the sampling frame has an equal or known chance of being included in the sample.

Process:

A rigorous random selection process is undertaken to rule out the bias occurring on account of sampling. The sampling frame is serialized and then subjected to a random number table to select the sampling units.

Uses:

- The population parameter can be estimated using the ample estimators with a known level of accuracy and degree of confidence

Non- probability approach

The chance that a sampling unit would be selected to be included in a sample cannot be estimated.

Process:

Sampling units are selected without identifying a sampling frame at times. The judgment of the researcher, some expertise in the area applied to select the units for the purpose of convenience and ease of study. At times, the researcher may define a sample conceptually and give the field investigator a set of guidelines to be followed while selecting a unit to be included in the sample.

Uses:

- This approach is used when the size of the sample is small;
- The inferences to be drawn do not

which is desired;

- The size of the sample required to make such estimates is comparatively large;
- It is generally used for decisions of importance which require the use of information of known accuracy, at times regardless of the cost;
- The high fixed cost of setting up the sampling frame and getting data collected from each and every sampling selected at random whatever be its geographical location is prohibitive when the budget available is limited;
- In cases, where it is not feasible to construct a complete sampling frame, the probability approach cannot be used;
- Most descriptive research studies requiring quantitative estimates made use of the probability approach.

pertain to quantitative estimation of values but are based on qualitative logic only;

- Precise estimates of population parameters are not to be made using the same estimators;
- It is largely used in exploratory research. However, when there are time and cost constraints, it is used for descriptive research as well;
- At times this approach is adapted for establishing certain attitudes and beliefs;
- The use of statistical tools and techniques cannot be made on data collected by non- probability methods.

Probability methods				
Simple Random Sampling	Systematic Sampling	Stratified Sampling	Cluster Sampling	Area Sampling
The Method				
In this method, each unit in the population has an equal chance of being included in the sample. If there are N units in the sampling frame then the chance that a unit will be selected for the sample is 1/N.	In this method, the first unit is selected at random from the sampling frame. Other units are then selected at a regular interval depending upon the size of the sampling frame, so that each 5 th unit or 100 th unit can be selected. If the population size is denoted by N and sample size by n, then N/n is the interval	The entire population is divided into a number of mutually exclusive and collectively exhaustive strata. A simple random sample is then drawn from each strata such that the size of the sample drawn from each strata is proportional to the size of the strata. The stratification of strata is such that variance between strata is high	The entire population is first divided into clusters using geographical areas, city blocks as dimensions. A sampling frame of clusters is first constructed. Clusters are chosen at random. Thereafter, either all units in the chosen cluster are studied or a simple random sample from each cluster is chosen.	Clustering the sample by geographical area is termed as area sampling. The population is divided using dimensions like states, towns, villages, districts etc. Each of these constitutes a cluster. A sample of clusters is then taken and either fully studied or random sampling is carried out from each chosen area.

	denoted by k.	and within strata is low.		
Population size and Definition				
This techniques is useful when the sampling frame is very large. Also, the population should be clearly defined.	A clear definition of the population is a must.	A clear definition of population is essential.	A clear definition of population is needed.	A clear definition of population is required.
Sampling Frame				
A clear, updated, exhaustive list of sampling units which constitute the sampling frame is required.	A complete and exhaustive list of sampling units is required.	A complete and exhaustive list of sampling units within strata is required.	A complete list of each sampling unit is not required. Instead, a list of larger units, like blocks, towns, districts, etc. is required.	A complete list of all the areas, states, districts, villages as the case may be required.
Time				

More time is required for selection	The time required is less than SRS as it is simple to execute.	The time required is medium compared to SRS and SYS.	The time required is less since the sampling units would be close to each other geographically.	The time required is less since the sampling units are in the same geographical area.
Cost				
The cost of arriving at the final sample is high.	The cost of arriving at the final sample and contacting the individual units thereafter is high.	The cost is not very high in comparison.	The cost is reduced to a large extent.	The cost is very much reduced.
Sample Size				
For the purpose of using statistical techniques the sample size required is fair large.	The sample size required is also large.	The sample size required is lower than that of SRS.	The sample size required is fairly large.	The sample size required is medium.
Advantages				

The population parameters can be estimated with accuracy.	The population parameter can be estimated with known accuracy.	The population parameters can be estimated with known accuracy. It is useful when the population is very heterogeneous.	It is possible to estimate population parameters with known accuracy.	It is possible to estimate population parameters with known accuracy.
Disadvantages				
It is very time consuming and requires a strict control in the field so that the selected unit is the one from which data is collected.	There might be a clustering of certain units in the population resulting in their being completely left out in the sample. Also, the variance of the population cannot be estimated using the variance of the sample.	The major disadvantage of this method is the non-availability of dimensions over which the population could be completely stratified.	If the units in the cluster are not homogeneous the efficiency of the estimates will be reduced. It is most useful in test marketing situations.	The units of the same area being homogenous they are not representative of the population at times. It is used extensively for social research situations.

	Non Probability Methods	
Convenience Sampling	Judgment sampling	Quota sampling
The method		
The sample is chosen as per the availability of time and cost. It is totally dependent on the researcher.	The researcher bias is minimized by using the judgement of expert/s instead. The expert would have a thorough knowledge of the population under study.	The researcher primarily selects a certain criteria on which the population is divided into a number of mutually exclusive and collectively exhaustive classes. Each class is then assigned a number of samples on some basis. Each class is clearly demarcated and defined and the number of units to be selected is also clearly allocated to each class. The total number of units from each class and overall classes gives the sample size to be used. The investigator uses his own discretion to complete the quota

		predetermined for each class while he is on the field.
Population size and definition		
This does not require a clear definition of the population however large it might be.	The size of the population may be small but a partially clear definition of it must be available.	The population size required is large and a clear definition of the population is also required.
Sampling Frame		
Non- availability of sampling frame is one of the reasons when this method is resorted to.	Non- availability of sampling frame is the reason why this method is adopted at times.	A detailed list of units in the population is not required.
Time		
The time required is very less as there are set rules for selection.	The time required is more than convenience sampling.	The time required for selection is fairly high since the quota has to be completed.
Cost		
The cost required to contact the units chosen is also very less.	The cost to carry out the field work is not very high.	It is more expensive than convenience or judgement non- probability methods

Sample size		
A small sample size can be used under this method.	The sample size required is small.	The sample size required is higher to take care of all possible classes.
Advantages		
It is very easy to operationalise the data collected and is often resorted to when quick decisions are to be made and resources are limited.	The element of bias of less than in convenience sampling.	The favorable features of this method are that the bias on account of sampling is least. The validity of results can also be estimated and checked. The planning and execution is fairly easy and with results having reasonable accuracy, this method is widely used in descriptive research studies.
Disadvantages		
The results would differ from one researcher to another. The levels of accuracy of results is rather low.	The bias of judges is difficult to avoid. Errors in sampling are not possible to estimate so that the accuracy level of the results is rather low.	The investigator bias cannot be eliminated completely as certain units in each class may be neglected completely.

Some Examples:

A. Probability Sampling

Simple Random Sampling

Two hundred teachers employed by seven English medium pre- primary schools in the city apply for attending a two- day seminar. The sponsors, however, only had money to pay for 30 participants. The seminar director, therefore, assigned each applicant a number from 001 to 200, using a table of random numbers that he found in a statistics textbook. He selected 30 names by moving down columns of 3- digit random numbers and taking the first 30 numbers within the range of 001 to 200. The director decided that this method was easier than picking numbers from the run.

Stratified Random Sampling

The UGC and the NCERT are considering introducing value- oriented education for students in schools and colleges. The UGC commissioned a study to find out, among other things, the attitude of students and teachers in schools and colleges on introducing this programme. The research concentrated on teachers in two types of institutions, viz., B.Ed. and non B.Ed. colleges and secondary and higher secondary students (i.e. from 9th to 12th standard) in schools, and undergraduate students in colleges. The study suggested that teachers in B.Ed. institutions appeared more in favour of introducing value- oriented education than those in non- B.Ed. institutions. On the other hand, the college students were less in favour of this programme than the school students. The difference in the attitude among students v/s students and teachers v/s students was found in terms of types of values to be inculcated, techniques for imparting values, conducting examinations for assessing the level of values inculcated, the nature of teachers to be appointed as educators, and so on. All this comparison becomes possible only on employing stratified random sample technique.

Cluster Sampling

We can take an example of a hospital. The issue is to ascertain the problems faced by doctors, patients and visitors in different units and to introduce some reformative programmes. Administratively, it will not be viable to call doctors from all units for a large number of patients admitted in different units like cardiology, neurology, orthopaedic, gynaecology, and so on. Treating each unit as a cluster, randomly selected doctors and patients, say two doctors and three

patients or about 50 people all together, from all units may be invited for discussions. Arriving at a consensus for immediate reforms needed, a plan can be chalked out for seeking grant from the government.

Multistage sampling

Suppose bank employees are to be studied in one city for assessing their views on introducing reforms in banks, including use of computers. The names of all managers, accountants and senior clerks in all banks will be typed in the first stage. Suppose these names are typed in 100 pages, each page containing 20 names alphabetically. Out of 2,000 bank personnel, we have to take out a sample of 50 persons. We can do this by taking out every tenth page (out of 100 pages), i.e. 10 pages, and from each page, we take out every fourth name (i.e. five bank employees from one page). This will be example of systematic plus systematic sample. The alternative is: take first 10 pages and select any one page at random. In this way, select 10 pages out of 100 pages, From each page select any five names at random. This will be simple plus simple random sampling. The main advantage in this sampling will be that it will be more representative. Other advantage is that in all cases, complete listing of population is not necessary. This saves cost.

Multiphase Sampling

We are interested in studying MBA students in one city. Suppose there are five institutions imparting MBA education and in each institution, there are 30 students. Thus, firstly the sampling frame of MBA students in five institutions will be constructed. These respondents will be studied with regard to their academic background (whether they are arts, science, commerce, engineering, medical students; whether they are first or second divisioners. Of these 150 students, 50 will be selected randomly, say, 10 students from each institution having different academic backgrounds. After selecting these 50 students, 25 girls and 25 boys will be chosen. This sample will be the final sample for the study.

B. Non- probability sampling

Convenience Sampling

The researcher engaged in the study of university students might visit the university canteen, library, some departments, play- grounds, verandahs and interview certain number of students. Another example is of election study. During election times, media personnel often present man-

on-the street interviews that are presumed to reflect public opinion. In such sampling, representativeness is not significant.

Purposive Sampling

Suppose, the researcher wants to study beggars. He knows the three areas in the city where the beggars are found in abundance. He will visit only these three areas and interview beggars of his choice and convenience. The manufacturers (of cosmetics, oils, garments etc.) select test market cities because they are viewed as typical cities with demographic profiles closely matching the national profile. Popular journals conduct surveys in selected metropolitan cities to assess the popularity of politicians and political parties or to forecast election results. Thus, in this technique, some variables are given importance and it represents the universe but the selection of units is deliberate and based on prior judgment.

Quota Sampling

In the example of studying 50 MBA students from 150 students in the five institutions, the researcher fixes the quota of 10 students from each institution, out of which five will be boys and five girls. The choice of respondents is left to interviewer. Determining quotas depends on a number of factors related to the nature and type of research. For instance, the researcher might decide to interview three boys out of five boys (from one MBA institution) from final year and two from previous year, or two studying the morning course (of two years) and three studying the evening course (of three years).

Another can be for studying the attitudes of persons towards the use of loudspeakers in religious places in one educational institution with 100 males and 50 females belonging to different religions, quota can be fixed in the ratio of one female for every two males.

Snowball sampling

For instance, in studying wife battering, the researcher may first interview those cases whom he knows, who may later on gives additional names, and who in turn may give still new names.

Sampling in Qualitative Research

Some people hold that qualitative researches do not require sampling. This is not true. They do employ sampling procedures. However, they employ non- probability sampling such as

purposive or snowball or accidental. Sarantakos (1998:154) has maintained that qualitative researcher use *theoretical sampling*. When sampling is closely associated with theory, when subjects are chosen before data collection, guided by theory or progressively during data collection, and when collection of data is controlled by the emerging theory, the researcher has to constantly look for new units and data and justify the theoretical purpose for which each additional group is included in the study. Thus, the researcher who employs theoretical sampling will continue adding new units to the sample until the study has reached to saturation point, i.e., until no new data are produced through inclusion and analysis of new units.

Qualitative researchers make a choice about the kind of people will be included in the study. For example, in the study of spinsters, researcher try to find out the cases of those spinsters who deviate from sexual norms or who attach themselves to some group or object or person (e.g., adopting brother's son as a child) or activity (worship or social work) could prove their hypothesis pertaining to spinsters' adjustment processes and patterns.

Sample size

Considerations in sample size

A question is often asked: how many persons should be included in the sample, i.e. how large or small must the sample be to be representative? Some people say, the most common size is 1/10th of the total population. Some other say that a minimum of 100 subjects is required to allow statistical inferences. However, these estimates are not always correct. The sample size has to be based on the following considerations:

1. *The size of population* i.e., whether the total population to be studied is very large, large or small.
2. *Nature of population*, i.e. whether the population is homogenous. In the former, a small sample may suffice but in the later large sample is required.
3. *Purpose of study*, i.e. whether the study is descriptive, exploratory or explanatory.
4. Whether the study is *qualitative or quantitative*. In qualitative studies, sampling does not resort to numerical boundaries to determine the sample size. Similarly, when purposive or accidental sampling is employed, the researcher himself can decide the 'sufficient' number of respondents. In such cases, generalization are concerned with quality rather than with quantity.

5. *Accessibility of the elements.* Many a times it is difficult to contact respondents at time and place convenient to the researchers.

6. *Cost of obtaining elements.* With more resources, an adequate number of investigators can be appointed and a large sample may be considered.

7. *Variability required.* Sometimes the respondents required have to be persons of different groups, e.g. of different age, different income, different educational background, different occupations and so on.

8. *Desired accuracy or confidence level.* For high degree of accuracy, a large sample need to be drawn. One has to think of the level at which one will be confident that his sample is representative. Frequently, the 95 per cent confidence level is chosen meaning that one anticipates that there is a 95 per cent chance that the sample and the population will look alike and a 5 per cent chance that it will not. Sometimes the stricter level of 99 per cent is chosen, at others the more lenient confidence level of 90 per cent is taken.

9. *Sampling error or desired risk level.* The minimum the sample error, maximum will be the sample's representativeness. For example, the study of parents (with children of school- going age) who want to send their children to English medium private schools or to government schools. If the average annual family income of parents in the area in which the study is to be conducted is Rs. 40,000, then, the researcher should make sure that his sample's average income is as close to Rs. 40, 000 as possible. Smaller the percentage error, greater the chance of proving (through the selected sample) that income is one factor that affects parents' choice.

10 *Stratification, i.e.,* how many times the sample has to be sub-divided during the data analysis. This is to ensure an adequate size for each sub- division. In stratified sampling, the researcher should draw a sample having some characteristics as population. In the study of parents willing to send their children to private or government schools, of the total population (of parents), if 75 per cent have annual income of over Rs. 40, 000 and 25 per cent less than Rs. 40, 000, the researcher should be sure that his sample also has the same distribution of income.

Activity to students

Work in groups of three to five students for this exercise. Briefly share with the group each of your projects in terms of its planned population and sampling frame.

Choose one person's research topic in your group and discuss the following:

- 1.** Identify the study population, and sampling unit for your proposed study, and any questions that exist about who is included and not included.
- 2.** Identify a specific sampling method and procedure that you could use to select participants for this proposed study. Explain if the procedure being used is random, and the approximate size of the sample you are seeking. Discuss difficulties that may be encountered and possible strategies for addressing these.
- 3.** Explain why you and your group chose this sampling procedure. Consider whether you want to generalize to the population, and what insights you may gain or lose with this sampling procedure.
- 4.** Discuss how you would implement this sampling procedure.

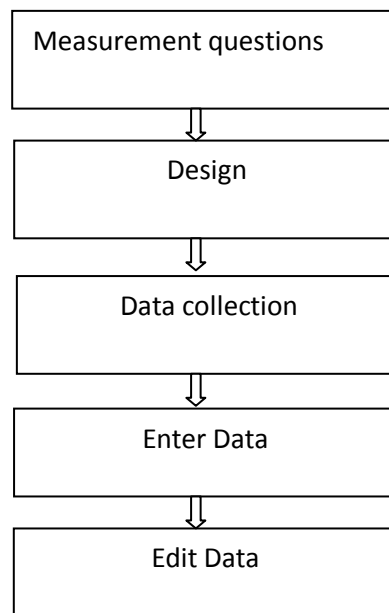
PROCESSING OF DATA

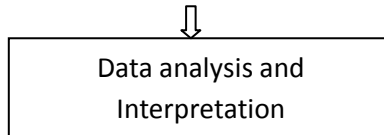
After collecting data, the researcher becomes concerned with six things: (i) checking the questionnaires/ schedules, (ii) sorting out and reducing information collected to manageable proportions, (iii) summarizing the data in tabular form, (iv) analyzing facts so as to bring out their salient features, i.e. search for trends, patterns and relationships, (v) interpreting the results, or converting data into statements, propositions, and (vi) writing or presenting the report. Thus, the method of converting raw material into meaningful statements include data processing, data analysis and data interpretation and presentation.

Data interpretation is a crucial step in research. Data should not be studied in isolation of all factors which might influence the origin of the data. Any decision taken needs a holistic overview of paraphernalia factors associated with the subject in concern. The data which is collected for the purpose of the study itself cannot serve several any things. This being a raw data it is required to process and analysed in order to have desired result. The data which is collected cannot be directly use for making analysis. Before analysis data is requires to be processed.

Data reduction or processing mainly involves various manipulations necessary for preparing the data for analysis. The process (of manipulation) could be manual or electronic. It involves editing, categorizing the open ended questions, coding, computerization and preparation of tables and diagrams.

Data analysis and interpretation





A. Editing

The process of examining the collected data is called editing. This includes inspection and schedule. There is possibility of error and omission in the on the part of investigator so the editing help us to minimise such correctness. Editing is done at the time of collecting data. After the collection of statistical data, the most important step in a statistical enquiry is the scrutinizing of the collected data. This is in real sense known as editing of data. It is essential as in most of the cases the collected data contains various types of mistakes and errors. It is quite likely the some questions has been misunderstood by the informants, and if so, the particular and data has to be recollected. Sometimes answer to a particular possible to draw any inference from them. Some of the questions and schedules are so haphazardly filled that it is necessary to reject them.

Stages involved in Editing:

The stages involved in editing are:

a) Field Editing:

In this stage, the investigator makes, the review of the reporting from for completing what the latter has written in abbreviation and /or in illegible from at the time of recording the responses of the respondents. Field editing is done as soon as possible after the interview.

b) Central Editing:

It is done when all forms of schedules have been completed or returned to the office. This type of editing implies that all forms should get through editing by a single editor in a small study and by a team of editors in case of a large enquiry. While performing their work the editors should always keep the following things in mind.

- I. They should be familiar with the instructions supplied to them for the purpose.
- II. Editor's initials and the date of editing should be placed on each completed form or schedule.
- III. They may make entries on the form in some distinctive colour and in a standardized form.
- IV. While crossing out an original entry for one reason or another, they should first draw single line on it so that the same may remain legible.
- V. They should initial all answers they change or supply

B. Coding

It is the process of assignment numerals or other symbols to answers so that responses can be put into a limited number of categories or classes. These classes should possess the following characteristics.

- a. The classes should be appropriate to the research problem under consideration.
- b. The classes should be exhaustive i.e. there must be a class for every data item.
- c. The classes should be mutually exclusive i.e. a specific answer can be placed in one and only one cell in a given category set.
- d. The classes should be unidimensional i.e. every class must be defined in terms of only one concept.

Coding is necessary for efficient analysis. It reduces several replies to a small number of classes which contain the critical information required for analysis. Coding should be taken at the designing stage of the questionnaire because it helps to precede the questionnaire choices.

Coding of data

Coding is translating answers into numerical values or assigning numbers to the various categories of a variable to be used in data analysis. Coding is generally done while preparing the questions and before finalizing the questionnaires and interview schedules. Fieldwork is thus done with precoded questions. However, sometimes, when questions are not precoded, coding is done after the fieldwork. Coding is done on the basis of the instructions given in the codebook. The code book gives a numerical code for each variable.

Coding is done by using a code book, code sheet, and a computer card. Code book explains how to assign numerical codes for response categories received in the questionnaire/schedule. It also indicates the location of a variable on computer cards. Code sheet is a sheet used to transfer data from original source (i.e. questionnaire/schedule etc.) to cards. They are prepared by the researcher for assigning codes to the answers received. Code sheets are like computer cards. These sheets are given to key-punchers who then transfer the data to cards.

Code sheet

Column	Q.No.	Question	Code	Remarks
1-4	-	-	-	Leave blank for respondent

				numbers
5	Q1.	Sex	1- male 2- female 3- 4- NR	
6-7	Q2.	Age	1- below 20 2- 20-30 3- 30-40 4- 5- 6- 7- NR	
8	Q3.	Religion	1- hindu 2- Muslim 3- 4- 5- NR	
9	Q4.	Marital Status	1- married 2- unmarried 3- widowed 4- divorced 5- 6- 7- NR	
34	Q25.	There should be reservation for women in the parliament	1- strongly disagree 2- disagree 3- no response 4- Agree	

			5- Strongly disagree	
			6- NR	

C. Classification

Meaning and Definition:

It is the process of arranging data in groups or classes on the basis of common characteristics. Due to this process data having common characteristics are placed in one class and in this way the entire data get divided into number of groups or classes. According to Secrist, classification is the process of arranging data into sequences and groups according to their common characteristics of separating them into different but related parts. In other words, classification is the process of arranging the collected data into homogenous classes or groups so as to exhibit its common characteristics.

Classification has been defined by Prof. Cannon in the following way; classification is the process of arranging things in groups or class according to their resemblance or affinities and give expression to the unity of attributes that may subsist amongst a diversity of individuals.

Characteristics of Classification:

According to above definition of classification by Cannon, the following characteristics may be deduced.

- a. Classification is the division of whole data into different groups. Thus by means of classification we convert the jumbled mass of data into a few homogenous groups. The complex mass of data is thus put into more manageable form.
- b. The basis of grouping is uniformity of attributes. The items falling within a group are similar in some respect, at the same time they are dissimilar from the units of the other group of least in the respect. If this similarity and dissimilarity is not present there is no basis for classification.

Objectives of Classification:

Following are the main object of the classification of data:

- a. To express the complex, scattered haphazard into concise logical and intelligible form. The marks of a thousand students convey no sense, but when they are grouped into first class second class, third class and failures their significance can easily be followed.
- b. To make the points of similarity and dissimilarity clear, classification makes the similarity and dissimilarity clear. Thus classification of people into rich, middle class and poor gives a clear idea about their similarity disparity regarding economic status.
- c. To afford comparative study. Classification makes comparative study possible. If the marks gained by the students of two colleges are given, it is difficult to say which class is better, but when they are grouped into pass and fail the comparison becomes very easy.
- d. To avoid strain to the mind in understanding the significance.

Classification makes the complex data so simple that its significance be easily followed by the researcher without much strain on the mind. Besides avoiding undue strain on the mind, classification helps to follow the significance in its true form.

- e. To display underlying unity of the items. The items placed in one class are similar in some respect. This helps us to understand those items more clearly. Thus if the workers are divided into skilled and unskilled classes, we can form an idea about the skill of a person by knowing the class to which he belongs.

Characteristics of Good Classification:

Following are the chief characteristics of a good classification:

- a. The classes are clear cut and there is no over-lapping. Every unit of the group must find a place in some class on the other and no unit can be placed in more than one class. Thus classification of population into Hindus, Muslims, Christians only is not perfect because Buddhists cannot find a place in any one of these groups.
- b. The unit lying within a group must be homogeneous in respect of the fact that has been the basis of classification. All the unit of group must either possess or should be lacking in the quality that has been the basis of classification.
- c. The same basis should be applied throughout the classification. Thus, if the population is classified into Hindu, Muslims, Educated and poor it will be wrong classification as the basis of

the first two religion while that of the third and fourth is education and economic status respectively.

Basis of Classification:

Statistical data can be classified according to the characteristics that they have. These characteristics can be either descriptive or numerical. Descriptive characteristics are known as attributes and are not capable of numerical measurement, e.g. literacy, blindness, sex, unemployment, etc. classification based on descriptive characteristics is known as classification according to attributes. Numerical characteristics are those which are amenable to quantitative treatment e.g. income, expenditure, age, height, etc. classification based on numerical characteristics is known as classification according to class intervals.

Kinds of Classification:

Classification is of two types

1. Classification according to attributes.
2. Classification according to class intervals.

Classification according to attributes: In such classification, the data are divided on the basis of attributes, an qualities. For considering one attribute, two classes are formed, one showing the presence of the attribute and the other absence of the attribute.

Such classification in which more than one attribute is taken into consideration is known as manifold classification.

Classification according to class-intervals: Where the direct quantitative measurement of data is possible, the classification can be done according to class-intervals. Characteristics like height, weight, income, production, consumption, etc. can be measured quantitatively and are capable of taking different size. In such cases, data are classified; each of them is called a class-interval.

The limits within which a class-interval lies are known as class-limits. The difference between two class-limits is called as class magnitude.

Classification according to class-intervals involves some basis issues.

a. Number of classes:

An ideal number of classes for any frequency distribution would be that which gives the maximum data in a clear fashion.

b. Size of class-intervals: No hand and fast rule can be laid down for deciding the magnitude of class-intervals. This will depend upon the quantity and quality of data, the range of the data and number of other considerations. Keeping these things in mind, the magnitude of the class intervals should be such that it does not distort the important characteristics of the data.

c. Class-limit: While selecting the class-limits, it is important that these should be selected in such a way that the mid-point of a class interval and the actual average of items of that class-interval should be close to each other as far as possible.

D. Tabulation of Data

Tabulation comprises sorting of the data into different categories and counting the number of cases that belong to each category. The simplest way to tabulate is to count the number of responses to one question. This is also called univariate tabulation.

The analysis based on just one variable is obviously meager. Where two or more variables are involved in tabulation, it is called bivariate or multivariate tabulation in marketing research, projects generally both types of tabulation are used.

Definition: Prof. Neiswanger has defined a statistical table as “In a systemic organisation of data in columns and rows.”

L. K Connor has defined tabulation as the orderly and systematic presentation of numerical data in a form designed to elucidate the problem under consideration.

Objects of Tabulation:

The following are the main objects of tabulation.

a. To make the purpose of enquiry clear tabulation in the general scheme of statistics investigation is to arrange in easily accessible form.

b. To make significance clear by arranging in form of table the significance of data, is made very clear. This is because table permits the observation of the whole data in one glance. The total information is clear to the view and the significance of different parts can easily be followed.

c. To express the data in least space table also permits the data to be represented in least possible space, making the whole information clear to the view. If it is expressed in form of a passage it would not only be difficult to follow, but would require more space too.

d. To make comparison easy mainly because of the arrangement of figures in it. When two sets of figures are given side by side, it is much easier to form a comparative idea of their significance.

Classification of tabulation:

A. Simple Tabulation

B. Complex Tabulation.

A. Simple Tabulation:

It gives information about one or more groups of independent questions. This results, in one way table, provides information of one characteristics of data.

B. Complex Tabulation:

In this type of tabulation, the data is divided in two or more categories which gives information regarding more sets of inter- related question.

E. Analysis of Data

The data collected may or may not in numerical form. Even if data is not in numerical form still we can carry out qualitative analysis based on the experiences of individual participants. When data is collected in numerical form than through descriptive statistics findings can be summarised. This includes measure of central tendency like mean range etc. Another way to summarised finding is by means of graphs and charts. In any of the research study there is experimental hypothesis or null hypothesis.

One the basis of data of both hypothesis, various test have been devised to take decision. Where decision is taken on the basis statistical test, it is subject to error, and such correct decision is difficult. But some standard procedures followed to arrive at proper decision.

Analysis involves estimating the values of unknown parameters of the population and testing hypothesis for drawing inferences.

Types of Analysis:

a. Qualitative analysis

b. Content analysis

c. Quantitative analysis

d. Descriptive analysis

e. Bivariate analysis

- f. Sequential analysis
- g. Casual analysis
- h. Multivariate analysis
- i. Inferential analysis
- j. Statistical analysis.

a. Qualitative Analysis:

It is less influenced by theoretical assumption. The limitation of this type of analysis is that the findings tend to be unrealisable. The information categories and interpreted after, differ considerable from one investigator to another one. In this system researcher to go through, research cycle, to increase reliability, repeating the research cycle is of value in some ways, but it does not ensure that the findings will have high reliability. Qualitative analyses are carried out in several different kinds of study like interview, case studies and observational studies.

b. Content Analysis:

Content analysis is used where originally qualitative information is reduced to numerical terms. It is a method of analysis media output includes articles published in new papers, speeches made in radio, television and various type of propaganda. This method of analysis is applied to all most all form of communications.

c. Quantitative Analysis:

The numerical data collected in study through descriptive statistics analysis can be conducted through measure of central tendency.

d. Descriptive Analysis:

This analysis of one variable is called one dimensional analysis. This analysis measures condition at particular time.

e. Bivariate Analysis:

The analysis in respect of two variables is called bivariate analysis. In this analysis collected data in placed into tabular form, so that the meaning of the data can be derived. In this method simple dimensional data is developed and put into two or more categories.

f. Sequential Analysis:

When only factor is reveal in the table at one time, this type of analysis is called sequential analysis is called sequential analysis. If we do the further analysis of the same data regard four going showed that person with leave travel concession facilities are more frequently going on tourism than those who are not gating facilities of casual analysis. It is concerned with study of one variable affecting another one.

h. Multivariate Analysis:

With an advancement of compute application there is fast development of multivariate analysis, in which statistical method simultaneously analysis more than two variables.

i. Inferential Analysis:

In order to decide the validity of data to indicate conclusion this analysis is concerned with tests for significance of hypothesis. One the basis of inferential analysis the task of interpretation is performed by estimating the population values.

Data Analysis and Interpretation

The analysis is the ordering of data into constituent parts in order to obtain answers to research questions. For example, a researcher formulates a hypothesis pertaining to relation between high educational level and positive attitude towards a certain phenomenon (and vice versa). He conducts a study, gathers data from respondents in a college/university. He then breaks down the data and so orders them that he can obtain an answer to the question: does high education change the attitudes? However, merely analysis does not provide answers to research questions. Interpretation of data is also necessary. Interpretation takes the result of analysis, makes inferences and draw conclusions about the relationship. Thus, to interpret is to explain, to find meaning. In most cases, it is difficult to explain raw data. One must first analyse the data and then interpret the results of the analysis. Data are interpreted in two ways: one, the relations within the study and its data are interpreted; and two, the results of the study and the inferences drawn within the data are compared to theory and to other research results. Thus, in this method, one seeks meaning between one's own research and the conclusions of other researchers or with the expectations of theory.

Stages in analysis

The analysis of a research is done in four stages. These are (i) categorization, (ii) frequency distribution, (iii) measurement (iv) interpretation

Categorisation

Category are set up according to the research problem and purpose of study. These are mutually exclusive, independent, and exhaustive.

Frequency distribution

Frequency distribution is the tabulation of quantitative data in classes. It indicates the number of cases or distribution of cases falling into different categories. Frequency distribution is of two types: primary and secondary. Primary analysis (or distribution) is descriptive and only gives the number of cases in each class. Secondary analysis is thus concerned with relations, e.g. comparing the frequency of men and women or educated with illiterate, or rural with urban, and so on.

Measurement

Measurement could be in the form of central tendencies (i.e. calculating mean, mode and median) or statistical averages. The mean is the arithmetic average of a set of measures. The median is the midmost measure of any set of measures. The mode is the most frequently occurring measure of a set of measures.

Measurement could also be in terms of coefficient of correlation(s). the reliability and validity of the measures of the variables is important in all social scientific research. The whole interpretation can collapse on this point alone. The statistical analysis sometimes may be univariate type (examining on variable at a time), sometimes of bivariate type (assessing relationship between two variables) and sometimes of multivariate type (analyzing three or more variables simultaneously).

There are four scales used for measurement: nominal, ordinal, interval and ratio.

Interpretation

Interpretation of data can be descriptive or analytical or it can be from a theoretical standpoint. Negative results are much harder to interpret than positive results (i.e. when the data support the hypothesis). After measurement or statistical analysis, the question arise: What has the research contributed? What is the significance of the research? What relationship exists among the variables? What is the statistical as well as the substantive significance of the research? A chi

square may be significant at the 99 per cent level, merely indicates the likelihood of the statement being true. The substantive significance of the research findings deals with the question, “what does it all mean?” Generalisation is sometimes added with the words “under certain circumstances” or “other things being equal”. This points out the applicability of the findings of the research. Thus interpretation consists of the conclusions the researcher has reached.

Positive results are evidence of the fact that the methodology, the measurement and the analysis are satisfactory. The interpretation of data culminates in conditional probabilistic statements of “if a, then b type”. We enrich such statements by qualifying them in some such way as: if a, then b under the conditions of x, y, z.

AN INTRODUCTION TO PARTICIPATORY RURAL APPRAISAL (PRA)

Participatory Rural Appraisal (PRA) is an approach for working with communities.

PRA can be used in various ways:

- It can be used as a new method for data collection.
- It can be a way of learning from, and with, community members in order to investigate, analyze and evaluate constraints and opportunities, and make timely and informed decisions regarding development projects (Theis and Grady 1991:22).

However, if the findings are taken away by the outsiders in order to plan for the insiders, the potentials within PRA are not fully used. PRA does not see the outsider as the only one who is able to solve problems. Local people can be, and should be, actively involved in their own development process. The facilitators’ role is that of helping the local people to do it themselves.

- Therefore, an other definition describes PRA as: A growing family of approaches and methods to *enable* local people to share, enhance and analyze their knowledge of life and conditions, and *enable* local people to plan, act, monitor and evaluate (Chambers 1997:102).

Thus, participation by the local people always takes place in the data collection phase. Whether this participation extends into subsequent phases (e.g. planning, evaluation, and decision-making in general) is up to the people undertaking the PRA study. However, participation of local people in subsequent phases is highly recommended, as PRA hopes to enable the local people to eventually do it themselves. “Unfortunately, participation tends to be used as a technique to improve the efficiency of research and programming, rather than a means of facilitating peoples’ own development efforts. Used in this way, participation becomes merely another form of exploitation, serving the purposes of outsiders who have their own agenda but who know they can not gain a complete picture of the problems that interest them through conventional methods alone” (Edwards 1989:129, 1994:291).

PRA is usually undertaken with a team to make most use of various disciplines, and different skills of various people. However, PRA methods can also be used by individuals.

WHAT IS PRA ? HISTORY AND PRINCIPLES

1.1 BACKGROUND

In the 1950s and 1960s, it was widely believed that all it took to improve the economic situation of developing countries was financial inputs and modern technology. In the 1970s, however, it became clear that the transfer of technology model did not solve the problems of most people in developing countries. Development workers and researchers began to understand the complex relationship between environment, economy, culture, and policy in rural societies. Consequently the system as a whole has to be understood in order to identify and help bring about desired changes.

With the emergence of this new development model, new research techniques were developed to achieve a better understanding of the complexities of rapidly changing and uncertain societies. One of these new research methods was Rapid Rural Appraisal (RRA), that emerged in the late 1970s as an alternative approach to conventional sample survey.

1.2 FEATURES OF RRA & PRA

1.2.1 RRA HAD THE FOLLOWING FEATURES

- an interdisciplinary RRA team (outsiders) goes into the field, observes, does some exercises with the rural people, and takes back this information to their office to analyze it and use it in planning for the rural community
- designed to quickly acquire new information on, and new hypotheses about, rural life
- avoids the defects of questionnaire survey
- underlying principle: rural production systems need to be understood from a variety of perspectives
- emphasises optimal ignorance and appropriate imprecision
- stresses cost-effective trade- offs between the quantity, accuracy, relevance and timeliness of information collected and analyzed

However, it was at first little more than organized common sense. It was a better way for outsiders to learn, analyze and subsequently plan. But for the rural people, who were the ones offering the information, it did little to build their capacity of analyzing their situation and identifying solutions and possibly implementing them. As a result of attempts in the 1980s to make RRA more participatory, Participatory Rural Appraisal (PRA) evolved and developed on basis of RRA.

1.2.2 DEVELOPMENT OF PARTICIPATORY RURAL APPRAISAL

PRA is a philosophy that advocates the need for outsiders to learn about situation of rural communities from insiders. It strongly believes that insiders are capable of analyzing their problems and opportunities.

It is a method for:

- general analysis of a specific topic or problem,

- needs assessment,
- feasibility studies,
- identifying and prioritising problems,
- project monitoring and evaluation
- enabling rural people to enhance, share and analyze their knowledge of life and conditions, in order to plan, act, monitor and evaluate

Its purpose is more to gain an understanding of the complexities of a topic rather than to gather highly accurate statistics. Understanding qualitative differences is as important as finding general averages. PRA is applied most effectively in relatively small rural communities, which share common knowledge, beliefs and values. Its relatively short duration and low cost makes it possible to carry out a series of PRAs rather than having to rely on the results of one large survey.

PRA is based on shared knowledge. It is a systematic yet semi-structured activity in the field that involves inter-disciplinary team for the purpose of learning from, with and by the community. It is flexible and designed to quickly generate new information and understanding about local conditions and livelihoods.

It requires:

- participation
- respect for community members
- respect in what they know, say, show, and do
- listening not lecturing
- humility
- methods which empower community members to express, share, analyze and enhance their knowledge

1.2.3 PRINCIPLES OF PRA

1. Reversal of Learning

- Learn from the rural people!! Involving community members can greatly facilitate interpretation, understanding, and analysis of collected data.
- learning directly on the site/rural set up, face to face with the people and undertaking on the spot analysis.
- learning takes place in the field and the analysis of the information gathered is an integral part of field work itself. The team constantly reviews and analyzes its finding in order to determine in which direction to proceed.
- NOTE: the key concepts are “**in the community**” and “**on the spot analysis**” and “**Attitude and Behaviour Change (ABC) of the facilitator**”

2. Learning Rapidly & Progressively

- Flexible use of methods and informality coupled with iteration, and cross-checking (not following blue-print but being adaptable promote learning process for both outsiders and insiders.

3. Offsetting Biases & Being Self -Critical

- Spatial biases (urban, tarmac, roadside)
- Avoid all types of biases (be relaxed – do not rush, listen, probe - do not pass to the next topic too soon, seek out different informant categories such as men/women/children, ethnic and religious groups, socio-economic strata (poor, rich), geographical locations (remote and inaccessible regions), marginalized groups, etc.)
- The team also has to be careful to analyze its own biases (e.g. professional bias).
- The team should reflect on what is said and not said, seen and not seen, who is met and not met, and tries to identify possible sources of error and how they influence the interpretation of the gathered information. The team must also try to avoid value judgements about others.

4. Optimising Trade-offs

- Relating cost of learning to useful truth and sustainability. Trade-offs between quantity, relevance, accuracy and timeliness.

- **OPTIMAL IGNORANCE:** refers to the importance of knowing what is not worth knowing. This requires courage to implement. It is far easier to demand more and more information, than it is to abstain from it. In information gathering there is often a monstrous overkill.
- **APPROPRIATE IMPRECISION:** especially in surveys, much of the data has a degree of accuracy which is unnecessary. Order of magnitude, and directions of change, are often all that will be used. Appropriate imprecision (and knowing what is not worth knowing) is better than measuring in detail more than needed.
- What is important in PRA, is that the vision of the local people becomes clear. Their vision may not be the most precise – but it is theirs, and that is what we are interested in.
- What kind of information is required, for what purposes, and how accurate the information has to be determined in the field.

5. Seeking Diversity

- Seeking variability rather than average
- Maximizing the diversity and richness of information

1.2.4 ROLES IN PRA

1. Facilitating

- Role of outsiders is facilitation the investigation, analysis and presentation of rural knowledge so that they can own the outcomes.
- Outsiders should hand over the stick and let the local people themselves do it
- Outsiders start the process and allow/enable the community carry on.

2. Self-critical Awareness & Responsibility

- Outsiders/ facilitators should examine behaviors and reflect role reversals. Whenever we make mistakes, we should learn form them and try to do better next time.
- Facilitators should at all times be ready to explore, learn and depend on best judgement instead of being bookish and dependent on a manual.

3. Sharing

- Sharing of ideas/information among rural people themselves
- Sharing of ideas between rural people and outsiders/facilitators
- Sharing of ideas, information and experiences among different organizations represented in the PRA team

4. Attitudes & Role Reversals

A. Modes:

- From closed to open or from questionnaire to semi-structured interviews
- From individual to group, emphasising more group activities
- From discussion, cross-checking and contributing to empowering people
- From counting to comparing, and from absolute measurement to comparison and trends/patterns

B. Reversal of Relationships:

- Outsiders no longer determine the agenda, extract information and possess them
- Insiders are no longer reserved rather develop report and get empowered by the right attitudes of outsiders and become the owners of the outcome of the PRA exercise

C. This to be reflected in ACTION!!

- HANDING OVER THE STICK
- THEY CAN DO IT

1.2.5 FEATURES OF PARTICIPATION RURAL APPRAISAL

The main features of participatory rural appraisal are:

1. Triangulation

- Triangulation means using different methods for the purpose of cross-checking the validity of information. Triangulation helps to get a more accurate picture of a given reality. Information about the same thing should be collected in different ways, and from at least three different sources

This can be done by using:

- Different methods or tools and techniques (observation, diagrams, interviews, etc.)

- Different investigators or mixed team (insiders, outsiders, inter-disciplinary team, men and women with different perspectives);

2. **Inter-disciplinary Team**

- The PRA team should comprise of inter-disciplinary members with different viewpoints, perspectives, and experience. The principle behind is that it promotes sharing of ideas, experience and better understanding of the diversified way of life in the rural areas. The team as a whole is involved in research design, data collection and analysis.
- PRA is a learning experience in which the team members learn from each other and the community.
- A PRA team ideally consists of men and women

3. **Mix of Techniques**

- Using different techniques provides the opportunity to gather in-depth and quality data.
- Observation and visual tools (maps, diagrams, etc) may help us pick issues overlooked when verbal data collection methods (interview, group discussion) were employed.

4. **Flexibility and Informality**

- Plans and research methods are semi-structured and are revised, adapted, and modified as the PRA fieldwork proceeds.

1.2.6 MAJOR TYPES OF DATA TO BE COLLECTED

Four major types of data can be collected with PRA tools:

1. **Spatial data:**

- Tools such as maps, transects, farm sketches are visual tools that provide a sense of location and differential reaction.

- They help the PRA team and local people view community problems/opportunities from spatial perspectives.

2. **Time Related Data:**

- Time line: is a list of key events in the history of the individual or community which helps to establish a shared sense of time between the people in a community and the PRA team. Firstly, big events are identified (e.g., establishment of the school, famine, war, introduction of new type of trees) and then secondly, these events are related to time (e.g. 1984, 1989)
- Trend lines: show significant changes in the community over time/years; it helps to understand how communities perceive significant changes (e.g. number of goats, trees over the years)
- Seasonal calendar: attempts to establish regular cycles or patterns of activities and occurrences within a community over 12 to 18 months.

3. **Social Data:**

- Socio-economic information from a cross section of farm households to gain an understanding of the wide range of variations between families. (Tools: e.g. maps, wealth ranking)
- We can learn about activities of formal and informal institutions in the region. This helps to understand perceptions of community towards these institutions and to assess relationships. (Tools: e.g. Venn diagram).

4. **Technical data:**

- Detailed technical data are usually collected when a sector clearly emerges as a problem after ranking is done by villagers.
- It is undertaken by field workers on the site in collaboration with local people;

Chapter 2: PRA TOOLS AND TECHNIQUES

2.1 OVERVIEW OF PRA TECHNIQUES

PRA as a methodology has many tools. Once you have experience in handling the tools, you will find that you can change some to better suit what you want to achieve. PRA tools are flexible in their use. Some of them are listed here, of which some are explained later:

SECONDARY DATA

DIRECT OBSERVATION

SEMI-STRUCTURED INTERVIEWING

FOCUS GROUP DISCUSSION

PREFERENCE RANKING AND SCORING

PAIR-WISE RANKING

DIRECT MATRIX RANKING

RANKING BY VOTING

WEALTH RANKING

ANALYSIS GROUP DISCUSSION

INNOVATION ASSESSMENT

CONSTRUCTION OF DIAGRAMS

MAPPING AND MODELLING

PARTICIPATORY MAPPING

HISTORICAL AND FUTURE MAPPING

MOBILITY MAPPING

SOCIAL MAPPING

TRANSECT (WALKS)

SEASONAL CALENDER

HISTORICAL SEASONAL CALENDER

TIME TRENDS

HISTORICAL PROFILE
LIVELIHOOD ANALYSIS
FLOW/CAUSAL DIAGRAM
VENN/INSTITUTIONAL DIAGRAM
SYSTEMS DIAGRAM
PIE CHART
HISTOGRAM
PARTICIPANT OBSERVATION
WORKSHOP
GROUP WALKS
STORIES
CASE STUDIES AND PORTRAITS
PROVERBS
INDIGENOUS CATEGORIES AND CLASSIFICATIONS

Not all of these tools and techniques need to be used in a PRA. Some tools are used more often than others. The team should select the most appropriate set of techniques each time a PRA is done and should **experiment, adapt and invent methods.**

2.2 SECONDARY SOURCES

Description:

Secondary data (back ground information) refers to all information of interest that is available in published or unpublished forms.

Why: Not to spend resources in collecting already available data.

Purpose: To collect and analyze background information in order to:

- accelerate the processes of understanding rural people and their condition through proper summarization of the existing data.

- identify information gaps so as to properly and effectively plan what to do next.
- tentatively identify different strata of socio-economic groups.
- tentatively identify problems and predict development potentials of such groups

When: It should be finalized at least a week before going to the field/ project area.

What: The most important sources of background information are:

i) Maps, photographs, and images

- Maps- road, topography, political, soil, crop, vegetation, irrigation
- Photographs- ordinary photographs, aerial photos
- Images- satellite, video,

ii) Government studies and official records census data, crop and livestock surveys, nutritional and health surveys, weather data, etc.

iii) Media reports, research reports, anthropological and ethnographic studies.

Who: Collection and analysis is done by an interdisciplinary team that will undertake the PRA.

On what areas: In all aspects that govern the structural and functional set-up of rural systems and affect people's behavior in decision making. So we need to get information on:

The Natural Environment

- Climate / rainfall reliability, distribution
- Altitude and topography
- Natural resources (soil, water, forest, etc)
- Biological aspect (pests, disease, etc.)

Socio-economic & cultural aspects

- Land holding, land tenure, and arrangements
- Human element -number, density, settlement pattern, family composition, emigration and migration
- Cultural components -beliefs food preference, clothing, social relations
- Institutions- voluntary groups, official and informal associations, farmers organizations
- Access to resource e.g., Credit and extension services

- Infrastructural aspects -road net works, inputs supply points
- Accessibility to primary and secondary markets, health and education facilities
- Gender division of labour

C. The Agricultural Production System

- The crop production sub-system: major crops, area allocation, production and productivity, fertility maintenance, veterinary techniques, problems (pests, diseases, draught), coping strategies, evolution.
- The livestock sub-system: species and types of livestock reared . Objectives, production and productivity, feeding and management strategies, problems encountered, evolution
- Off-farm and Non-farm Activities: fishing, collecting and gathering, trading, employment, poultry
- Interaction of the different sub-systems: complementarity and competitiveness

Compilation: All relevant data collected from different sources will be reviewed, summarized and prepared in the form of diagrams, tables and lists, brief summary paragraphs, copies of maps and photographs,

Caution! When using secondary data one has be aware of:

- i) accuracy and reliability-check data from different sources
- ii) adequacy of data: see whether you have sufficient data to arrive at conclusion
- iii) recent data look for timely data particularly for socio-economic variables. If socio-economic data are more than 5 years old, they should be verified

Summary:

- Look for all information available.
- Do not inundate yourself with information (effectively screen information for immediate utility and avoid collecting data that will not be used)
- Be skeptical and critical of data. Particularly those obtained from sources that indirectly reflect efficiency (performance) of those who reported.

2.3 DIRECT OBSERVATION

Description:

Direct observation is systematically observing objects. Events, processes, (relationships of) people, and recording these observations. Direct observation is a good way to cross-check respondent's answers. Check-lists help systematic observation in the field.

Purpose: Direct observation is used to

- i) supplement and validate base line data information collected in advance
- ii) cross check reliability of responses during PRA (diagram, interview, etc). Direct observations are essential to support and cross-check findings.
- iii) generate on the spot questions or additional topics for interviews

Steps:

1. Be clear with your data needs, based on your PRA objectives.
2. Determine or identify things or indicators to be observed and identify those indicators which you can assess through direct observation. These indicators make up your checklist.
3. Know how best to do it (method) and choose the appropriate observation method for each variable to be observed.

Methods of Observation:

i) Measurement:

- Observe measurable things (e.g. Number of people, water sources, field size, etc.)

ii) Watching indicators:

- Objects, events, and process in relationship that can be observed and used as indicator of some other variable that is more different or impossible to observe
- This provides a more valid and less costly information than other research methods, e.g. Soil colour, drainage, fertility, birth weight of children, nutritional and health status in the area, housing type, wealth etc.

NB. Indicators should be valid, specific, relevant, sensitive, cost-effective and timely.

iii) Recording & plotting:

- Agro-ecological or socio-economic transect,
- On note books, record sheets, diagrams,
- If possible use cameras
- Collect samples

iv) Identify the right site for information gathering (market place, health posts, places of entertainment, social gathering, etc.).

v) Use observation checklists to systematically conduct and record observations recording can be done in notebooks, record sheets, diagrams, photos, etc.

vi) Observe with all your senses.

Example of direct observation of household eating habits:

DIRECT OBSERVATION TABULATION SHEET

Name of Observer	No. and Type of Dishes	No., Age and Gender of PEO. Sharing Meal	Quality and Quantity of Food	Way of Eating
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2.4 GROUP MEETINGS

Description:

A meeting can involve a large number of a smaller groups, who focus on a specific problem. The facilitator should encourage 2-way communication. Smaller focus groups

can be held with people who have common concerns (women, herders, people who are poor), and where they can speak easily/freely of their problems and experiences.

Outputs from focus group meetings can be presented to large group meetings, giving a “voice” to those who are unable to speak in a large meeting.

Aim:

- give and receive information
- discuss issues of relevance
- come to an agreement on an issue / or to find out different points of view concerning an issue (in which case the group does not have to reach an agreement)
- help identify problems and solution
- plan activities, negotiate conflicts.

Steps:

1. Have a clear purpose. Know the objective of the meeting, from the insider’s and outsider’s perspectives. Prepare the topics to be covered, and think about how you can encourage the topics to be covered, and think about how you can encourage open and constructive discussion.
2. Obtain approval and involvement of local leaders. Respect local customs and protocol.
3. Arrange a convenient time and place. Think about the size and composition of the group. Remember that different groups have different time constraints-women may not be available at the same time as men for example.
4. If possible, let people know about the meeting in advance.
5. Introduce the meeting clearly but briefly. And the people participating. Explain the purpose of the meeting, and the areas to be covered. Place the meeting in the context of past, present and future events.
6. Summarise the discussions, outline the decisions that have been made, and identify “next steps” try and on a positive note

The Do’s:

- Consider groups who may not be willing to speak up in the meeting. Can a separate meeting be held with them?
- Prepare yourself well
- Ensure a comfortable pleasant atmosphere
- Start with topics which are easy to discuss, and which are not sensitive or controversial.
- Allow differences in opinion to emerge. Try and have these resolved or accepted by the group.
- Guide and control the meeting, whilst ensuring that as many people as possible can take part.

The Don't's

- Impose your opinions on the discussion

2.5 SEMI-STRUCTURED INTERVIEWING (SSI)

Description:

- Semi -structured interview is form of guided interviewing, where only some of the questions are formulated in advance and new questions can come up in the interview. A checklist of questions may provide a framework for the interview.
- The interview starts with general topics, and a number of key areas to cover. Most questions are designed in advance. Probe for details or discussion.
- It is guided discussion, only in that the interviewer prepares a rough framework for the interview in advance.

Aim:

- Obtain specific quantitative or qualitative information from a group of people.
- Obtain information on specific issues, and probe to see what is not known.
- Gain a range of insights on specific issues

Type of SSI:

1. **Individual interview:** for representative information from different individuals. Interviewing a number of people (men, women, child, poor, rich) on the same topic will reveal a wide range of opinions, attitudes and strategies.
2. **Key informants interview:** for specialised knowledge from some one with special knowledge of a topic. Key informants are usually outsiders (school teachers, government representative) with an opinion on the broader system of the community.
3. **Group interview:** for general community level information. Provides access to a large body of knowledge, and allowing cross-checking of information. Not for sensitive issues.
4. **Focus group discussion:** to discuss specific topic in detail.

Advantages of SSI:

- Allows focused, conversational, two-way communication.
- Helps understanding of processes and relationships.
- Builds relationships with community members.

Managing Semi –Structured Interviews:

1. Technicalities upon which the PRA team should agree:
 - How to introduce oneself
 - How to share tasks(team contract)
 - How to handle translation (use of interpreters)
 - How to manage sensitive topics of issues
2. Use of different types of interviews:
 - Key informant interviews
 - Group interviews
 - Individual interviews
3. Do not use:
 - closed questions “Do you have difficulty getting fertilisers here?”
 - leading questions “Would you grow sunflowers if the government raised the price?”

- ambiguous questions “Why was Mr. X elected chairman of the farmer self-help organisation?”
 - rapid shifts from topic to topic and too many questions at the same time “Please tell me about the crops you grow here? Can you describe any changes in rainfall over the last 10 years and how did this effect you? Do your animals suffer from any serious diseases?”
4. Interviewing procedures:
- Greeting and polite talk, clarity of objectives, confidence building
 - Dialogue: raise clear questions, use simple language, be sensitive to body language and non-verbal communication, be good listeners (do not interrupt), go from general to specific and from simple to complex and sensitive topics.
 - Recording: Depending on the condition, take notes, photos or video tape recording.
 - Departure: thank respondents.
5. Location, Timing and Length of Interview:
- Location: most convenient location to respondents and where aspects to be studied are more prevailing.
 - Timing: when to interview is decided following cultural and traditional working routines / schedules and willingness of respondents. Choose the optimal season and time of the day. Be aware of the daily schedule of the community members.
 - Interviews should neither be very short nor long. The duration depends largely on the topics to be covered and the mood of the respondents. Be sensitive to respondents feelings. Generally, individual interviews should not last more than 1 hour and group interviews 2-3 hours.

Steps:

1. Design an interview framework, or a checklist of questions and issues. Prepare yourself well.
2. Establish the sample of people that you want to talk to. Who and how many? Select team of interviewers.
3. Conduct a number of practice interviews with each other, to become familiar with the questions, and get feedback on your two-way and non verbal communication skills.

4. Begin with traditional greetings. Conduct the interview informally, and mix questions with discussion.
5. Let each team member finish their line of questioning
6. Don't interrupt.
7. Record only brief notes during the interview. Immediately following the interview, elaborate upon these notes. If there are several people interviewing, leave one person to interview, and another to make brief notes.
8. Analyse the information at the end of each interview with the team.
9. Check the overall results of the analysis with the community members, so that they can challenge the perceptions of the interview team. This can make the process even more participatory.

The Do's:

- Although semi-structured interviewing seems easy, the technique requires skill and practice. It is not just an easy option!
- Prepare in advance, thinking about the framework and the questions where you will have to probe.
- Probe when necessary. Don't just accept the first reply.
- Introduce and explain the objectives of the meeting clearly to the group.
- Listen carefully and closely
- Pay attention to gate keepers, the presence of influential persons, and the group dynamics.

The Don't's:

- Rush the interview
- Ask closed questions which can be answered "yes" or "no"
- Ask leading questions!
- Ask vague or insensitive questions!
- Fail to take notes!
- Believe everything you hear!

2.6 RANKING

Description:

Ranking means placing something in order. Particularly useful for information such as preferences, problems, income and wealth.

Purpose:

- Reveals differences
- Help understand the criterion for ranking
- Help identify problems/opportunities or preferences
- Help to compare priorities, problems/ opportunities
- Increases community awareness in relation to problems/opportunities and priorities.

The Do's:

- Let people do it their way
- Use people's own units of measurement
- Use people's own names for whatever is be ranked
- See if you can adapt local games for ranking
- Probe the reasons for the order of the ranking
- Be prepared
- Be patient

Ranking Methods:

- Preference ranking
- Pair wise ranking
- Direct matrix ranking
- Wealth ranking

Using Preference Ranking:

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1. Identify the set of items (e.g. tree species, crops) which need to be ranked.
2. Identify the set of criteria (e.g. uses) along which the items will be weighed according to the participants personal preference.
3. Suggest to the informant that he/she finds real things to indicate the different items and criteria (e.g. different types of leaves, charcoal, wood, tools).
4. Draw a matrix on the ground, and together with the participant place the items down the side and the criteria.
5. Give the participant a pile of stones.
6. Explain the exercise: First we look at the first criteria (e.g. fuel). Now for each item (e.g. tree specie) a number of stones down should be placed, indicating the relative importance of that criteria for that certain item. The maximum number of stones to be placed depend on the number of items. If there are 3 items only, the participant give each item either 1,2 or 3 stones. If there are 7 items, then each item can be given anything from 1 to 7 stones.
7. Ask each interviewee to put the stones down according to his/her priority or preference.
8. Ask why? Discuss the reasoning behind the preferences, and note these reasons down.
9. Tabulate the replies, and calculate final ranking scores. The item with the highest score has the participants greatest preference.
10. Discuss the findings with the participant. Cross-check.
11. Thank the participant.
12. You can repeat this exercise with other (men, women, rich, poor) to find out differences in preferences and what the reasons of these differences are.
13. You could present the findings (and the differences among different people) during a group meeting, to encourage further discussion or to create understanding for each others reasoning.

Using Pair Wise Ranking:

1. List problems/opportunities on top and left side of the matrix. Each square represents a paired comparison between items (e.g. problems, tree species, animals)
2. Ask the people which option is more liked or more problematic out of the two
3. Record the most likely option
4. Repeat for all pairs, until all boxes in the matrix are filled.

5. Develop lists of reasons for selecting; ask participants about the reasoning of choosing item X instead of item Y and write down the reasoning
6. Add up the number of times each item was identified
7. Arrange them according to rank appropriate order

The biggest problem, according to the person making this matrix, is drought (rank 1).
Check the findings with the participant, and discuss

2.7 WEALTH RANKING

Description:

- There are differences and inequalities in every community. These influence people's coping strategies, behaviour, etc.
- Helps to discover local indicators or criterion of wealth/well-being
- Helps to establish the relative position of households in a community.
- Can facilitate identification and targeting of project participants, and monitoring how they improve over time, in comparison with those not participating in the project.

Principles:

- Outsiders and community members have different perceptions of wealth, well-being and inequality- Local perceptions are crucial for getting a deeper insight.
- Different people in a community (men, women, merchants, labourers) may use different criteria for wealth.
- Investigating the range of socioeconomic situations in a community is useful in PRA.
- Cross checking the findings with another method (direct observation checklists) is necessary to verify results.
- Effective in group / community of 50-150 households

Steps:

1. Make a list of all the households in the community and assign a number to each household.
2. Make a card for each household, write the name on it clearly and write the number in the corner.
3. Ask a number of informants who have lived in the community for a long time and who know all the households, independently of each other, to sort the cards into as many piles as there are wealth categories in the community. They must use their own criteria, which you discuss with them beforehand. If the informant is not literate, read the name on the card and then hand it to him/ her and let him/ her choose the pile in which to place it.
4. Use numbered baskets or small boxes to put the cards in. This helps the sorter remember which is which, and it helps you to record the scores without mixing the piles or wealth ranks. Also shuffle the cards before doing another wealth rank so that each starts with a random pile of cards, not resorted by the previous sorter.
5. After sorting ask the informant for the wealth criteria for each pile and difference between the piles. Assure the sorters of confidentiality and do not discuss the ranks of individual families, so as not to cause bad feelings within the community. List local criteria and indicators derived from the ranking discussion and examine differences between informants.
6. After the informant has sorted all cards into piles, record the score of each household on a score sheet (your original list of households) according to the number of its pile. If a sorter is not able to place a family because she doesn't know them or cannot decide where to put them, leave a blank by that household's name for that informant. Have at least three informants sort all households in the same community independently to make sure the results are reliable.
7. If the number of wealth categories used by the informants differs from each other, divide each household's score by the number of wealth categories used by the particular sorter and multiply by 100. For example, a household in the third out of five piles would receive a score of 60 ($3/5 * 100 = 60$). This procedure is necessary in order to compare the scores of different people with each other (unless they all use the same number of wealth categories)
8. After the scores of each informant have been recorded on the form, the scores are added up and divided by the number of sorters. For example, if there were four sorters but one did not know one of the households, than divide by three. Check the scores for consistency. If one

sorter's results are greatly different from the others, he may not have understood the direction or got the baskets reversed. If this happens, disregard all of that sorters and ask another informant to do the sorting

9. Finally arrange household according to wealth categories. If the informants used a different number of piles take the average number of wealth categories (eg, if four informants have 4,4,7, and 6 piles respectively, divide the community into five wealth groups).
10. Using this system, rich households in the community will have low scores (e.g. rank 1) while the poorest households will have high scores(e.g. rank 4 or 5).

Cautions!!

- This method for collecting data requires a right attitude by the facilitator.
- Use this tool with caution and sensitivity!! Take time to explain why you want to do this exercise. People may be suspicious about your intentions.
- Wealth ranking requires much preparation by the facilitator.
- The ranking itself, can be carried out in one day with a great deal of participation on the part of the community. However, it does not work well in heavily populated areas. With more than 150 people, it is too difficult to get everyone's name and to find sorters who know everyone.
- Because different groups may have very different images, scores between villages cannot be compared. Some relatively well -off communities may rate themselves worse off than communities that are very poor. In communities with an egalitarian ideology, wealth ranking may not be feasible and villagers might object to being divided into different wealth groups. In communities which are accustomed to receiving benefits from a development organisation, wealth ranking may not produce reliable answers about the satisfaction of a community because the sorters may try to play down the villages' wealth.

2.8 TREND DIAGRAMS

Description:

- Trend diagrams show quantitative changes over time, or indicate the relative importance of different items over time.
- Diagrams present information in an easily understandable form

Aim:

- Understand relative importance, or availability, of items over time (e.g., amount of food throughout the year, tree density over the last 30 years).
- Discuss trends which people find important or you want to learn about (fuels used, time and distance to collect fodder, tree species in forests, common land or on farms, prices, disease incidence, crop yields, livestock population)

Steps:

1. Find one or more informants who know about past and present conditions (e.g., older men and women) and who are willing to share their knowledge.
2. Discuss the time period to be covered and ask them to pick a few landmark dates (e.g., independence, start of conflict, etc.)
3. Ask them how they would like to show the trends.

Options:

- Seeds, goat droppings, fruits, stones, cereals
 - Sticks broken by them to different lengths
 - Pie diagrams (on ground or on paper)
 - Trend lines (on ground or on paper)
4. Let them do it, discuss and cross -check. Ask WHY?
 5. Record.

The Do's:

- Let them do it
- Be interested

The Don't's:

- Don't suggest answers
- Don't lecture! Listen and learn

Tip:

It is important that PRA techniques (e.g., mapping and seasonal calendars) are done with a number of different people (women and men, young and old etc.) as they often have different perceptions and information. Comparing diagrams drawn by different people can lead to a deeper understanding of the diversity of opinions and decision-making processes in community.

2.9 DIAGRAMS

2.91 VENN DIAGRAMS

Description:

A venn diagram shows the existing key institutions and key individuals for a given community. It also shows the relationships between key institutions and key individuals in a community, and the relative importance of each for the individual making the Venn diagram.

Aim:

To understand which institutions are more, or less, important to the individual, and what the type of relationship between them is. To identify strong, or weak, links. On basis of which further planning or development can be based.

Steps:

1. Find people who are willing and able to identify and discuss key institutions and individuals responsible for decisions in a community or organisation
2. Ask them to draw circles (on the ground) to represent each individual or institution. The size of the circle represents the relative importance of that institution or individual to the participant.
3. The participant also draws 1 circle representing him/herself.

4. Now add the other circles (institutions and key individuals) to the circle representing the participant. What are the contacts and overlaps between them in terms of (e.g. decision making, importance for inputs, importance for information, etc.)?
5. Suggest the following key;
Separate circles = no contact
Touching circles = information passes between them
Small overlap = some co-operation in (e.g. decision making)
Large overlap = considerable co-operation in (e.g. decision making)
6. Discuss and adjust the diagrams as necessary with your informants.
7. Repeat the exercise with others (men/women, rich/poor) to gain a clear picture of which institutions or individuals are important for which groups.

2.92 DAILY ROUTINE DIAGRAMS

- These are diagrams that indicate the daily activities of community members and to compare the daily routine pattern for different groups and people (women, men, old, young, employed, unemployment).
- It helps to identify time constraint (shortages) and opportunities. Likewise, information from daily routine diagrams can be used in identifying suitable times for meetings, training courses, visits, etc. It can even be used to plan for alleviating problems of time-constraint of particular groups.
- While drawing the diagram focus on what is important, i.e. concentrate on the general pattern of time allocation and time use. Do not make the diagram complicated. The diagram can be made more explanatory by indicating not just the time but also the size (quality) of the workload (thicker or thinner bars) or by adding or breaking down categories. E.g. work in the home, feeding children, fetching water, cooking, washing, cleaning, tending animals, etc.
- Use SSI and observation to draw this diagram.
- When we add a spatial dimension to the daily routine diagram and show person's mobility during a typical day, then we refer to this as the daily activity profile. It allows easy

comparison between different people and illustrates their movement in and around the community.

2.93 FLOW DIGRAMS

- This is a diagram that shows causes, effects and relationships between key variables. An example could be relationships between economic, political, cultural and climatic factors causing environmental degradation
- Flow diagrams are useful in identifying root causes and problems and to assess interrelationship between problems.

How to draw a flow diagram:

- Select processes and relationships to be analysed
- Obtain information (from secondary sources, interviews)
- Assign boxes to key variables
- Use + or – sign to indicate positive or negative relationships
- Keep diagrams simple

2.10 TRANSECTS

Description:

- A transect is a diagram of main land use zones. It compares the main features, resources, uses and problems of different zones.
- Transect walks therefore are systematic walks with key informants through the area of interest observing, asking, listening, identifying different zones/ groups, seeking problems and possible solutions. The findings are mapped out into a transect diagram.
- There are different types of transects , of which the most commonly used are vertical (geographical) transects and historical transect. The process of transect involves walking across areas of different zones or group (from rich to poor areas from hill top to valley) and proper observation and recording of physical characteristics (soil types, erosion, forest, land use etc.) crops, livestock, other biomass, etc.

Aim:

- Provides an overview of village land use and problems
- Allows comparison of land use patterns over time

STEPS:

1. Identify your transect walk area from your map based on your interest area
2. Find community members who are knowledgeable and willing to participate in a walk through their village and surrounding areas.
3. Discuss with them the different factors to be drawn in the transect (crops, land use, trees, soils, etc), and which route to take.
4. Walk the transect
5. Observe carefully, ask, listen, do not lecture.
6. Discuss problems and opportunities.
7. Identify the main natural and agricultural zones. Note contrasts and changes, sketch distinguishing features (e.g. soil, crops, livestock), problems and opportunities
8. Draw the transect. Cross – check the transect with key informants. Include a rough measurement of scale of the transect.
9. Revise the transect throughout the field work.

The Do's:

- Be inquisitive
- Show interest
- Generalize impression, don't be too detailed
- Walk as much as required
- Share tasks (probing, not talking, recording observation)

The Don't's:

- Don't rush
- Don't lecture

2.11 PARTICIPATORY MAPPING

Description:

- Participatory mapping refers to drawings made by rural people with minimum interference by outsiders.
- It is one of the diagramming techniques in PRA. Besides providing general overview of the area, participatory mapping is a good way to start building rapport with the villagers. Great play is made of the issue of who holds the stick. It allows the PRA team to discover the mental map of community members.
- Uses local knowledge to produce a physical map of the area, highlighting certain features.

Aim:

- Indicates the mappers' point of view concerning his/her area, what is important to them
- Provides a basis for other PRA tools (when you get the list of households, you can do wealth ranking; if the map indicates little grazing area this can be one of the communities problems to probe about when interviewing, etc.)
- Assist outsiders in planning and monitoring
- Provides a broad overview of the area
- Assists people to analyse patterns in land use, soils, use of space by different groups, water

Using It:

1. Obtain special overview through general exploration e.g. a view from a higher point (hill) and group interviews.
2. Decide what kind of map should be drawn:
 - Social (village residential areas, households, assets)
 - Natural resources (village land area forest, water shed)
 - Health mapping (handicaps, users of MCH)
 - Topical maps (water, soil, mobility)
 - Social satisfaction (wealth, ethnicity, religion)

- Social amenities (water points, health posts)

Note that participatory mapping is a process. One map leads to others and this encourages further participation.

3. Find people who know the area, who are willing to share their knowledge and time (mapping can be time-consuming). Explain the idea of mapping to them.
4. Choose suitable place (ground, paper) and medium (stick, stone, seeds, pencils, etc) for the map.
5. Ask people to identify the key features and land marks first (rivers, mosques, school, road, pond, etc.). Help people get started by asking them to draw where you are right now. Let them do it. Be patient! It is their map.
6. Use local names , descriptions, places, plants, etc., used by villagers.
7. If you do this on the market place, other people will start joining the mappers. Encourage discussion and listen carefully to what is being said. Observe. And jot down notes.
8. If a household map is made, you may want to write down all the names of the households, as the stones are being placed in the map on the ground.
9. Together with the mappers, copy the map on the ground onto paper.
10. When the map is copied to paper, add: name (s) of mapper (s), date, place, and name (s) of facilitator (s).
11. Sometimes a succession of maps works well. For example people can (separately or in groups) draw their maps of the community, these can then be compared or combined into one big map. Different groups will have different perceptions.
12. Revise the maps and add more detail through the field work as you received new information.

The Do's:

- Use this mapping exercise as a starting point for PRA. When used/introduced well, the villagers will understand that your reason for being there is to learn from them. That you value their view. This can be a good basis with which to continue.
- Choose appropriate site and choose drawing materials people feel free to use
- Encourage corrections and additions
- Lead from the map to other tools, e.g. transects, wealth ranking, etc.

- Leave a paper copy of the map in the community (e.g. with the village head, or with the womens' group who made the map)

The Don't's:

- Interfere or interrupt very occasionally

Mobility Map

- Mobility map is both a data collection and analysis tool since it records, compares and analyses the movements of different groups or segments in a community (old men, young men, women, children, educated, etc.). It is useful indicator of a person's contact with the outside world.
- Special mobility in many societies can be used as indicator for a person's knowledge of the outside world and his/her authority in the community. It may also indicate other possible sources of income (trade, employment, etc.) or expenditure (social or cultural activities), freedom, wealth, employment, education, or consciousness.

2.12 SEASONAL CALENDARS

Description:

- This is a calendar showing the main activities, problems, and opportunities through out the annual agricultural cycle in diagrammatic form, It helps identify the months of greatest difficulty and vulnerability, or other factors which have an impact on peoples lives. It really is just a series of different diagrams shown on a single sheet.

NOTE: seasonal calendars are different from trend diagrams which are generally used to assess change of a variable over several years.

Aim:

Seasonal calendars are commonly used to summarise information regarding seasonal patterns of:

- rainfall distributor
- crop production activities (crop calendar)
- crop pests and diseases
- livestock diseases, feeds, etc.
- price changes-social events

- changes in income and expenditure
- migration pattern/employment
- nutrition (food calendar)
- labour allocation (labour calendar for men, women, children.)

Steps:

1. Identify variables of interest in line with your PRA objectives
2. Obtain information from secondary sources and from interviews (key informants)
3. Decide who you hope will share their knowledge (women, men, children, land-less, etc.)
4. Find one or several such people able and willing to explain, and find a suitable place (enough space, shade) for discussion, and drawing on the ground
5. Establish with participants what seasons there are in the agricultural cycle, or in what units of time (e.g. months) they perceive a year. Take notes. Draw this time-line on the ground (e.g. January to December or , preferably, in local terms), either by using stones to indicate each month, or by drawing lines in the dirt.
6. Ask participants to indicate, for each time unit (e.g. month), the relative changes. In for instance, rainy days, total rain, availability of animal fodder, crops, agricultural labour, income, expenditure, debt, migration, food availability, meals, sickness, etc.
7. Encourage community members use seeds, sands, small fruits, length or stick, goat droppings or other small and reasonable uniform counters to quantify the issue under investigation.
8. Discuss probe check, encourage debate, allow new aspects to be added to the chart.
9. Copy the diagram to paper. Add names (of participants and facilitators), time, place, local names for seasons, etc.
10. It is easier to separately draw seasonal diagrams for different variables. But finally combining all seasonal patterns in to one diagram helps to see correlation between different variables, and to identify problem or opportunity times within the year.
11. Do seasonal diagramming with different individuals (men, women, rich, poor) in get their perceptions of for instance workload throughout the year.

Tips:

- Use squared (graph) paper to record on paper and give participants a copy.
- Invent your own way of doing it and let others invent theirs

- Use locally available materials
- Encourage analysis of the diagram by the participants
- Do not impose your calendar
- Do not take the diagram as an end of things
- Do not lecture.

2.13 TIME LINES

Description:

Time lines or historical profiles reveal important information for understanding the present situation in a community and what happened in the past.

Aim:

To provide a framework for understanding current activities/situations, by examining the effects of for instance: new infrastructure, introduction new crops, draughts and famines, major political events. To build a shared understanding of time, which is useful if the villagers do not think in terms of years (e.g. 1974, 1981, 1990), but in terms of “that was when the school was built”. This can be helpful during other exercises and during semi-structured interviews.

Steps:

1. Information can be collected from secondary sources, and in the field from key informants.
2. You may collect the information from a number of key informants cross-checking as you go. It may be useful to carry out a focus group interview with older people in the village.
3. Discuss the topic with informants, using a broad framework for the discussion prepared in advance.
4. Note down the significant events, or do it on the ground using stones, etc, to mark important happenings.
5. Put years to the time of the event, together with the participants.

3.5 WHEN SHOULD THE PRA APPROACH BE USED?

- PRA is most suitable when participation by all is essential for the success of the work being proposed, for example in a community health programme.

- When trying to enable local people to enhance, share, and analyse their knowledge of life and conditions to plan, act, monitor and evaluate.
- PRA techniques can also be suitable if “community” is defined more loosely to include a professional community, such as health workers in a district.
- When planning a programme concerned with social change
- When you need thorough understanding of a topic in a particular context.
- When you need to know what people think about their situation or problems, and what their priorities are.
- When you need to find meaningful indicators for qualitative change.

3.4 WHAT SHOULD PRA BE USED FOR?

- Enabling local people to enhance, share and analyse their knowledge of life and conditions to plan, act, monitor and evaluate.
- To empower people.
- Assessing the development needs of a community.
- Identifying priorities for further research into those development needs.
- Assessing the feasibility (on both social and technical criteria) of planned interventions and activities.
- Monitoring and evaluation of development activities.

The most important consideration when deciding whether, or not, to use PRA are:

- Time available.
- The type and level of accuracy of information that is required.
- The extent to which the community is going to be involved in the work
- The extent to which you want outsiders or insiders, or both, to be the agents of change.
- The availability of appropriate people to conduct the study (interdisciplinary, right attitude)

- The degree to which project structure and decision-making are sufficiently flexible to make use of new information gathered in this way.
- The intended use of the findings.