Chapter Three
Research Methodology

1.1 Introduction

In this chapter, researcher has discussed about the methods of research, selection of method, selection of sample, selection of tools for research, administration of Human right awareness test and complete research procedure. The methodologies of educational research are based in most instances on research methods. Research can be divided into two broad categories: Qualitative research and Quantitative research. At first, we should understand what is Research?

3.2 Types of research:

“Research is considered to be the most formal systematic intensive process of carrying on the scientific method of analysis. It involves more systematic structure of investigation usually resulting in some sort of formal record of procedures and a report of results or conclusions”. (Best’khan, 2010 p.13)

“Research is the systematic, objective and accurate search for solution to a well defined problem”. Moule G.J.

3.2.1 Pure or Basic research: “Pure research is concerned with quest for knowledge and knowing more about the phenomenon without concern for its practical use and also with developing and testing hypotheses and theories.”

3.2.2 Applied research: “Applied research is concerned with search for ways of using scientific knowledge to solve practical problems.”

3.2.3 Action Research: “Action research is the research undertaken by practitioners so that may improve their practices”.

Educational Research:

“Educational research is that activity which is directed towards development of a science of behavior in educational situations. The ultimate aim of such a science is to provide knowledge
that will permit the educator to achieve his goals by the most effective method”. –Robert M.W. Travers

“Activity design to discover facts and relationships that will make the educational process more effective” –Mouly.

3.3 Methods of the Research:

Research methods are classified according to the subject-area, purpose, place, application, data collection tools, nature of the collected data, controlled variables etc. Still the three well known types of the research methods are namely- Historical Method, Descriptive Method and Experimental method.

Figure No.3.1 Methods of the Research

Methods of the Research

Historical Method  Descriptive Method  Experimental Method

3.3.1 Historical Method:

History is a meaningful record of human achievement. It is not merely a list or chronological events but a truthful integrated account of the relationships between person, events, times and places. History is used to understand the past and to try to understand the present in light of past events and developments. (Best, Kahn 2010; p.79)

3.3.2 Descriptive Method:

A descriptive study describes and interprets what is. It is concerned with conditions or relationships that exist, opinion that are held, processes that are going on, effects that are evident, or trends that are developing.

3.3.3 Experimental Method:

Experimental research provides systematic and logical method for answering the question. “If this is done under carefully controlled conditions, what will happen?”
3.4 Selection of Research Method:

The researcher has selected **Descriptive Method** for carrying out this research.

❖ Descriptive Method:

Descriptive research described what it is involves the description recording, analysis and interpretation of conditions that exists; it involves some type of comparison or contrast and attempts to discover relationship between existing non manipulated variables.

The most widely used method of educational research is known as the survey the normative survey or descriptive research Descriptive research is concerned with the present and attempts to determine the status of the phenomenon under investigation. Its process involves, description, recording analyzing and interpreting conditions that types of comparisons or contracts and may attempt to discover cause and affect relationship.

3.4.1 Types of Descriptive Method:

1. Survey Method
2. Case study.
3. Casual Comparative method
4. Co-relation and prediction method
5. Cross cultural and comparative method
6. Genetic method
7. Documentary analysis

Above methods are the types of descriptive method.

3.4.2 Survey Method:

It is concerned with the present and attempts to determine the status of the phenomena under investigation. The survey method gathers data from a relatively large number of cases at a particular time. It is not concerned with the statistics that result number of individual cases. It is essentially cross sectional. The survey is an important type of study. It involves a clearly defined problem and definite objectives. It requires expert and imaginative planning, careful analysis and interpretation of the data gathered and logical and skillful repowering of the findings.
3.4.3 Types of survey method:

Survey studies are conducted to collect detailed descriptions of existing phenomena with the intent of employing data to make more intelligent plans for improving them. It had been classified into four categories.

**Descriptive survey:**
1. Survey testing method
2. Question survey method
3. Interview survey method

**Analytical survey:**
1. Documentary Frequency
2. Observational survey
3. Rating survey
4. Critical incident
5. Factor analysis

**School survey:**
1. Genetic survey
2. Social survey
3. Public option surveys

3.5 Tools of the Research:

A researcher may require different tools or techniques which may vary in their complexity, design, administration and interpretation. There are different tools and techniques used for collection of data.

**Figure 3.2 Tools & Techniques of research**

- Attitude scale
- Observation
- Interview
- Check list
- Score card
- Questionnaire
- Rating scale
- Schedule
- Sociometry technique

**Tools and techniques of data collection**
3.5.1 Selection of the Research tools:

Considering the purpose of the present research the researcher has selected standardizing Human Right Awareness Test. to conduct the research.

3.5.2 Standardized “Human Rights Awareness Test” (HRAT-SVAA)

Human Rights awareness Test examined and Standardized by NATIONAL PSYCHOLOGICAL CORPORATION, S AGRA - 282004 (INDIA). This test has been developed by Dr Vishal Sood and Dr Arati Anand. The original version consisted of 50 statements.

PURPOSE:

This test has been designed to measure the level of awareness of individuals with regards to concept and principles of human rights as well as awareness with regard to situations involving human rights violations.

DIMENSIONS:

On the basis of review of literature pertaining to human rights and concerned documents as well as after carrying out critical discussion with legal experts, leading advocates, social workers, officers from NGOs working in field of human rights and women development, educationist and research scholars, it was decided to classify human rights awareness in the following three dimensions:

(i) Knowledge of Human Right related Documents.
(ii) Knowledge and Understanding about Human Right Concepts.
(iii) Knowledge and Understanding about Human Right Violations/Non-Violation.

SCORING PROCEDURE AND STATISTIC:

The distribution of positive and negative statements was carried out in three dimensions of human Rights awareness test. 30% and 70% between are generally accepted as possessing adequate difficulty facility level value

HRAT is a self administering and self reporting test question of the scale require response on one of the three alternatives i.e. True, undecided or false the statements are scored in such a
manner that if the answer to a positive question is true a score of 2 is given for undecided a score of 1 and false option a score of zero is awarded on the other of zero is awarded on the other hand in case of negative statement the above scoring procedure is completely reversed.

In this Human Right Awareness Test the \textit{Z score statistic} is used to find out the level of individual Human Right Awareness.

There is no time limit for completing the test but it takes fifteen to twenty minutes on an average to complete the test.

(For detail about Human Rights Awareness Test (HRAT-SVAA) to see Appendices-5 page- 199)

\textbf{3.6 Study Sample:}

“A Statistical sample is miniatual picture cross section of entire group of aggregate from which the sample is taken”. P V Young

“Sampling is the selection of certain percentage of group of items according to a predetermined plan.” Bogardus

“A sample as the name implies is smaller representative of a large whole” George & Hatt

“Sampling is the process of selecting a number of individuals for a study in such a way that individuals represent the larger group from which they were selected.”

“Sampling is the process by which a relatively small number of individuals or measures of individuals, objects or events, is selected and analyzed in order to find out something about the entire population from which it was selected.”

\textbf{Methods of Sampling:}

\textbf{3.6.1 Probability Method:}

Those sample elements are automatically selected by some scheme under which a particular sample of a given size from a specified population has some known probability of being selected.
Types of Probability Sampling:

1. Simple Random Sampling.         2. Systematic Sampling

3.6.2 Non-probability Method:

“A probability sample is one that has been selected in such a way that every element chosen has a known probability of being included”. G.C. Halmstadier

Non-probability sampling is opposite of probability sampling. Here, the researcher has selected the sample by researcher own.

In the absence of any idea of probability of the method of sampling is known as non-probability sampling”

Types of Non-probability Sampling:

1. Quota Sampling.                  2. Purposive Sampling.
3. Self Selection sampling.     4. Incidental/Accidental Sampling.

3.6.3 Sampling used in this Research:

3.6.3.1 Selection of HSS:

For the present research the researcher has used Simple Random Sampling method in that lottery method was used. The researcher first collected the information about higher secondary schools from Z.P.Solapur district Education Department. There are total 279 Higher Secondary schools in twelve taluka places of Solapur District. The particulars of the HSS are as under:
### Table no 3.1 Type of HSS in Solapur district

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Type of HSS</th>
<th>No. of HSS in the district</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>ASC (all faculty)</td>
<td>24</td>
</tr>
<tr>
<td>02</td>
<td>AS (Only Arts and Science)</td>
<td>72</td>
</tr>
<tr>
<td>03</td>
<td>AC (Only Arts and Commerce)</td>
<td>13</td>
</tr>
<tr>
<td>04</td>
<td>SC (Only Science and Commerce)</td>
<td>03</td>
</tr>
<tr>
<td>05</td>
<td>S (Only Science)</td>
<td>23</td>
</tr>
<tr>
<td>06</td>
<td>C (Only Commerce)</td>
<td>04</td>
</tr>
<tr>
<td>07</td>
<td>A (Only Arts)</td>
<td>140</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>279</td>
</tr>
</tbody>
</table>

Out of these 279 Higher Secondary schools 2 HSS are Un-aided, 147 HSS are permanent non grant, 123 HSS are govt. aided, 01 HSS is part time, 01 HSS is partially govt. aided, 03 HSS are CBSE pattern, & 01 HSS is IGCSE pattern. Some colleges are single faculty and other are multi-faculty. For the present research the researcher has considered only multi-faculty HSS in Solapur district affiliated to HSC Board Pune.

While carrying out selection of sample (HSS) the researcher has considered various criterions such as availability of HSS, equal opportunity, co-operation of management, working time of the HSS, distance of the HSS etc. The researcher has also taken care of representation of maximum HSS from all the talukas of Solapur district.

1.6.3.2 Actual Sampling Procedure:

From total 112 multifaculty HSS in Solapur district researcher has selected 50 % that is 56 HSS by random sampling method; and lottery method was used.

3.6.3.3 Actual Sample Selected:

Thus total 56 HSS from rural and urban areas of Solapur district were finalized as study sample for this research work. At the time of distribution of HRAT the researcher found that one multi faculty higher secondary school was closed due to some reasons. *Therefore from the 56 selected HSS from Solapur District 55 HSS remained as the final study sample for this research work.*
1.6.3.3 Selection of HSS teachers:

There are 1122 HSS teachers in 55 selected HSS in Solapur district out of these 1010 (90 %) HSS teachers were selected randomly and were given the HRAT.

Table no. 3.2 Gender and Faculty wise Distribution:

<table>
<thead>
<tr>
<th>Sr No.</th>
<th>Faculty</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Arts</td>
<td>358</td>
<td>129</td>
<td>487</td>
</tr>
<tr>
<td>2</td>
<td>Science</td>
<td>299</td>
<td>110</td>
<td>109</td>
</tr>
<tr>
<td>3</td>
<td>Commerce</td>
<td>77</td>
<td>37</td>
<td>114</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>734</td>
<td>276</td>
<td>1010</td>
</tr>
</tbody>
</table>

Out of distributed 1010 HRAT; 769 duly filled in HRAT were received from HSS teachers. In consideration of location, 576 HRAT were received from Urban HSS teachers and 193 HRAT were received from Rural HSS teachers.

Thus the response rate was 76.13 %.

3.7 Actual Research Procedure:

The researcher has used HRAT prepared by Dr Vishal Sood and Dr Arati Anand as well as examined and Standardized by NATIONAL PSYCHOLOGICAL CORPORATION,S AGRA - 282004 (INDIA) for carrying out this research.

This test is originally in Hindi Version and consisted of 50 Statements. While distributing the HRAT to the HSS teacher the researcher gave Marathi (Rupanter) for The HSS teachers were along with Hindi version the reference the HSS teachers were also informed that they should answer to Hindi version only and in case of any difficulty in interpreting some words they should refer to Marathi version (rupanter).

This care was taken so that the originality of the HRAT should not be lost. The HRAT was distributed to HSS teachers from selected HSS. Out of 1010 HSS teachers who were given the HRAT 769 duly filled in HRAT were received.

After the receiving the HRAT the data was systematically analyzed using the norms & test key, manual for interpretation of extent level of Human Rights Awareness using the ‘Z’ Scores obtained. The hypotheses were tested using chi-square test and final conclusions were drawn.
3.8 Statistical Techniques for Research:

3.8.1 The Z score (σ Sigma):

In describing a score in a distribution, its deviation from the mean – expressed in standard deviation units – is often more meaningful than the score itself. The unit of measurement is the standard deviation.

In comparing or averaging scores on distributions where total points may differ, the researchers using raw scores may create a false impression of a basis for comparison. A Z score makes possible a realistic comparison of scores and may provide a basis for equal weighting of the scores. On the sigma scale the mean of any distribution is converted to zero, and the standard deviation is equal to 1

3.8.2 What is a Hypotheses?

Hypotheses are usually considered as the principal instrument in research. Its main function is to suggest new experiments and observations. Hypotheses may be defined as a proposition or a set of propositions set forth as an explanation for the occurrence of some specified group of phenomena either asserted merely as a provisional conjecture to guide some investigation or accepted as highly probable in the light of established facts.

Null hypotheses and Alternative hypotheses: In the context of statistical analysis, we often talk about null hypotheses and alternative hypotheses. If we are to compare method a with method b about its superiority and if we proceed on the assumption that both methods are equally good, and then this assumption is termed as the null hypotheses. As against this, we may think that the method is superior or the method b is inferior, we are then stating what is termed as alternative hypotheses. The null hypotheses is generally symbolized as \( H_0 \) and the alternative hypotheses as \( H_a \). Suppose we want to test the hypotheses that the population mean is equal to the hypothesized mean \( \mu_{H_0} = 100 \). Then we would say that the null hypotheses are that the population mean is equal to the hypothesized mean 100 and symbolically we can express as:

\[
H_0: \mu = \mu_{H_0} = 100.
\]

If our sample results do not support these null hypotheses, we should conclude that something else is true. What we conclude rejecting the null hypotheses is known as alternative hypotheses. In other words, the set of alternatives to the null hypotheses is referred to
as the alternative hypotheses. If we accept \( H_0 \), then we are rejecting \( H_a \) and if we reject \( H_0 \), then we are accepting \( H_a \) for \( H_0: \mu = \mu_{H0} = 100 \), we may consider three possible alternative hypotheses as follows.

**Table 3.3 Hypotheses Testing**

<table>
<thead>
<tr>
<th>Alternative hypotheses</th>
<th>To be read as follows</th>
</tr>
</thead>
<tbody>
<tr>
<td>( H_a: \mu \neq \mu_{H0} )</td>
<td>(The alternative hypotheses is that the population mean is not equal to 100 i.e. it may be more or less than 100)</td>
</tr>
<tr>
<td>( H_a: \mu &gt; \mu_{H0} )</td>
<td>(The alternative hypotheses is that the population mean is greater than 100)</td>
</tr>
<tr>
<td>( H_a: \mu &lt; \mu_{H0} )</td>
<td>(The alternative hypotheses is that the population mean is less than 100)</td>
</tr>
</tbody>
</table>

The Null hypotheses and the alternative hypotheses are chosen before the sample is drawn (the researcher must avoid the error of deriving hypotheses from the same data). In the choice of null hypotheses, the following considerations are usually kept in view:

1. Alternatives hypotheses are usually the one which one wishes to prove and the null hypotheses is the one which one wishes to disprove. Thus, a null hypotheses represents the hypotheses we are trying to reject, and alternative hypotheses represents all other possibilities.
2. If the rejection of a certain hypotheses when it is actually true involves great risk, it is take as null hypotheses because then the probability of rejecting it when it is true is (the level of significance) which is chosen very small.
3. Null hypotheses should always be specific hypotheses i.e., it should not state about or approximately a certain value.

**The level of significance:** This is a very important concept in the context of hypotheses testing. It is always some percentage (usually 5%) which should be chosen with great care, thought and reason. In case we take the significance level at 5 percent, then this implies that \( H_0 \) will be rejected; If a hypotheses is of the type \( \mu = \mu_{H0} \), then we call such a hypotheses as simple (or specific) hypotheses but if it is of the type \( \mu \neq \mu_{H0} \) or \( \mu > \mu_{H0} \) or \( \mu < \mu_{H0} \) then we call it a composite (or nonspecific) hypotheses.

When the sampling result (i.e. observed evidence) has a less than 0.05 probability of occurring if \( H \) is true. In other words, the 5 percent level of significance means that researcher is
willing the take as much as a 5 percent risk of rejecting the null hypotheses when it H when it is true and is usually determined in advance before testing the hypotheses.

**Decision rule or test of hypotheses:** Given hypotheses $H_0$ and alternative hypotheses $H_0$ we make a rule which is known as decision rule according to which we accept $H_0$ (i.e. reject $H_0$) or reject $H_0$ (i.e. accept $H_a$). For instance, if ($H_0$ is that a certain lot is good there are very few defective items in it) against that the lot is not good (there are too many defective items in it,) then we must decide the number of items to be tested and plan our decision saying that if there are none or only. I defective item among the 10, we will accept $H_0$ otherwise we will reject H (or accept H). This sort of basis is known as decision rule.

3.8.3 Hypotheses Testing:

**Chi-Square Test:**

Chi-square, symbolically written as $\chi^2$ (pronounced as ki-square,) is a statistical measure used in the context of sampling analysis for comparing a variance to a theoretical variance. As a non-parametric, test, it “can be used to determine if categorical data shows dependency or the two classification are independent. It can also be used to make comparisons between theoretical populations and actual data when categories are uses.” Thus, the chi-square test is applicable in large number of problems the test is, in fact, a technique through the use of which it is possible for all researches to test the goodness of fit; (ii) test the significance of association between two attributes, and (iii) test the homogeneity or the significance of population variance.

For this research researcher has used $\chi^2$ test for testing Null Hypotheses.

3.9 Summary:

In this chapter the researcher has explained the method used for research. According to research question researcher has selected survey method. Probability and Non probability sampling was used. Data was collected by administering Human Rights Awareness test on Higher Secondary School Teachers in Solapur district.

The collected data must be systematically analyzed and logically interpreted and so also the hypotheses testing and analysis and interpretation of data is given in the next chapter.