CHAPTER- 2

METHODOLOGY

2.1 Hypothesis

2.2 Sample

2.3 Tools

2.4 Research Designs
2.1 **HYPOTHESIS**:

Two important functions that a hypothesis serves in scientific inquiry are the development of theory and statement of theory and statement of parts of an existing theory in testable form. The research or scientific hypothesis is a formal affirmative statement predicting a single research outcome, a tentative explanation of the relationship between two or more variables.

"A hypothesis is defined as a suggested answer to a problem."

- Townsend J.C.

"A hypothesis is a conjectural statement of the relation between two or more variables."

- Kerlinger F.N.

In experimental research, the researcher is interested in making predictions about the outcome of the experiment or what the result expected to show and therefore the role of hypothesis is considered to be of utmost important.

There are three types of hypothesis statement:

1. **Affirmative statement**
2. **Negative statement** and
3. **Null Hypothesis**

The affirmative hypothesis were used for the present research work:

1. Female teachers are found better than Male teachers in the field of Teaching Aptitude.
2. There is a significant difference between the Male and Female teachers of the sample in the area of Teaching Aptitude.
3. Female teachers are found better than Male teachers in the area of Job-Satisfaction.
4. There is a significant difference between the Male and Female Teachers of the sample in the field of Job-Satisfaction,
5. Girl students are found better than Girl Boy students in the field of Academic Achievement.
6. There is a significant difference between Boy and Girl students in the field of Academic Achievement.
7. There is a significant impact of Teaching Aptitude of the teachers on student’s Academic Achievement.
8. There is a significant role of teacher’s Job-Satisfaction on student’s Academic Achievement.
2.2 **Sample**:

"Sample is a part of a population which for the purpose, is taken as representative of the whole population, so that certain conclusion based on the sample will be valid for whole population."

*(English and English)*

According to **Young**, "A sample is the micro picture of whole group." When we select some of the elements with the intention of finding out something about the population we refer to that group of elements as a sample.  

- *(Sellitz, 1959)*

Sampling is the process by which subset of persons from a longer set is drawn and studied in order to make inference about the characteristics of the larger population. Moreover, sampling is the science and art of controlling and measuring the reliability of useful statistical information through the theory of probability. The bias is simply equal to the difference between the expected value of the estimates and the true value being measured.

The main forms of the sampling are:

1. Randomal Sampling
2. Stratified Sampling
3. Double sampling
4. Systematic sampling and
5. Cluster sampling

The study under investigation, has involved the technique of Randomal sampling. A sample drawn at random is an unbiased
sample in the sense that no member of the population has any more chance of being selected than any other member.

For the purpose of present study the population lies in Chitrakoot District. This district consists of 5 blocks as :-

1-Chitrakoot  2-Manikpur  3-Mau  4- Pahadi  5- Ramnagar.

Out of 5 blocks, only 4 blocks are selected on the basis of randamization. These are

1-Chitrakoot  2- Manikpur  3- Mau  4- Pahadi.

In this study 160 teachers have been taken from 54 schools on the basis of randamization. All the schools are located in rural areas. Only government schools run by Basic Shiksha Parished are included for the collection of data. It has been noticed that female teachers are not available in good number in the schools. Hence in the sample the number of male and female teachers is different.

All the teachers and students of class VIIIth are taken for the purpose of study from each school which is selected as sample from the population. The students, 565 boys and 510 girls, 1075 in total are taken for the study. The figures are shown in the following table.
**TABLE - 1**

*Sample consisting of teachers*

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Name of the Block</th>
<th>No. of the teachers taken</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Science</td>
<td>Art</td>
<td>Total</td>
</tr>
<tr>
<td>1</td>
<td>Chitrakoot</td>
<td></td>
<td>12</td>
<td>22</td>
<td>34</td>
</tr>
<tr>
<td>2</td>
<td>Pahadi</td>
<td></td>
<td>11</td>
<td>20</td>
<td>31</td>
</tr>
<tr>
<td>3</td>
<td>Mau</td>
<td></td>
<td>6</td>
<td>16</td>
<td>22</td>
</tr>
<tr>
<td>4</td>
<td>Manikpur</td>
<td></td>
<td>6</td>
<td>12</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td>35</td>
<td>70</td>
<td>105</td>
</tr>
</tbody>
</table>

**TABLE - 2**

*Sample consisting of Students*

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Name of The Block</th>
<th>No. of the Students taken</th>
<th>Boys</th>
<th>Girls</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chitrakoot</td>
<td></td>
<td>129</td>
<td>119</td>
<td>248</td>
</tr>
<tr>
<td>2</td>
<td>Pahadi</td>
<td></td>
<td>215</td>
<td>117</td>
<td>332</td>
</tr>
<tr>
<td>3</td>
<td>Mau</td>
<td></td>
<td>110</td>
<td>141</td>
<td>251</td>
</tr>
<tr>
<td>4</td>
<td>Manikpur</td>
<td></td>
<td>111</td>
<td>133</td>
<td>244</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td>565</td>
<td>510</td>
<td>1075</td>
</tr>
</tbody>
</table>
2.3 **Tools:**

Suitable tools have the way for successful accomplishment of the objectives of the study and the collection of pertinent data. The selection of tools for a particular study depends upon various consideration such as the objectives of the study, the amount of time at the disposal of the researcher, availability of suitable tests, type of sample and the like.

“A good psychological test is a good tool of collection of data as it provides objective method of observation or measuring behaviour. It is a standardized instrument designed to measure objectively one or more aspect of total personality.”  

- *(Freeman 1965)*

In all type of behavioural investigations objective methods are used. “Objective method of observation are those in which any one following the prescribed rules will assign the same numerals to object and sets of objects as any one else. An objective procedure is one in which agreement among the observers is at a maximum.”  

- *(Kerlinger 1968)*

For the present investigation the following psychological tools are used.

1- **Teaching Aptitude Test** - Dr. Jaiprakash and Dr. R.P. Srivastava.

2- **Job Satisfaction Test** - Dr. S.K. Saxena

3- **Academic Achievement Scores**

   Academic Achievement Scores are based on the 8th Board Examination 2003 organized by Basic Shiksha Parishad.

**1. Teaching Aptitude Test:**

This test is meant for measuring the aptitude towards teaching profession. The scale has 10 sub-tests and total of 150 items. Each sub-test contains 15 items. There is no time limit for the test but generally
the examinees complete it within 30 minutes. The test has the following area belonging to each of the ten sub-tests:

(i) **Co-operative Attitude**: This trait has been used for measuring the co-operative attitudes of the teachers towards their taughts, society and the nation. This trait is an essential link for the relationship between the teacher and the taught, the school and the community, and the society and the nation.

(ii) **Kindliness**: The items under this area have been used with regard to the general and particular attention of the teacher which is to be devoted for full growth and development of the personality of the pupil and to remove the hurdles and handicaps in the way of growth and development of pupil.

(iii) **Patience**: The Patience is an important attribute of teacher’s personality, as he very often meets such a critical situation which needs patience and tolerance on his part.

(iv) **Wide Interest**: The teacher is not suppose to stick to his work of teaching the subjects only but he is also an active participants in cocurricular activities outside the institution. He wants to see his taught growing physically, mentally, culturally, socially and in other aspects alike.

(v) **Fairness**: This element has been taken in the test to measure the fairness and impartiality of the teacher which are the most essential traits of the teacher’s personality.

(vi) **Moral Character**: Moral status in the opinion of adults, specially concerning their adherence to the adult’s standard, have been tried to see through the items constituting this area.
(vii) **Discipline**: Discipline and problems of conduct in the classroom and elsewhere, and the methods employed in dealing with the problems are contained in this area.

(viii) **Optimism**: This trait is more essential in the teacher's personality as he is supposed to be always optimistic.

(ix) **Scholarly Tests**: A teacher is always a student in the acquisition of knowledge. He is always thirstily for knowledge and as such items in this sub-test measure scholarly taste.

(x) **Enthusiasm**: Enthusiasm is an important element for the personality of good teacher. The importance of this trait has increased too much in the present age.

**Reliability**:

The reliability of the test was calculated by split-Half Method using Guttman and Spearman-Brown Prophecy formulae which yielded the coefficient of corelations as + .891 and + .91.

By Test-Retest method the reliability coefficient is found + .91. All these co-efficients are high and therefore the test has a good reliability.

**Validity**:

The validity of the test was secured by computing a coefficient of correlation between score on 200 pupil teachers, was +.5. The obtained validity coefficient is quite satisfactory.
2. **Job Satisfaction Test:**

The Job Satisfaction scale for teacher’s (Form-B for School Teachers) developed by Dr. S.K. Saxena and published by Agra Psychological Research cell, Agra, is used to measure the Job-Satisfaction of teachers.

The questionnaire consists of 29 highly discriminating ‘Yes-No’ type items. There is no time limit for the questionnaire. However, it takes approximately 20 minutes to complete it.

**Reliability:**

The split-half reliability of the test applying Spearman-Brown formula is found .95. By Test- Retest method the reliability coefficient is .75. All those coefficients are sufficient high to make the test reliable.

**Validity:**

The face validity of the measures is very high. The content validity is ensured as the items for which there has been 100% agreement amongst judges regarding their relevancy to the school teacher’s Job Satisfaction are included in the questionnaire.

3. **Academic Achievement:**

Student’s Academic Achievement scores are based on the 8th School Board Examination 2003 organized by Basic Shiksha Parishad. This board examination is more reliable as compare to any Home Examination.
Research Design:

Research design is the plan, structure and strategy of the investigation conceived so as to obtain answer to research questions and control variance.

Kerlinger (1964) has defined,“ Research design tells us in a sense what observations to make, how to make and how to analyse the quantitative representations of observations,” He further suggested that factorial design in the structure of research where two or more independent variables are juxtaposed in order to study their independent and interactive efforts on dependent variable.

**RESEARCH DESIGN**

<table>
<thead>
<tr>
<th>Job Satisfaction</th>
<th>High Teaching Aptitude</th>
<th>Low Teaching Aptitude</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As mentioned, the research design, 2x2x2 and 3x3 are framed.