UNIT 3 DEFINING AND FORMULATING RESEARCH PROBLEMS

Structure

3.0 INTRODUCTION

In the previous units you were introduced to the concept, nature and scope of research. You have read the tenets of scientific research and various classifications and applications of communication research. In this unit, we shall discuss the process of selecting and formulating a research problem. In this regard, conducting survey of available literature is the most important step, though, peers, sponsoring agencies; researcher's own observation of the environment can also suggest a research problem. Once the broad area has been selected, it is then necessary to formulate the research problem in terms of specifics such as research questions, objectives and hypotheses. For this, a review of existing literature in the concerned discipline becomes essential. The more specific and clear you are, the better, since well begun is half done. If you are clear about what you want to research, then how you are going to conduct your research is merely its logical extension.

It is also important to understand the constituents of the terms of enquiry i.e. concepts, constructs and variables. It is their varying values in terms of occurrence, degree of intensity, nature of direction etc. that enable us to draw conclusions about the associations, correlations and causality that exists in human and social phenomena at any given point in time and space.

3.1 LEARNING OUTCOMES

After working through this unit you should be able to:

- differentiate between a social and a research problem;
- identify the factors that determine the selection of a research problem;
- discuss the importance of review of literature;
- define hypotheses and explain its various types;
- discuss concepts, constructs and variables; and
- explain the need and importance of operational definitions in research.

3.2 SELECTING THE RESEARCH PROBLEM

In this section we will focus on the difference between a social problem and a research problem. We will also explain the importance of review of what has already been studied so that you do not end up 'rediscovering the wheel' unless you are interested in replicating previous studies in order to test or strengthen existing theories. We will finish this section by outlining various factors that go towards making the final decision regarding the selection of research problem.

3.2.1 Difference between a Social Problem and a Research Problem

A social problem involves society at large and therefore has a broader framework than a research problem. A research problem has a limited context that primarily involves either academia or industry. Social problems also deal with a range of issues from politics, culture and religion, while research problems are often limited in scope and are well defined.

A social problem has the element of public concern while a research problem can exist at the level of curiosity alone i.e. when a scientist does research just because s/he wants an answer to a question. It can also exist at the level of profit, for example, when a manufacturer wants to identify the optimum market for a new product.

A social problem (riots, global warming, female foeticide etc.) exists irrespective of the researcher. The researcher, on the other hand, formulates a research problem, for instance, s/he could be interested in the role of media in covering communal riots or awareness of female foeticide.

A social problem deals with mandatory (e.g. the legal age of marriage is 18 years) or normative propositions (e.g. Literacy should serve as the foundation of a nation). A research problem deals with propositions that can be proved or disproved through empirical determination. For example, early marriage leads to health problems or literacy leads to social awareness. The validity of both these statements can be tested through research.

A social problem serves as a trigger or a launch pad for the formulation of research problems. Research findings, on the other hand, provide descriptions, explanations, predictions and solutions to social problems. For instance, research could establish that motherhood at a tender age is associated with death of the

mother during childbirth or higher risk of infant mortality. Therefore we can say that the findings of research studies enable the framing of mandatory propositions/ laws/policies.

A social problem is a one-time problem. It finishes once it is tackled or until it emerges again. A research problem is formulated by the researcher and can be repeated as per his/her requirement. In this regard, experimental research studies set up in laboratories are a case in point.

A social problem causes disruption in the smooth running of the social order while a research study causes no such disruption other than minor intrusions into the respondents' lives.

A social problem can be dealt with by using intuitive thinking, common sense etc. while a research problem is dealt with using scientific thinking based on empirical logic and reason. Moreover, a social problem can arise all of a sudden, necessitating spur of the moment decisions. A researcher on the other hand systematically proceeds to identify, formulate and lay down a procedure to study a research problem and only then starts data collection and analysis.

3.2.2 Importance of Review of Literature

After the identification of the broad area of study and before the finalisation of the research topic, it is important to consider certain relevant factors. This is where the importance of the review of literature comes in. Existing literature available on our chosen research topic is reviewed with the aim to ensure that our topic is relevant, feasible and achievable within a particular time frame, budget and infrastructure.

Review of literature economises efforts and maximises profit. It gives you an idea of what kind of research has already been done, by whom, where, when and how. As an extension, it also tells you which aspects have been largely ignored or which methodologies have not been used – in effect it allows you to identify the research gaps in subject matter, theoretical perspectives, methodologies etc. You can then decide to either replicate previous research and thereby strengthen existing theory or take up new areas and thereby revise existing theory or formulate new explanations for existing phenomena. A review of literature gives you an idea of the practical problems faced by previous researchers as well as take up on their suggestions for further research. Review of literature also gives inputs regarding methodology, terms of inquiry as well as gain an insight into defining the variables you intend to study in your own research.

Literature refers to all information in printed or oral form that is available on your topic of research interest. For review of literature, one can consult: Indices – these contain alphabetically organised listings of research articles under subject, title and author headings as also information regarding from where the article can be sourced,e.g. Social Sciences Citation Index, Humanities Index, etc.Unit 6 deals extensively with this topic.

Bibliographies are akin to indexes other than that they concentrate more on periodical/journal literature. A bibliography can also be limited to just books published in a particular discipline during a specific period.

Compilations of Abstracts can also be consulted. These are typically arranged according to subject matter and author and contain summaries of specific published articles. In that sense they are more beneficial since one can decide to consult the full study on the basis of whether the abstract's relevance to one's study e.g., Dissertations, Abstracts, International. Journals and Periodicals are other sources of literature. They are publications of a fixed periodicity and discipline which contain full papers, articles, reviews etc.

Books and Encyclopaedias are also consulted for an exhaustive analysis and overview of one's interest area. Encyclopaedias can be particularly useful for framing operational definitions.

General and professional/trade publications are other sources. Articles for the layman appearing in newspapers and magazines can provide interesting perspectives on complex problems in communication and media for researchers to pursue. Many trade publications are published in films, advertising, public relations etc. which can provide case studies in respective areas.

The Internet is an immense source of information. The only drawback is that one has to be careful regarding the credibility of the information that one sources online. It is advisable to refer to the websites of recognised journals and research institutions.

3.2.3 Questions of Relevance, Feasibility and Achievability

A good research topic is one that can be related to a theoretical frame of reference. For instance, if you are interested in doing research in advertising, you can refer to the Uses and Gratifications theory, Diffusion of Innovations theory etc. or any other theory discussed in detail in the Course on Communication and Media Studies. This will not only root your research in an existing body of theory, but also make it easier to identify potentially fruitful questions. This theoretical base will also enable your research to find its niche in the existing well of knowledge since your findings will either support the existing theory or help revise it. Even if you are doing research in a completely new area, you can still consult theories from related disciplines and develop a better understanding of your subject. For instance, if you are researching social media addiction, you can always draw upon theories from the discipline of psychology and link them to the study of a mass medium. Review of literature of existing research studies helps to determine how relevant your research would be in respect of the existing knowledge – will it fill a gap, will it strengthen it – in other words, is your chosen research problem significant?

One also needs to determine the feasibility of the topic before starting work on it. A topic might prove unsuitable for investigation simply because the question being asked cannot be answered with the facilities and information currently available. For instance, there is no point taking up a topic that requires classified information for the analysis or any other information that cannot be legally obtained. You may not have the necessary budget or infrastructure to use a required technology to investigate the problem. Often, the necessary technology may not even exist. For instance, it is only now that we have technologies like brain mapping to determine how individuals react to message stimuli.

Moreover, a topic does not lend itself to productive research if it requires the collection of data that cannot be observed or measured with validity or reliability. If controlling for error is an important consideration for you then such a topic may not be very feasible. It is equally important to have a very clear idea of one's own capabilities. If one is not a team person then it would not be feasible to take up a topic that requires large-scale collaboration. Similarly, it is better to take up a qualitative study if one is not comfortable with numbers or statistical analysis.

Before finalising one's research topic, one also needs to address the question of achievability. You might be engaging in research for the fulfilment of the requirements of a degree, such as a dissertation. Quite naturally, you will be working on a deadline if you have got a research grant or a fellowship for a specific period. Therefore, it is important to ensure that your research topic is not too broad and unwieldy. One tip is to write down your proposed title and then attempt to dissect the topic into small questions. For instance, Computer-mediated Communication as a tool for social relations – this working title will immediately ensure that you draw up boundaries and concentrate on this aspect in order to arrive at closure within a specified time period.

Check Your Progress 1

Note: Use the space below for your answers

Compare your answers with those given at the end of the Unit

1) List two differences between a Social problem and a Research problem.

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2) List the sources of information for conducting a review of literature.

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3) How can you determine the relevance of your topic?

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3.3 FORMULATING THE RESEARCH PROBLEM

In this section we will focus on how to formulate the terms of enquiry for your research. These primarily constitute research questions, objectives and hypotheses. It is not necessary that all three be included in every research study. For instance, when conducting exploratory research you may just have some research questions and objectives. You may have research objectives and hypotheses in more structured studies that address issues of association, correlation and causality.

A study does not necessarily become weaker in the absence of hypotheses. The importance of formulating the terms of enquiry lies in the fact that it narrows down the research problem to a manageable specificity, lays down the extent and limits, identifies the relationships proposed to be significant – in short all that you hope to achieve through your study.

The important thing to be kept in mind is that there is coordination in the formulation of the terms of enquiry. For instance, if your research question is 'whether demographic variables impact on internet usage', then the corresponding objective should be to collect data pertaining to the demographics of the Internet user as well as his/her Internet usage patterns. It is only when you have this data that you will be in a position to answer your research question. How the question is answered will prove or disprove your research hypothesis that perhaps could be that 'socio economic status and frequency of Internet use is positively co-related'.

3.3.1 Research Questions

Research questions are usually asked in exploratory research when not enough is known about the research area to justify the framing of categorical hypotheses at the outset itself. Since the researcher is working in an area that has only been studied marginally or not at all, s/he may be unsure of the existence of the determining factors or of the interrelationships. At this point, research is a knowledge-gathering exercise rather than verification. So s/he asks a series of questions, gets many answers, looks for patterns and it is only at the end of research that s/he may be in a position to frame hypotheses to be taken up later in a more structured study.

3.3.2 Research Objectives

When a researcher is working in an area for which extensive literature is already available, it acts as a facilitating mechanism for him/her to straightaway frame the research objectives followed by research hypotheses. The latter is in the nature of an answer – a tentative proposition, the validity of which remains to be tested. For instance, s/he can directly list a hypothesis – 'media consumption and need gratification is positively correlated' – without having to first frame it as a question. While framing the objectives, you have to keep in mind that they should be exhaustive and logically sequenced. For instance, an objective to determine media usage patterns should be listed before an objective about studying the reasons for those patterns. Also, it is important that only those objectives are listed that are empirically achievable; i.e.,amenable to being observed or measured.

3.3.3 Research Hypotheses

As mentioned earlier, a hypothesis is a tentative generalisation, the validity of which remains to be tested. Hypotheses enable to test existing theories, suggest new ones as well as help to describe social phenomena with a certain degree of certainty. For instance, a hypothesis such as 'the more the exposure to televised violence, the stronger the belief in a violent world', enables you to put George Gerbner's Cultivation theory to the test. Similarly, a hypothesis such as 'communication breakdown between couples is the primary factor for divorce', if proved, enables you to describe the reasons behind divorce rates in the country. The importance of hypotheses in a research study lies in their ability

to bring direction, specificity and focus. They help us to control the intervening variables and enable decision- making and policy formulation.

Hypotheses can be classified on the basis of various criteria; on the basis of source, level of abstraction, on the basis of composition and functionality.

On the basis of source:

a) The researcher can frame a hypothesis on the basis of his/her own perception or intuition regarding a particular phenomenon. For instance, a researcher may belong to a family where the men only discuss issues regarding their work or business while the women only discuss domestic issues. The researcher here draws upon one's personal experiences and hypothesises that 'conversational engagement is associated with identity perception'. These kinds of hypotheses have an important contribution in building up theory and are useful in exploratory research since they bring forth interesting questions.

b) The researcher can frame a hypothesis on the basis of existing theory. The genesis here lies not in his/her intuition but in the findings of specific research conducted to study a particular phenomenon. For instance, s/he can take up the want-get ratio formulated by Daniel Lerner and seek to replicate it. S/he too may find that this ratio regularly operates in underdeveloped countries while not so much in the developed world. S/he may also identify gaps in existing research and frame a hypothesis accordingly. For instance, one may find loneliness as a factor in media consumption has not been studied, so s/he can frame a hypothesis such as 'social support and media consumption are associated'.

Level of abstraction:

a) Level of commonplace impression: These kinds of hypotheses are in the nature of an observation about some empirical uniformity in respect of the phenomena under study. The focus here is on the descriptive, for instance, 'male reporters cover hard core reporting'.

b) Level of conceptualisation: These hypotheses are based on existing theory where a hypothesis has been more or less proved but is open to falsifiability. For instance, the Two-step flow hypothesis is relatively well-established in understanding how information flow takes place in remote areas. Here, information is routed through the local opinion leaders like the *sarpanch* etc. rather than directly through the mass media.

c) Level of specification: These hypotheses specify the nature of relationship between the variables that constitute the hypothesis. A hypothesis may state that something tends to be accompanied by something else i.e. it states the association between the variables - 'Education is associated with civic awareness'. Specifying the degree and direction of the relationship can also state a hypothesis, e.g. 'Increase in leisure time leads to increase in media consumption'. A hypothesis can also be stated in terms of a causal relationship between variables - 'Continuous exposure to computer screens causes dry eye syndrome'.

On the basis of composition/complexity:

a) A simple hypothesis is one that has only one or two variables. For instance, Times of India is the largest circulated newspaper in India'. Or 'Age and Internet usage is associated'.

b) A complex hypothesis is one that has more than two variables. For example, increase in age and socio-economic status leads to increase in media consumption'. These hypotheses are more difficult to test because more the variables in a single hypothesis, the more difficult it is to assess their interrelations - quantitatively and theoretically.

On the basis of functionality/testability:

a) A theoretical hypothesis is stated in terms of abstract concepts and is untestable in any direct sense.

b) A research hypothesis is derived from the above but is stated in such a way that it can be tested i.e. it is a functional or a testable or a working hypothesis. Most research methodologists recognise only two hypotheses under this category – Research hypothesis and Null hypothesis. The theoretical and the statistical hypothesis are assumed to be understood as part of the research hypothesis. Here the hypothesis is stated in terms of some operations to be performed i.e. construct language is used. For example. 'IQ levels and comprehensive abilities are positively correlated'. To be able to prove or disprove this hypothesis the constructs of IQ and comprehension are measured with the help of test instruments. To determine the IQ any standardised IQ test can be used. To measure comprehension we could construct a test instrument such as a reading passage followed by questions – the respondents' test score will rate their comprehension capability.

c) A null hypothesis can be deemed to be the reverse of the research hypothesis or its negation. To take up the above example, the null hypothesis would be, 'IQ levels and comprehensive abilities are negatively correlated' or 'IQ levels and comprehensive abilities are independent of one another'. It is the null hypothesis that is actually tested in research. This practice is followed by convention and also because by testing the null hypothesis first, the researcher is declaring his/her objectivity. Since the null hypothesis is a denial of what researcher holds to be true, by according it priority, s/he declares that s/he is giving all the alternatives first chance to be proved.

The concept of null hypothesis is based on the law of probability. The research hypothesis and the null hypothesis are alternative statements. Both have the probability of being true or false, so if one is proven, its alternative, by logic, is considered disproven (though it should be noted that neither the research hypothesis nor the null hypothesis can be absolutely true or absolutely false under any given test of it. That is why we say that the data failed to support the hypothesis or that the data failed to reject the hypothesis). Moreover, it seems easier to prove something false than to prove it is true – one can say that there could be many reasons for a particular effect, but this one is not the cause.

d) A statistical hypothesis refers to the technical form in which the hypothesis is stated for purposes of a statistical test, i.e. it is stated in a manner that makes

it amenable to the application of the relevant statistical tests of significance. The data is quantified, confidence levels are set, tests are applied, values are obtained and checked to determine whether they fall in the area of rejection or acceptance. It is important to note the difference between significance and importance in research methodology. The former is mathematical while the latter is subjective, based on experience and judgment. A hypothesis may be rejected on the basis of it not clearing a statistical test, set to certain parameters, but that does not mean that it ceases to be important.

Check Your Progress 2

Note: Use the space below for your answers

Compare your answers with those given at the end of the Unit

1) When are research questions asked?

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2) What is the importance of hypotheses?

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3) Define a Null hypothesis.

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3.4 DEFINING THE TERMS OF ENQUIRY

In this section you will study how hypotheses are framed. The criterion of a good hypothesis is that it should be clear and concise regarding what is to be studied and how. In that sense it should also be testable. Whether the hypothesis is merely descriptive or analytical, it will always have one or more variables that have to be observed or measured. In certain instances this task is easy while in other instances procedures have to be put in place so that the observation or the measurement can take place. Since we are dealing with human and social phenomena, we also have to understand that the same phenomena can have multiple meanings depending upon the context of time, situation and person. Therefore, it becomes important to understand how variables should be defined for a specific research study in order to ensure that the findings are understood in the right perspective.

3.4.1 Concepts

Concepts can be referred to as observables i.e. they are terms that have direct empirical referents. A concept is formed by summarising related observations of characteristics that are either directly observable or easily measured. For instance, income is a concept that can be deduced through observations of a person's lifestyle or directly measured in terms of monthly/annual income. We can say that a concept is a term formed by generalisation from particulars. We can examine the properties of a particular book – size, weight, thickness, paper quality, print, subject matter, ratio of visual content to verbal content etc. and slot it in the genre of text books, reference books, fiction and so on.

3.4.2 Constructs

Constructs can be referred to as non-observables as they cannot be easily related to the phenomena they are intended to represent. They have no direct empirical referent i.e. they are not directly part of our empirical world. For instance, anxiety, violence, faith, intelligence, social prestige, attitudes and so on. You cannot point to something and say this is faith. To be able to observe or measure faith you will have to frame certain parameters or indicators to do so and depending upon how many of those parameters are met, you will be able to state the quantum of faith possessed by a particular person or group. Therefore, we can say that constructs can be defined as higher level abstractions as they are constructed from concepts at a lower level of abstraction. Often researchers construct their own indicators to concretise a phenomenon that is relatively abstract or they combine concepts to explain a construct. In that sense its exact meaning relates only to the context in which it is found. For instance, to measure the construct of social status, a researcher may combine the concepts of income, education and occupation etc.

3.4.3 Variables

A variable is the empirical counterpart of a concept or construct. It is capable of taking on different values, thus in effect a variable is something that varies. Variables are important because they link the empirical world with the theoretical – they are the phenomena and events that can be measured or manipulated in research. A person's age varies in terms of years, income varies in terms of money earned, and intelligence varies in terms of scores achieved on an IQ test and so on. Variables are used by a researcher to measure how they affect other variables. They can also be manipulated to study the corresponding effect of this manipulation on other variables. Researchers try to test a number of associated variables to develop an underlying meaning or relationship among them. After suitable analysis, the most important variables are retained. These are referred to as marker variables and continue to be built upon as research continues in a particular area. Variables can be classified according to the manner of their usage.

a) Independent variables are those that are systematically varied or manipulated by the researcher. Dependent variables are those that are systematically observed for concomitant variation as a result of the manipulation of the independent variable. For instance, to measure whether the camera angle has any influence on the credibility that a viewer attaches to a news reader, a researcher may shoot the same news bulletin using three different camera angles – top, low and eye level. S/he then shows this news bulletin to three

different groups of people and asks them to rate how credible they perceive the news reader to be. S/he may find that the group that was shown the news bulletin where the news reader is looking directly into the camera found the bulletin to be most credible.

In this example, the camera angle is the independent variable and the effect of its variation is measured on the dependent variable i.e. credibility. Since this is an experimental study and there is active manipulation of the independent variable, this variable can also be referred to as the active variable or the manipulated variable or the experimental variable. The dependant variable here can also be referred to as the passive variable or the measured variable. In non-experimental research where there is no active manipulation of variables, different terms can be used – the variable that is used for making predictions or is deemed to be the cause of something e.g. if poverty is present, so will illiteracy, this variable can also be termed as the predictor or the antecedent variable while the variable that is predicted to be result or is assumed to be affected, is called the criterion variable.

b) When specifying relationships in a hypothesis, it is important to account for or control for the extraneous or the intervening variables. If this is not done then the findings may be erroneous or invalid. For instance, we may have hypothesised that education leads to modernity. We collect data regarding the two variables and prove or disprove the hypothesis accordingly. But it may so happen that even though education does impact on whether a person develops a more modern outlook or not, but no amount of education will greatly change a person's outlook unless his/her family is also a progressive one. But since we have not factored in the variable of family background, we have erroneously held education to be responsible or not responsible for a modern outlook while actually the causal variable had been the family background.

Since, in human and social phenomena many factors combine to create a particular effect, it is important that the researcher either includes all the variables or s/he controls them. With reference to this example, if the researcher feels that family background could be an intervening variable, s/he can control it by only including those respondents in sample who come from similar backgrounds. By doing so, its effect will be cancelled out of the equation since this variable will now be held constant. When such a thing is done, these variables are also referred to as 'control variables'.

Intervening variables can also be understood as those variables without the intervention of which, the relationship between the independent variable and the dependent variable cannot be established. Suppose you want to study the relationship between age and newspaper readership, you assume that older people read the newspapers more. But without the intervening variable of literacy, the relationship between the independent and the dependent variable will not be complete.

3.4.4 Establishing Operational Definitions

It is very important to define the variables under study as failure to do so impacts upon the reliability and validity of the study. In general, any first attempt at a definition is an application of common sense and everyday life experience.

For instance, the most conventional approach to defining age would be to define it in terms of years lived beginning from the date of birth. But then as knowledge grows, concepts evolve, meanings change, perspectives multiply, it becomes important to categorically state how one is going to be studying a particular concept for a particular study. For instance, one researcher may want to study violence purely on physical terms so s/he defines it accordingly. Another researcher wants to study it from the point of view of verbal violence, yet another wants to draw a distinction between animated and real violence, still another wants to study it only from the perspective of the victim and so on. As complexities increase, so does the need to focus on specifics.

When defining the variables under study, two approaches are followed – convention i.e. framing a definition in terms of what is most commonly understood; or framing a definition in terms of the researcher's own understanding or objectives. In the latter case, the researcher has to ensure that the definition remains within the bounds of logic and reason.The conventional definitions are usually the constitutive, nominal or formal definitions which define a word by substituting other words for it. These are usually the dictionary meanings. For instance, status is defined as a person's standing in society; anxiety is defined as nervousness etc.

The stipulated definitions are usually the operational definitions. An operational definition defines a concept in terms of the operations by which it will be represented in a particular study i.e. it specifies the procedures to be followed in expressing or measuring a concept. In a way, operational definitions are quantifications of the nominal definitions. For instance, violence could be defined as any physical act that results in bodily injury to be measured in time units. Anxiety could be defined in terms of the score obtained on a five-item scale or on the basis of observation of the occurrence of certain physical actions such as restless gestures, perspiration, stuttering etc. Basically an operational definition provides an empirical referent to the variable under study.

Check Your Progress 3

Note: Use the space below for your answers

Compare your answers with those given at the end of the Unit

1) What is the basic difference between concepts and constructs?

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2) Define a variable.

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3) What is an operational definition?

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3.5 LET US SUM UP

In this unit we discussed how to go about selecting a research problem. We started with differentiating between a social and a research problem. This was followed by highlighting the importance of conducting a review of literature which helps in identification and selection of the research problem. The importance of ensuring that the topic we select should be relevant, feasible and achievable was also dwelt upon.

We further focused on formulating the terms of enquiry – research questions, objectives and hypotheses. The various types of hypotheses were categorised. How the hypothesis is framed using variables was also described. The difference between concepts and constructs was highlighted and the importance of framing clear operational definitions was emphasised.

It is hoped that the above discussion will help you in defining and formulating your own research problem. In the next unit, we shall take the discussion forward and focus on sampling methods.

3.6 FURTHER READINGS

1) Kerlinger, F.N., (1973), *Foundations in Behavioural Research*, Holt, Rhinehart and Winston. NY.

2) Kumar, Ranjit (2008), *Research Methodology*, Pearson Education. N.D.

3) Neuman, W.L., (2007), *Social Research Methods – Qualitative and Quantitative Approaches,* Pearson Education. N.D.

4) Wimmer, R.D and Dominick, J.R, (2010), *Mass Media Research – An Introduction*, Thomson Wordsworth Publishers, London

3.7 CHECK YOUR PROGRESS: POSIBLE ANSWERS

Check Your Progress 1

1) A social problem can arise all of a sudden while a research problem is formulated. Secondly, a social problem has the element of public concern while a research problem can exist at the level of curiosity alone.

2) Review of literature can be conducted by consulting indices, bibliographies, abstracts, journals, periodicals, books, encyclopedias, general interest publications, trade publications and the Internet.

3) The relevance of a research topic can be determined by ensuring that it has a theoretical frame of reference as its foundation, thereby either strengthening existing theory or revising it. Its relevance also exists in its significance – it should fill research gaps in subject matter, make methodology more precise, or have implications for framing of policies.

Check Your Progress 2

1) Research questions are usually asked in exploratory research when not enough is known about the research area to justify the framing of categorical hypotheses at the outset itself.

2) Hypotheses enable us to test existing theories, suggest new ones as well as help us to describe social phenomena with a certain degree of certainty. From the point of view of methodology, hypotheses ensure a more precise study, they impose boundaries, clarify concepts, and enable controlling for intervening variables and testing for statistical significance.

3) A null hypothesis is based on the law of probability and is deemed to be the reverse of the research hypothesis or its negation.

Check Your Progress 3

1) The basic difference between concepts and constructs is that concepts have a direct empirical referent, which constructs do not have.

2) A variable is a concept or a construct that takes on different values, in effect a variable is something that varies.

3) An operational definition defines a concept in terms of the operations by which it will be represented in a particular study i.e. it specifies the procedures to be followed in expressing or measuring a concept.