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# **UNIT 10 IDENTIFICATION OF PROBLEM AND FORMULATION OF RESEARCH QUESTIONS**

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## **10.1 INTRODUCTION**

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Research is an effort to seek answers to questions confronting the researcher. It seeks answers to questions, which have not yet been answered. Research helps in the development of generalizations, principles or theories, which open either new vistas of understanding in the relevant field of knowledge, or helps in verifying the existing knowledge. The research questions can be of quantitative or qualitative nature, and both require collecting the relevant data, their analysis and interpretation so as to arrive at some conclusion which provides the solution to a problem.

Research is a gateway to new knowledge that obviously depends on how meaningfully the problem has been identified and research questions have been answered. In the beginning, a researcher has problem blindness and perceives a very diffused, vague and a general view of a problem. Hence, the identification of a problem is the most

important and difficult step in the research process. It is a most thoughtful effort, even a little carelessness on the part of the researcher spoils the spirit of research. It is a systematic attempt to obtain answers to meaningful questions about a phenomenon through the application of scientific procedures. Problem identification and its formulation is inventive and individualistic rather than routine and mechanical. The identification of a research problem requires a great deal of patience and logical thinking on the part of the researcher. A beginning researcher finds the task of identifying a research problem a difficult one. This may be due to his limited knowledge of the research process and his unpreparedness for identifying the problem. He may also be unfamiliar with the areas in which research is needed and the procedure he is to follow for selecting a suitable field for research.

In this unit you will study about the nature of the research problem and its identification by using various sources. You will also understand the criteria for selecting a suitable problem for research. The suggestions for formulating research questions will also be explained to you.

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## 10.2 OBJECTIVES

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After studying this unit, you will be able to:

- discuss the nature of research problem;
- identify/ select the problem of research;
- list the criteria of selecting a suitable problem of research;
- describe the important sources of problem selection; and
- discuss the nature of research questions.

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## 10.3 NATURE OF A PROBLEM

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The research process has some important steps. Out of the most crucial steps is the selection of a problem. The problem of research has to be well focused and pinpointed. If a problem is meaningfully selected and formulated, it makes subsequent research efforts easier. Problem identification and its formulation makes the researcher psychologically engrossed, creates a sense of restlessness, arouses curiosities about finding solution to the problem in his/ her mind. Problems do not come from a vacuum; they are context specific.

There are two types of research problems: viz. those which relate to the state of nature and those which relate to the relationship between variables. For example, a problem stated as “Epistemological Realities in the Panchtantra” is a problem, which discovers the sources of knowledge in Panchtantra, hence, it is classified in first category of research. If the problem is stated as “the effect of television viewing on the values of children’, the study explains the relationship between variables i.e. television viewing and values of children, hence, it is classified in the second category of research. Thus, the problem of research should be such which will help in theory building, making generalizations, formulating principles that will form the basis for future generation of knowledge besides making an original contribution to the respective field of knowledge.

It has to be further seen whether the nature of research is quantitative or qualitative, since the problem formulation varies as the nature of research varies. Under this classification various other type of researches fall. For example, experimental and survey type of researches fall under quantitative researches whereas historical, ethnic and philosophical fall under the qualitative research. The following examples will make the distinction between qualitative and quantitative research more clear.

### **Quantitative Research**

'A comparative effect of inductive and deductive methods of teaching on the development of problem solving skills among 8<sup>th</sup> grade students' (Experimental Research)

'A study of values of secondary school teachers in relation to their socio-economic status' (Survey Type Research)

### **Qualitative Research**

'Development of Higher Education in Post-independent India' (Historical Research)

'Multicultural analysis of attitudes towards education' (Ethnographical Research)

'Metaphysical study of the literature of Swami Vivekanand' (Philosophical Research)

The essence of research, moreover, is to arrive at dependable solutions to the problem through a well thought out scientific procedure. This purpose is only served when the problem:

- aims at arriving at dependable solutions to the problem,
- makes useful generalizations and theory development,
- provides insight into the hypothesis formulation,
- provides the direction for the choice of research design, and
- helps in wiseful choice of statistical or other relevant methods of interpretations.

Kerlinger (1993) states the three criteria of a good problem:

- It should express a relationship between two or more variables.
- The problem should be stated clearly and unambiguously in question form.
- Statement of a problem must be such to imply possibilities of empirical testing.

Hence, a research problem which does not survive the above salient features can not be considered useful and worthwhile. A large part of the solution lies in knowing what one is trying to do. Another part lies in knowing what a problem is and especially what a scientific problem is.

#### **Check Your Progress**

**Notes:** a) Space is given below for writing your answers.

b) Compare your answers with those given at the end of the unit.

1. What are the two types of researches?

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2. What are the characteristic features of a research problem?

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3. State the criteria for a good research problem.

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## 10.4 IDENTIFICATION OF A RESEARCH PROBLEM

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Clear and concise identification of the problem is not an easy matter. Some research studies are pursued in such a way that it is difficult to determine what the researcher is trying to investigate. A most challenging situation for a researcher occurs when s/he feels bewildered and suffers with diffused perceptions of the situations amenable to research. Identification of a research situation is an important phase of the entire research process. It demands a great deal of thinking, searching and speculating on the part of a researcher. It consumes a lot of energy, time and effort. A beginning researcher finds it very difficult as to how to locate the problem situation. This may happen because s/he has limited knowledge of the research process. S/he may be unfamiliar with the areas in which research is needed and the procedures that he has to follow to identify a suitable area of research. Novice investigators have an unrealistic, glamorized conception of research problem. An investigator should follow the following major tasks in analyzing a problematic situation (VanDalen, 1973):

- (i) Accumulating the facts that might be related to the problem,
- (ii) Settling by observation whether the facts are relevant,
- (iii) Tracing any relationship between facts that might reveal the key difficulty,
- (iv) Proposing various explanations for the cause of the difficulty,
- (v) Ascertaining through observation and analysis whether these explanations are relevant to the problem,
- (vi) Tracing the relationship between explanations that may give an insight into the problem solution,
- (vii) Tracing the relationship between facts and explanations, and
- (viii) Questioning assumptions underlying the analysis of the problem.

The researcher may face problems in classrooms, in administration of a college and in all other areas of education such as the teaching-learning process, guidance and counselling, curriculum, textbooks, physically and mentally challenged children, etc. A research problem must be firmly rooted in knowledge. The researcher should first identify a general area in which s/he wishes to do research and then immediately set about reviewing the knowledge available in that area.

The researcher must first decide the area of his/ her interest and the purpose of his research endeavours. It must be the area of research where the researcher is capable of demonstrating necessary initiative, insight, critical analysis and judgemental capacities.

The identification of a problem situation follows the following procedural efforts on the part of a researcher.

- The understanding of the known theories, facts and ideas in the field of researcher's interest structures his/ her problem searching domain. The research focus is sharpened by what he already knows, what researches in his field have been conducted and what needs to be discovered.
- A problem situation of research may emerge from the researcher's curiosity about something shared, seen, felt or wondered about or through the natural interest of a researcher.
- Life situations, relationships established by related researchers and implications advanced by technological advancements constitute the problem situation.
- New knowledge in the field of researcher's interest coming through the new arrivals of books, journal and researches extend a situation for research.

- A survey of suggestions for further research given at the end of research reports and reviews of research projects, the gaps which are there in a particular field of educational research are helpful in keeping the researcher informed about what researches are going on in the field in which he has the competence and deeper understanding.

**Check Your Progress**

**Notes:** a) Space is given below for writing your answers.

b) Compare your answers with those given at the end of the unit.

4. What difficulties are faced by a beginning researcher?

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5. List the major tasks involved in identifying a problem situation.

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6. Detail the efforts made by researcher to identify a problem situation.

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## **10.5 SOURCES FOR SELECTING A RESEARCH PROBLEM**

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After the broad area of research interest has been identified, the researcher will proceed towards narrowing down it to a highly specific and focused research problem. At this juncture, it is not possible to list all the educational problems that are needed to be researched. The problems do not germinate in barren brains but rather in minds enriched by varied experiences and fertile layers of knowledge. Reading educational publications extensively will help to prepare an intellectual soil in which problem ideas are likely to sprout. There are various sources which are available to researcher and which help him to identify and specify the meaningful problem of research. These are mainly:

- Theory
- Experience
- Discussion
- Dissatisfaction
- Literature

### **10.5.1 Theory**

Scientific conceptions of the nature of things involve theories. The researcher should have some understanding of the nature of theory and should avoid trying to build theories that are too sophisticated. Theory is a set of generalizations arrived at by

carefully analysed and studied phenomena. The inferences that are drawn from psychological and educational theories when known to a researcher help in identifying the research area.

The application of principles that are derived from theories extend an authentic ground to locate the problem. For example, theories of learning – personality and motivation etc. have provided research initiatives that were used to improve upon the classroom teaching-learning situations, curriculum designing and evaluation. Therefore, the important source of the research problem lies in the inferences that can be drawn from various educational and psychological theories. The application of general principles involved in various theories to a specific classroom situation makes an excellent starting point for research and it will help to determine whether a particular theory can be translated into actual practice and also the validity, scope and practicability of various theories in educational situations. For example, if the 'Effect of Basic Teaching Model on a Teacher's Performance in Class is to be studied, the theory on which this model is developed becomes an important reference. Moreover, the theory:

- explains the phenomena under research proposed,
- permits the prediction of the occurrence/ occurrence of the phenomena,
- enables the investigator to postulate and eventually to discover hitherto unknown and unobserved phenomena,
- explains the relationship among various components, facts and principles,
- pinpoints the crucial aspects to be investigated and crucial questions to be answered, and
- helps the researcher to structure and restructure the domain of understanding,

Research and theory go together. If research is conducted without consulting a theory, it means that many essential aspects of theory that could guide and control the researcher's efforts are ignored. If the researcher intends to work in the domain of teaching and learning, then learning theories by Pavlov, and Skinner provide a frame of thinking as to how the researches in the area can be designed. Theory, of course, does not provide answer but it stimulates and controls research.

### 10.5.2 Experience

The best single way for a researcher to find a good research problem is to attach himself/ herself to a dynamic research environment, which increases the opportunities for finding and solving problems. Spirited intellectual discourses, in which ideas are presented, explained, analysed and challenged is a rich source of inspiration. Attending professional meetings particularly those in which papers are read and discussed, conferences with stimulating professors, lectures by eminent educationists, discussions with fellow research workers, part time job in research worthy of investigation provide clues needed for the solution of problems. Professors and research experts who have had experience in tackling a particular type of problem can help in telling the novice what can and what can not be successfully accomplished.

Examining the everyday experiences gives and inspires the problem. Everyday while encountering with students, equipments, tests, text-books, guidance, discipline, parents, curriculum and administration etc., some sorts of problems are faced. Thus, as a result of participating in various academic activities and interacting with researchers, fellow teachers, a researcher may confront problems of various nature, they may be psychology based, sociological, behavioural, administrative etc. The personal experience which the researcher gains help him/ her in the following ways:

- develops insight into sharpening the focus of research,
- experiences the relative usefulness of various issues that emerge in his/ her mind for research,

- explores the context for innovative researches,
- formulate the research problem more meaningfully and practically,
- equips the researcher with such understandings that s/he is able to identify the problematic situations, behaviours and issues for which solutions are not available and which need to be researched, and
- becomes a wiser researcher.

Thus, the personal experience that the researcher gains is a potential source of research problems to be identified and formulated.

### 10.5.3 Discussion

Discussion works as a brainstorming exercise. It helps in settling a problem. While discussing with researchers, professors and other intellectual persons, the shrinkages of mind are opened and then there is a germination of a seed of a new problem.

These discussions give chances to the researcher to get into close contact with crucial problems and issues concerning education. The researcher finds a group of individuals working enthusiastically on some enterprise and some of their enthusiasm will rub off on him/ her. Sometimes researchers have problems in their mind but they are not able to verbalise and give proper shape to the problem. It is discussions with his/her fellows and other senior professors that help him/ her to evolve a manageable research problem from the one which was very vague and complex. Discussion is a very useful resource of research problem identification.

The following are some of the advantages which the researcher gets out of discussion:

- Contemporary research areas capture the mind of a researcher.
- Certain ambiguities that the researcher initially has get clarified.
- The researcher is helped with new academic inputs to reflect upon problem situations and to come out with a suitable research problem identification.
- Many unknown hazards that the researcher may experience while identifying a problem situation become known to him/ her.
- The meaningfulness of the research problem in the mind is further judged, e.g. whether this research problem will make a significant contribution to the existing knowledge or not.
- The researcher may be able to make a clear classification as to how to classify his/ her problem-whether it will be fundamental, applied or action research.

### 10.5.4 Dissatisfaction

When a researcher attempts the identification of problem, s/he has to go through various situations-some satisfying and some dissatisfying. Research is a felt need of a researcher. Need itself leads to inadequacy and this inadequacy activates the researcher to design a course of action through which that need is fulfilled. The inadequacies and incompatibilities create dissatisfaction within the researcher for which s/he tries to identify the problem, which clearly shows the direction to the solution of a problem. After the researcher perceives the problem, for its proper identification and formulation he reviews the literature, discusses with people, consults recent books and journal and traces some flaws, gaps and inadequacies in his thinking. He may find it difficult to give a proper shape to his thinking and it becomes a gigantic task for him to formulate research questions. The dissatisfaction thus created, becomes a rich source of inspiration.

While working in the institutions, reading good books related to the problem area, the researcher is confronted with many dissatisfying situations that makes him problem sensitive, he then thinks about a problem, and comes out with a proper identification

and formulation of the research problem. These days information and communication technology has revolutionized almost every aspect of human life, and so it has deeply entered into the orbit of an educational system, consequently posing new challenges and input for thinking. The researcher experiences dissatisfaction in himself when he comes out with such problem situations as, impact of these technologies on mechanization of learning, impact on the source literature, etc.,

### 10.5.5 The Literature

The review and the survey of literature may help the researcher to expand his knowledge background, examine new findings in his field, identify gaps in knowledge, discover contradictions in findings and the need for fresh studies and their direction. Through his various readings he comes to know about various methods and techniques of research used by other researchers, learn about facts, phenomena concept, theories related to his field of research which may be useful to him/ her in the formulation, description and conduct of his study. The source literature consists of surveys, periodicals and journals, foreign and Indian books, encyclopedias, dictionaries, handbooks and year books, bibliographical literature and other references. Some specialized sources are Survey of Research in Education brought by NCERT, Dissertation Abstracts International, Handbook of Research on Teaching, Encyclopaedia of Educational Research, Psychological Abstracts, Educational Technology Abstracts, etc.

#### Check Your Progress

Notes: a) Space is given below for writing your answers.

b) Compare your answers with those given at the end of the unit.

7. What are various sources of problem identification?

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8. Illustrate the situations where theory helps the researcher.

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9. Explain the contexts where experience helps the researcher.

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10. Mention any three important advantages of discussion as a source of research problem identification?

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## 10.6 DEFINITION AND STATEMENT OF THE PROBLEM

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After the problem has been identified the next step is to state or define it in a form amenable to research. To define a problem means to put a fence around it, to separate it by careful distinctions from like questions found in related situations of need. The researcher must be certain that he knows exactly what his problem is before he begins work on it. Specifying a problem explicitly and narrowing it down to a workable size are extremely important at the very start. In the formal definition of the problem, the researcher is required to describe the background of the study, its theoretical basis and underlying assumptions, and state the problem in concrete, specific and workable questions.

A good statement of a problem must clarify exactly what is to be determined or solved. In stating a problem, the researcher should see that it is neither stated in so general terms as to become vague, with no clear indications of the direction of the study is to take, nor specified so narrowly as to become insignificant and trivial. The problem should be stated in such a way that it indicates a relationship between two or more variables. It should neither involve philosophical issue, nor values, or judgemental questions that cannot be answered by scientific investigation.

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## 10.7 RESEARCH QUESTIONS

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### 10.7.1 Formulation of Research Questions

A good statement of a problem must restrict the scope of the study to specific and workable research questions. These questions are the questions that the researcher would like to be answered or addressed. Research questions are the more specific situations from a general presentation of ideas. A researcher begins with a broad formulation of a problem, for example 'Information Technology'. From this he moves to a specific situation like 'Role of Information Technology' in developing teaching models. To study this problem, the researcher then reformulates the problem into a statement of intent or purpose 'how information technology contributes to developing teaching models' After this, the investigator still requires to narrow the intent to a specific question, "Can information technology help in the development of teaching models?"

Thus, after having studied a lot in the area of his interest, the researcher tries to ultimately decide what exactly should be his/ her problem of research. It is not always possible for the researcher to formulate his problem simply, clearly and completely. He may often have only a rather general, diffused and even vague notion of the problem. This is in the nature of the complexity of scientific research. If the problem has been formulated in either in a broad manner or in a narrow way it gives results which are either very vague or very trivial. This is the stage when he finally chooses or states the problem. The formulation of a problem needs the choice of a format of the problem whether the researcher will state the problem in question form or in simple statement. For example, 'What is the effect of innovative methods of teaching on the academic achievement of children?' This problem is in question form. The other format may be 'A study of psycho-social factors leading to the deterioration of values among adolescents' in a statement form.

An important consideration underlying the final statement of research problem is that it must be feasible and tenable. For example 'The role of teacher in the cognitive development of children' is a problem not possible to study. In fact it is not an answerable problem. It can, however, be made researchable by restating it as 'A study of the relationship of teaching style and problem solving behaviour of children'. It is specific, precise and trimmed to manageable size.

### 10.7.2 How to Specify the Delimitation?

Before the research problem is carried out, it should be bounded by boundaries, which gives an ample opportunity to view it from varied vistas, and also suggests the most promising approach to it. The researcher must eventually formulate one or more precisely stated research questions about a particular problem not in a fuzzy state of understanding. However, the following procedure may be followed to delimit the research question from a broad area of research.

- A preliminary explanation of the facts and theories relating to the problem area should be conducted.
- Specification of the variables that have to be exactly studied and delimited e.g. intelligence and creativity. At the time of defining them, many problems creep up such as : are all the indicators of intelligence related to creativity? What indicators of creativity should be taken in this investigation? Which indicators of intelligence are related to creativity? what precisely are the factors related to the investigation? etc.
- Indication of relationship between one or two variables.
- The selected problem should not be too broad or too narrow.
- Trimming of an investigation to a manageable size, to fewer variables, to smaller geographical area, sample and segment of time. The researcher may break down the original problem into several sub-problems or sub-questions. Some times two or more sub-questions are incorporated in one study. Because of time, cost and other considerations the researcher may have to reduce the scope of his investigation. Therefore, the problem should be specified in following aspects;
  - Certain variables
  - Size of sample
  - Nature of sample
  - Method and design indicated
  - Tools and techniques
  - Geographical area

The following example will illustrate how delimitations are specified :

“What is the effect of levels of socio-economic status on the academic achievement of 8<sup>th</sup> grade researchers?”

In this research question variables have been specified i.e. socio-economic status and academic achievement are the variables, sample i.e. 8<sup>th</sup> grade researchers have been delimited and then what is to be done is also specified.

Thus, the delimitations are observed in terms of variables, sample, tool, statistical technique etc.

### 10.7.3 How to Frame a Question Statement?

The purpose of statement of research is narrowed in the form of research question statement. Question statements are interrogative statements that narrow the purpose statement to specific questions that researcher seeks to answer in his/ her study. In both the types of research, quantitative and qualitative, question statements are framed. In quantitative research, the question statement explains the relationship among variables while in qualitative research, the question statement includes a central phenomenon to be explored. Research questions are typically framed at the end of the introduction of the statement of the problem section or immediately following the review of literature.

While formulating a research question, the following process is tenable:

- Pose a question

- Begin with how, what or why
- Specify the independent, dependent and control variables or specify a phenomenon
- Use such words as describe, compare, relate or indicate the action or connection among the variables.
- Indicate the sample and population

Three popular forms are available to frame the question statement i.e. question, relationship and comparison. The following examples appropriately explain the three form of question statement.

#### **Question form**

How can Computer Assisted Learning (CAL) foster better student learning?

#### **Relationship form**

What psycho-social factors relate to cognitive development of researchers?

#### **Comparison**

What is the comparative effect of inductive and deductive methods of teaching on the achievement of 8<sup>th</sup> grade researchers in mathematics?

### **10.7.4 Suggestions for Formulating Research Questions**

Adequate formulation of research question statement is one of the most important parts of research. At a point of time when question statement is framed, the researcher must not have lost of sight of the ultimate desirability and necessity of doing so nor should any difficulty be used as a rationalization to avoid stating the problem. The research questions differ greatly and there is no one right way to state them. Certain characteristics of problems and problem statements can be learned and used to good advantage. However, there are some suggestions, which if followed, result in good research question statements being framed.

- Research questions must explain the relationship among variables.
- Research questions should not be vague e.g. what is the issue of illiteracy. ?
- Specific problem to be solved must be indicated e.g. what is the effect of intelligence on achievement?
- Research questions should be researchable and feasible. These must be within the reach of a researcher and must contribute to the quantum of knowledge.
- It must specify the activities of the researcher. A good research question monitors the researcher's efforts.
- It must not involve any philosophical issue or value judgement.
- It should be observed that the problem's solution fills the gap in the existing knowledge or helps resolve some of the inconsistencies or the interpretation of known facts.
- The scope of the investigation or the limits within which the problem is to be studied must be mentioned explicitly in stating a research problem.

### **10.7.5 Characteristics of Research Questions**

The problem that is eventually isolated for a research purpose is stated preferably in terms of a question or statement form for which the proposed research is designed to obtain an answer. Good research questions must have the following characteristics:

- Research questions must be amenable to research.
- Research questions be based on a solid theoretical basis.

- A good research question must explain the relationship among variables.
- The research question should not be vaguely formulated.
- It should equip the researcher with insight into what can be done, what relevant data be gathered to find the answer.
- It must serve as a guide for planning the study and choice of statistics for interpreting the results.
- The solution of the research question must provide an advance knowledge in the field appreciably without violating the human rights of the people.
- The solution of the research question should be of a practical or theoretical value to educators, parents social workers or others.
- The breadth of the application of the findings should be in terms of range of individuals and years of applicability should be wide.
- It must lead to the development of other investigations.
- The solution of research question should be well within the reach of a researcher in terms of his competency, accessibility to data, financial resources, time at his disposal, his/ her determination and other related considerations.

The following few examples will illustrate all the above characteristics of research question.

- How does home work influence the problem solving behaviour of children
- What is the effect of cooperative and competitive learning on the cognitive development of children?
- What is the relationship between the learning styles and learning types of gifted and creative children studying at secondary level?
- Is there any relationship between child rearing practices and cognitive development of children?
- What is the relationship between the learning styles and learning types of gifted and creative children studying at secondary level?
- How the communication network influences the academic achievement of primary school children with regard to their intelligence and personality type?
- What classroom factors lead to the development of self-regulated learning?

### **10.7.6 Objectives of Research Questions**

The main function of research is the creation of new knowledge and the verification of existing knowledge consistent with the scientific research today. It is viewed as a process. The process is cyclical. It typically begins with a problem or issue that needs to be studied and ends with a written report. Thus, the whole process has to emanate from the objectives of research questions, which are directed :

- To make the research questions amenable to study and find the solution far.
- To result into the development of new theories, principles or laws by determining the relation between two or more variables. The research having this type of objectives contributes basic knowledge to the human knowledge.
- To explore the new facts and relationships.
- To eliminate the personal bias.
- To facilitate the scientific process of conducting the research.
- To help in specify the design of the study, the method of analysis of data and interpretations.

When considering a problem which the researcher may undertake for investigation, s/he is required to ask himself/herself a series of questions about it. The questions are: Is the problem researchable? Is the problem new? Is the problem significant? Is the problem feasible for the particular researcher? These questions are helpful in the evaluation of the problem on the basis of personal suitability of the researcher that on social value of the problem. All these questions must be answered affirmatively before the study is undertaken.

**Check Your Progress**

- Notes:** a) Space is given below for writing your answers.  
b) Compare your answers with those given at the end of the unit.

11. What are delimitations in research? Why should a research have delimitations?  
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12. What are the major forms of formulating research question?  
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**10.8 LET US SUM UP**

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In this unit, the attempt was made to illustrate how the research problem is identified and studied. The selection of suitable and relevant research problem is a systematic process. While identifying the problem the existing literature is to be reviewed and the various sources i.e. theory, experience, discussion, dissatisfaction and literature have to be relevantly used. How the research questions are stated have also been exemplified. A mechanism has been explained as to how to formulate the research questions and what considerations should be kept in view to make the research questions worth studying.

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**10.9 UNIT-END ACTIVITY**

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- Go through any five M.A. (Education) or M.Ed. dissertations. Examine the rationale behind selection of the research problems. Do you consider the rationale justified? Substantiate your answers.

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**10.10 POINTS FOR DISCUSSION**

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1. Do you think that the nature of research questions would be different for science and education? Why?
2. Why is the research question important?

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## 10.11 SUGGESTED READINGS

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- Ary, D., Lucy C. Jacobs, and Asghar Razavieh (1972): *Introduction to Research in Education*. New York: Holt, Rinehart and Winston, Inc.
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## 10.12 ANSWERS TO CHECK YOUR PROGRESS

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1. Qualitative research, Quantitative research
2.
  - a) A research problem leads to dependable solutions
  - b) It contributes to useful generalizations and theory development
  - c) It provides insight into the hypothesis formulation.
  - d) It provides the direction for the choice of research design.
  - e) It helps in wise choice of statistical or other relevant methods of interpretations.
3. The three major criteria of a good research problem are :
  - a) It should express a relationship between two or more variables.
  - b) It should be stated clearly and unambiguously in question form.
  - c) It should be stated so as to imply possibilities of empirical testing.
4. Due to limited knowledge of the research process, a researcher finds it difficult to identify a suitable area of research.
5. The tasks involved in identifying a research problem are:
  - a) To accumulate the facts that might be related to the problem
  - b) To decide whether the facts are relevant.
  - c) To find out the relationship between facts that might reveal the key difficulty.
  - d) To propose various explanations for the cause of the difficulty.
  - e) To ascertain whether these explanations are relevant to the problem.
  - f) To trace the relationship between explanations that might give an insight into the solution of the problem.
  - g) To trace the relationship between facts and explanations.
  - h) To question assumptions underlying the analysis of the problem.
6. The efforts made by the researcher to identify a problem situation are:
  - a) To decide the area of his / her research
  - b) To understand the known theories, facts and ideas in the field of researcher's interest.

- c) To identify a problem situation in the light of life situations, relationships established by related researchers and implications advanced by technological development.
  - d) To identify a problem for research in the light of knowledge received from books, journal and researches.
  - e) To identify a problem for research from the suggestions for further research given at the end of research reports.
7. Theory, Experience, Discussion, Dissatisfaction, Literature.
  8. Various educational, psychological, philosophical and sociological theories provide a researcher a lot of insight to identify a research problem. For example, how learning is constructed by a learner is a problem which can be researched by a researcher after going through constructivism.
  9. Experience is the great teacher. One can formulate research problem based on his/her experience as a teacher while teaching in the class, organizing some co-curricular activities, guiding some project assignments or evaluating students' responses in the examination.
  10.
    - i) Contemporary research areas capture the mind of a researcher.
    - ii) Certain ambiguities the researcher initially has to get clarified.
    - iii) The researcher is able to classify as to whether his problem is fundamental, applied or action research.
  11. Delimitations are boundaries which are put by the researcher in terms of variables, sample, tool, statistical techniques, etc. They give a broad perspective to view the research problem.
  12. Three major forms of formulating research questions are:
    - a) Question form
    - b) Relationship form
    - c) Comparison form