Introduction to Research and its Need

Unit 1 Contents

New HRD Module on Action Research

Unit 1: Introduction to Research and its Need

Unit introduction

Research is a vital aspect for youth development workers to develop programme, assess and evaluate the on-going activities. This unit will help you to learn about the methods of acquiring knowledge, purpose of accumulating knowledge through research, importance and types of research, and identification of research problems.

In this unit, you will find some examples in order to explore the research methods. The purpose is to show the underlying principles of research activity which are logical and systematic and can be applied in a wide variety of situations. Hence, you should try to apply the examples giving in this unit relating to your own society as well as community.

Unit learning outcomes

When you will complete this unit you will have improved your ability to:

1. know the methods of acquiring knowledge
2. know the purpose of accumulating knowledge through research

3. have a detailed knowledge of research technique
4. apply research method to develop and evaluate any programme
5. be able to plan a research on the basis of need analysis.

Methods of acquiring knowledge

The methods by which a person seeks answers to problems can be classified under the following categories:

(1) Authority

(2) Tradition

(3) Experience

(4) Deductive reasoning

(5) Inductive reasoning

(6) Scientific method.

Authority

Appeal to authority and seeking its advice is a well-established method of solving problems. When factual evidence cannot be obtained to solve a problem, one may have to rely upon authoritative opinion temporarily as the only possible method for solution. In such a situation, care must be employed in choosing authorities and evaluating their claims to knowledge. One should check not only the credentials of authorities but also the arguments and evidence upon which they base their judgments.

When floods, famines or diseases terrify men, they use to appeal to their elders and accept their ancestral explanations for such incidents.

Ancient scholars like Plato and Aristotle, the early Fathers of Church, were accepted as sources of truth than first-hand experience and analysis of facts.

Modern man seeks advice from authorities for the solution of the problem faced by him. The authorities may be the persons who have had specialized training, with that problem and who have studied and thought much about it and have long experience in the area.

A judge may recognize a psychiatrist as an authority to testify the sanity of the defendant, or ask a handwriting specialist to compare signatures.

Tradition

Closely related to authority is tradition, upon which man depends for solutions to many of his problems. He unquestionably accepts many traditions of his forefathers a culture like the customary style of dress, food, speech and worship. Although automatic acceptance of tradition and custom is often necessary one should not always assume that everything that has customarily been done is right and valid. If we examine the historical records, we will find that many theories based upon tradition, which prevailed for many years were later found to be erroneous and had

to be rejected. One should, therefore, evaluate custom and tradition carefully before he accepts them as truth.

In school settings teachers often rely on tradition a past experiences as a dependable guide.

Experience

Personal experience is a useful method to obtain knowledge, but its uncritical use may lead to incorrect conclusions according to Van Dalen (1973, p.5):

A person may make errors when observing or when reporting what he has seen or done. He may (i) omit evidence that does not agree with his opinion, (ii) use measuring instruments that require many subjective estimates, (iii) establish a belief on insufficient evidence, (iv) fail to observer significant factors relating to a specific situation, or (v) draw improper conclusions based on personal prejudices.

In the light of these remarks, one should continually and critically use experience as an avenue for obtaining reliable knowledge.

In ancient times, nomads and various tribes from their personal experience probably remembered that certain wild fruits always made them ill, that grains ripened at particular times of the year, and that sudden floods in the rivers during the rainy season were due to the fact that water does not generally stay on hills.

When a person confronts a problem s/he often tries to seek its answers from his own expersonal experience or from other with which they are familiar.

Children often consult their teachers, parents or even their older siblings to desire answer to their questions.

Deductive reasoning

A significant contribution towards the development of a systematic method for obtaining reliable knowledge was made by Aristotle and his followers. Aristotle developed a thinking process through which a person proceeds from general to specific statements by deductive reasoning. It provides a means of testing the validity of any given conclusion or idea by proceeding from the known to the unknown.

On the basis of this fact Aristotle developed syllogism which consists of (1) a major premise based on a self-evidence truth a previously established fact a relationship; (2) a minor premise concerning a particular case to which the truth, fact, or relationship invariably applies; and (3) a conclusion. If the major and minor premises are true, the conclusion arrived at is necessarily true. To use a simple example, consider the following proposition:

1. All human beings are mortal (Major premise)
2. Robert is a human being (Minor premise)

Therefore, Robert is mortal (Conclusion).

Inductive reasoning

To determine truthfulness of premises, Francis Bacon stressed the need for basing general conclusions upon specific facts gathered through direct observations. This is what is known as inductive reasoning that is going from the particular to general. Rather than accepting premises laid down by authorities as absolute truths, Bacon advised man to observe nature closely, to experiment, to tabulate all the facts, to study these facts in order to reach minor generations, and then to proceed from minor generalizations to greater ones. He, however, cautioned against formulating any hypothesis or any probable solution to a problem until all the facts had been gathered. In deductive reasoning, the premises or generalizations must be known before a conclusion can be reached. But in inductive reasoning, a conclusion is reached by observing instances and generalizing from instances to the whole phenomenon. In order to be absolutely

certain of an inductive conclusion, all instances must be observed.

The scientific method

The scientific method is a back-and-forth moment of thought in which a man first operates inductively from partially known or sometimes confused information learned from experience, previous knowledge, reflective thinking, observation and so on, towards a meaningful whole or hypothesis, and then deductively from suggested whole or hypothesis to the particular parts in order to connect these with one another in a meaningful pattern to find valid relationships. In the words of Dewey (1933, p.87):

"While induction moves from fragmentary details (or particulars) to a connected view of situation (universal), deduction begins with the latter and works back again to particulars, connecting them and binding them together."

Although, in practice, scientific method involves a double movement of reasoning from induction to deduction, in its simplest form, it consists of working inductively from observations to hypotheses and then deductively from the hypotheses to the logical implications of the hypotheses in relation to what is already known.

What is research?

Research is considered to be the more formal, systematic, and intensive process of carrying on a systematic method of analysis. Scientific method in

problem-solving may be an informal application of problem identification, hypothesis formulation, observation, analysis and conclusion. You could reach a conclusion why your bike wouldn't start or why a fire occurred in an unoccupied house by employing a scientific method, but the processes involved probably would not be as structured as those of research. Research is a more systematic activity that is directed towards discovery and the development of an organized body of knowledge. Research may be defined as the systematic and objective analysis and the recording of controlled observations that may lead to the development of programmes, their generalizations, principles, or theories, resulting in prediction and possibly ultimate control of events. Moreover, research is an attempt to answer a problem. For example: why do young people take alcohol and drugs? Why is drop-out rate more in primary school level?

Research offers a way of examining and understanding the operation of human social affairs and provides accepted procedures that uncover thing which would escape our awareness. Things are not always what they seem, and research can often make them clear.

Research helps to find out a better way to view reality. If differs from the causal day-to-day inquiry. As it is a conscious activity we make a conscious decision to observe and acquire some specific information to test an assumption and also to ascertain relationships. Further, it is carried out in a scientific and systematic manner, not letting to be coloured by own prejudices and limited perspectives.

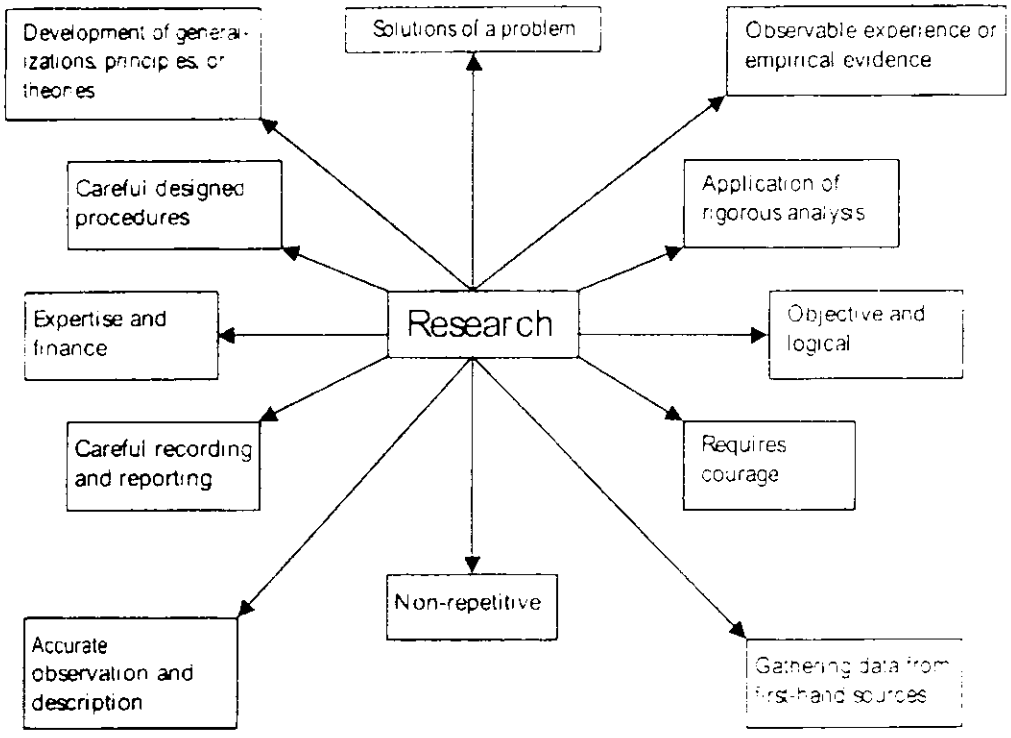

Fig. 1.1

As you can see from the above Fig., research is directed towards the solution of problem, which is non-respective. It emphasizes the development of generalizations, principles or theories and observable experienced or empirical evidence. Research demands accurate observation and description and involves gathering new data from first-hand sources. Although research activity may at times be somewhat random and unsystematic, it is more often characterized by carefully designed procedures, always applying rigorous analysis. Research also requires expertise as well as money. It strives to be objective and logical, applying every possible test to validate the procedures employed, the data collected, and the conclusions reached. It sometimes requires courage and is carefully recorded and reported.

Suppose you are working in the field of adolescent health. You might be a front-line provider, supervisor or planner you may be social worker. In any of these positions, some of the following questions may come to mind:

- How many malnutrition disease-affected patients do I see everyday?
- What are some of the most common conditions prevalent among the patients?
- What are the causes of these conditions?
- What do some people have a particular condition where others do not?
- What are the health needs of the community?

Purpose of accumulating knowledge through research

Knowledge through research is collected for a couple of purposes: one is for the sake of knowledge or satisfaction of intellectual curiosity, and another is for the sake of being able to do something better or in a more efficient manner. Again, for the first purpose, the theory of general assumptions is eventually constructed and for the second, the problems are solved by the community. Knowledge-oriented research is known as pure research and the other is termed as social research or practical kind of research.

Types of research

Research can be satisfied from three perspectives:

1. The application of the research study
2. The objectives in undertaking the research
3. The type of information sought.

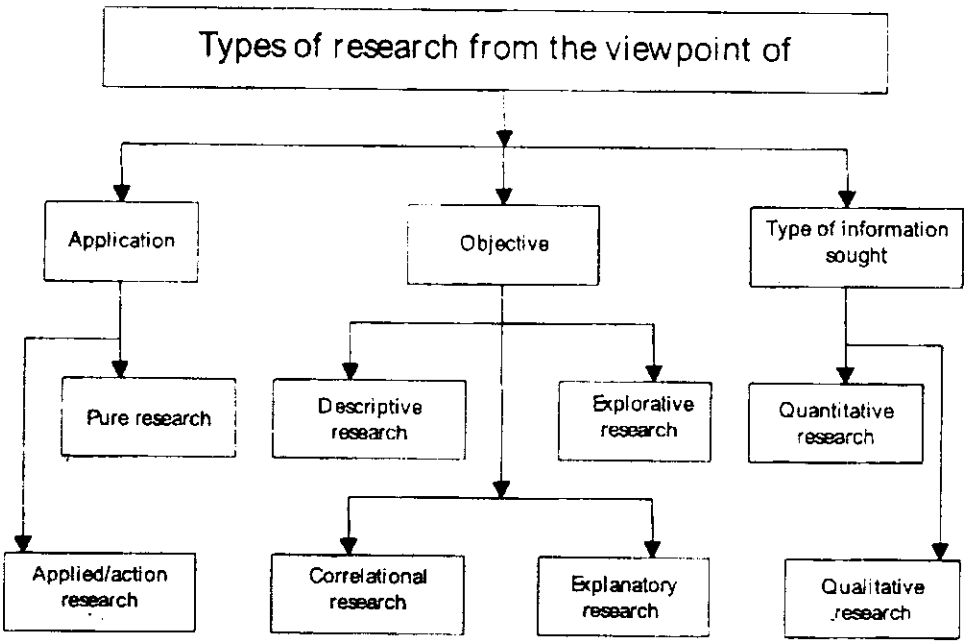

Fig. 1.2

If you examine a research endeavour from the perspective of its application, there are two broad categories: pure and applied/action research. Pure research is concerned with development, examination, verification, refinement of research methods, procedures, techniques and tools that form the body of research methodology. For example: to measure the stress level in youth; and finding the best way of measuring people's attitudes.

Most of the researches in the social science are applied. The research techniques, procedures, and methods that form the body of research methodology are applied to the collection of information about various aspects of situation, issue, problem or phenomenon so that information gathered can be used in other ways, such as, for policy formation, administration, and the enhancement of understanding of a phenomenon. Action research is similar to applied research but only difference can be that applied research may be carried out on a larger sample resulting into more universally applicable findings. As against this, action research will primarily be conducted on the immediately available small sample in order to solve the immediate problem for the same group. Applied research may quite often be carried out by experts, whereas, action research is primarily the concern of the field workers.

If you examine a research study from the perspective of its objectives, broadly, a research endeavour can be classified as: descriptive, correlational, explanatory or exploratory.

Descriptive research

Descriptive research attempts to describe systematically a situation, problem, phenomenon, service or programme, or provides information about, say, the living conditions of the community or describes attitudes towards an issue.

Correlational research

The correlational research discovers or establishes the existence of a relationship/interdependence between two

or more aspects of a situation. For example: what is the relationship between fertility and mortality? Explanatory research attempts to clarify why and how there is a relationship between these two aspects of a situation or phenomenon. For example: stress, which is an explanatory variable, is associated with heart attacks?

Exploratory research

Exploring research is carried out to investigate the possibilities of undertaking a particular research study. This type of research is also called a pilot study. It is usually carried out when a researcher wants to explore areas about which one has a little or no knowledge. A small-scale study is undertaken to decide if it is worth carrying out a detailed investigation. On the basis of the assessment made during the exploratory study, a full study may eventuate.

In third perspective in the typology, research can be classified as quantitative and qualitative. This quantitative-qualitative classification is dependent on three criteria:

1. the purpose of the study
2. how the variables are measured
3. how the information is analyzed.

The study is classified as a qualitative if the purpose of the study is primarily to describe a situation, phenomenon, problem or event; the information is gathered through the use of variables measured on qualitative measurement scales; and if analysis is done to establish the variation in the situation, phenomenon or problem without qualifying it. On the other hand, if you want to quantify the variation is a phenomenon,

situation, problem or issue, if information is gathered using predominantly quantitative variables, and if the analysis is geared to ascertain the magnitude of the variation, the study is classified as a quantitative study.

Self-help question 1.1

Here are some research statements. In each case, identify the suitable typology and put your answer in the box provided.

	Pure	Applied	Descriptive	Exploratory	Explanatory	Qualitative	Quantitative
1. The living condition of rural youth.	☐	☐	☐	☐	☐	☐	☐
2. The relationship between stressful living and the incidence of heart attacks.	☐	☐	☐	☐	☐	☐	☐
3. How a youth feels living on a house with domestic violence?	☐	☐	☐	☐	☐	☐	☐
4. How many young people take drugs in a particular community?	☐	☐	☐	☐	☐	☐	☐
5. Why stressful living results in heart attacks?	☐	☐	☐	☐	☐	☐	☐
6. The effect of child labour for national development.	☐	☐	☐	☐	☐	☐	☐
7. Measuring work-ability of youth.	☐	☐	☐	☐	☐	☐	☐
8. Causes of mate logging.	☐	☐	☐	☐	☐	☐	☐

Compare your answers with those provided at the end of the unit.

Identification of research problems

How do you identify a research problem? There is not a single way to do this. While observing or gathering some information, one may come across a new idea which may inevitably raise a question in his/her mind. For example: if a doctor is examining the patient suffering from heart problems, s/he may be interested to know the history of the patient, the community in which he lives, his occupation and may be other related factors. Curiosity may lead to enquire further questions like, clinical history of the patient, ECG report, Hb level, CHL level, SBP, DBP level, stress test, smoking habits etc. Then, it may be asked questions like: Are these patients were smokers? Do they have mental stress? Do they belong to specific region of the community? You would like to formulate this as a research problem like, "In this study, what is the main cause of heart disease? Which factor is dominant for the cause of heart disease? Your research problem may also look into correlation behaviour between various factors associated with heart disease.

One may come across a research problem i.e. how M.B.A. programme helps the working executives in developing skills and also to differentiate whether an M.B.A. is better than a non-M.B.A. on the same job? To formulate this as a research problem, one has to design a questionnaire relating to various aspects of the problem. This study is specifically made to find out in what ways M.B.A. programme can be made more useful from the practical point of view. Your first step is to design a questionnaire which include questions regarding:

(i) Background information

(ii) Education and employment

(iii) Objectives of joining M.B.A. programme and its attainment

(iv) Miscellaneous questions.

Background information

This part covers questions relating to age, gender, marital status, religion, number of departments, occupation and income etc.

Education and employment

Education and employment may be related to the questions like: educational qualifications, mode of school education, past and present employment, about changing organization after/during M.B.A., about applying the knowledge required through M.B.A. etc.

Objectives of joining M.B.A. and its attainment

This might include questions like: who inspired you to join M.B.A.? What was your objective of joining M.B.A.? Have you been benefited by this programme?

Miscellaneous questions

There may be some general questions regarding skills, decision-making, relationships etc. For example: Did this programme help you in developing skills? Which

particular areas like: marketing management/ general management/personal management etc. have been enhanced by the knowledge of this programme. Regarding decision-making there may be enhancement in mathematical programming, networking analysis, statistical techniques etc. Relationship may be in terms of intentions recommend this course to the others.

Once these findings have been obtained, next aim is to complete, tabulate, analyse, evaluate and interpretation of results regarding effectiveness of the programme.

There may be some other problems relating to this type of study e.g. what should be the appropriate sample size? Which group of the employees/students has to be included in the survey? Should the study be included in a particular university or a particular geographical region etc.?

In brief, any research problem can be tackled based on the following conditions:

- First-hand experience pertaining to the problem
- Existing literature based on similar studies
- Advice from the people who have gained sound knowledge in these types of studies.

Thus, the research problem, adequately, formulated, should have the potential to include all such details without making it an unmanageable guess.

Activity 1.1

Identify a research problem keeping in view some broad areas.

Unit summary

In this unit, you have covered the following main points:

- Some methods of acquiring knowledge
  - Authority
  - Tradition
  - Experience
  - Deductive reasoning
  - Inductive reasoning
  - The scientific method
- Concept of research
- Purposes of accumulating knowledge through research
- Types of research
  - Descriptive
  - Correlational
  - Explanatory
- Identification of research problems

Answers to self-helf questions

Self-help question 1.1

1. Exploratory
2. Explanatory
3. Qualitative
4. Descriptive
5. Explanatory
6. Quantitative
7. Descriptive
8. Explanatory