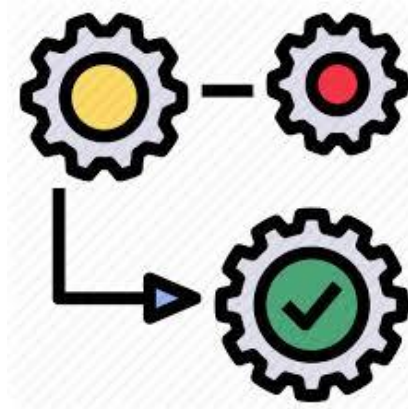

CHAPTER 3

RESEARCH METHODOLOGY

- 3.1 Introduction
- 3.2 Design of the Study
- 3.3 Research Method
- 3.4 Variables Involved
- 3.5 Population, Sample and Sampling Technique
- 3.6 Tools Used
- 3.7 Statistical Technique Used



CHAPTER 3

METHODOLOGY OF THE STUDY

3.1 INTRODUCTION

Research Method is major part of research process. This chapter has a huge implication for the discipline of methods. The research methodologies wrap the way to explain the problem and the questions in the study in a systematic way. It is like a model developed and followed by the researcher. It is necessary to select the appropriate research methodology for the present study. A good methodology leads the researcher to achieve his goals. The impressive issue that pursues the errand of characterizing the exploration issue is the arrangement of the plan of the examination venture. Choices on what, where, when, how much and by what implies allude to an examination or research consider. "Research design is the technique of social and monetary improvement". It comprises the structure for the amassing, the regard and the examination of the information.

Study Plan: Researchers had made study plan and done first phase of data collection in December, 2016 and second phase in December, 2107 from Central and State Universities of Uttar Pradesh and after that researcher had analyzed and interpreted the data.

3.2 DESIGN OF THE STUDY

Design of the examination an exploration venture is the arrangement of conditions for the accumulation and investigation of the monetary overview in "methodology the research project is the conceptual structure within which the research is conducted; it is the model for collecting, measuring and analyzing data". Research designs are for the development of methods that will be used for the analysis of the research objective and the availability of personnel, time and money.

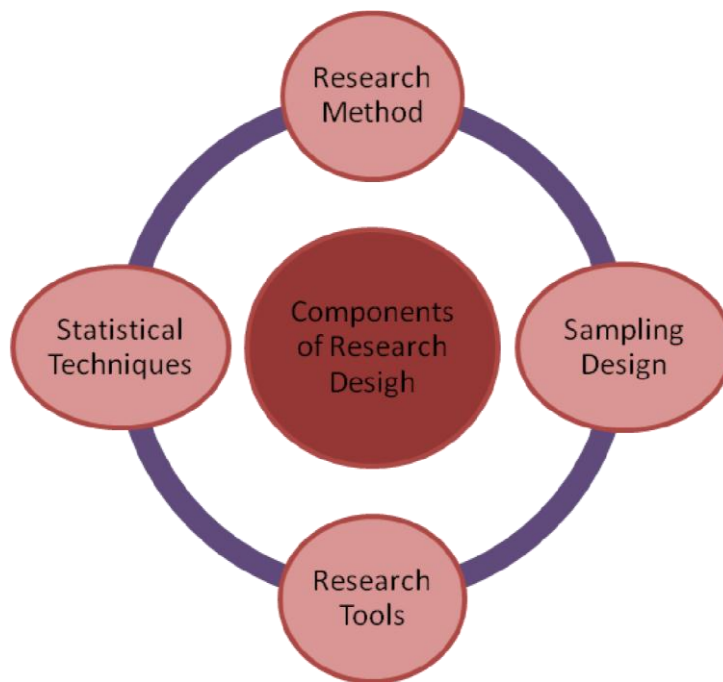


Figure 3.1: Components of the research project.

“The research is based on the descriptive research type of method for the study. Descriptive survey methods are designed to obtain relevant and accurate information on the current State of the phenomena and, when possible, to draw general conclusions from the facts discovered valid. The methods of descriptive study are more than just a collection of data; it includes measurement, classification, analysis, comparison and interpretation. It is the most popular and used method of research in education. It helps to explain the phenomena in terms of conditions or references exist, the opinions that hold students, teachers, parents and experts, the processes that are occurring. It tends to provide information on the most fundamental solution”.

3.3 RESEARCH METHOD

The present research is a Descriptive survey Method. The present study was conducted among prospective teachers studying in Central and State Universities from Uttar Pradesh and used purposive sampling technique for the data collection by the researcher and analysis of data by using statistics technique.

3.4. RESEARCH VARIABLES

3.4.1 Dependent variables

Dependent variables used in the study are Values, Vocational Interest, Teaching Competency and Level of Aspirations.

3.4.2 Independent variables

Gender, Locality, Subject Stream and types of Universities i.e. Central and State Universities have been considered as Independent variables.

3.5 POPULATIONS, SAMPLE AND SAMPLING TECHNIQUE

Demographically there are “45 Central Universities of which 40 are under the purview of Ministry of Human Resource Development, 318 State Universities” established under Acts of Parliament and Ministry of Human Development and Resource (MHRD). While in Uttar Pradesh state 6 Central Universities and 29 State Universities are there. Among these Researcher had chosen Banaras Hindu University, Varanasi and Babasaheb Bhimrao Ambedkar University, Lucknow in Central Universities and Mahatma Gandhi kasha Vidyapith, Varanasi and Lucknow University in State Universities through purposive convenient sampling technique. *“The population is a concept that indicates a group with a large number of units. It is a large group dispersed in a large geographical area or in a small group. The populations are homogeneous and heterogeneous in terms of characteristics. Therefore, each heterogeneous population may have a homogeneous subpopulation. The smallest part of the population is known as unity. Therefore, population means the totality of these units. The population of this study includes the Prospective Teachers of Central and State Universities in UP. The population of the study included Prospective teachers of Central and State Universities in Uttar Pradesh in the year 2016 – 2018. For the present study purposive sampling method was used. 500 Prospective Teachers from 4 selected Central and State Universities formed the sample. For the selection of the sample, two Central Universities and two State Universities of Uttar Pradesh had been taken. Banaras Hindu University, Varanasi and Baba Sahab Bhim Rao Ambedkar*

University, Lucknow (Central Universities) and Lucknow University, Lucknow and Mahatma Gandhi Kashi Vidyapith (State Universities) were chosen. 500 prospective teacher studying in Central and State Universities had been taken for the study. The articles selected for the study are technically called as samples. In other words, a selected group of some elements of the entire population is known as a sample. Respondents or selected items must be representative of the total population for the production of miniature inclined cuts. Selected respondents are technically called "sample" and the selection process is called "sampling technique". Partial samples are not representative of the population and are said to be fixed errors or constant sampling. Therefore, the sample must be free of bias”.

“For the present study a sample of 500 Prospective Teachers were drawn from 4 Universities, and included both Central and State Universities which were selected through purposive convenient sampling technique. The samples are categorized as given in the following table”.

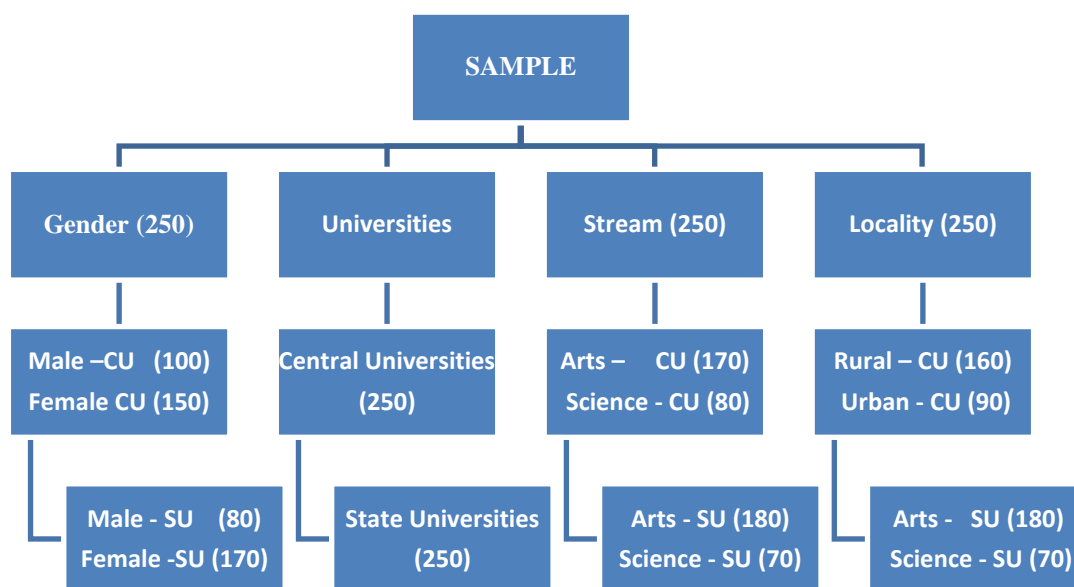


Figure 3.2: Sample

Table 3.1a: Total No. of Prospective Teachers: Central Universities

Variables	Central Universities (B.H.U& BBAU)	Sample Size	Total Sample (250)
Gender	Male	100	(250)
	Female	150	
Locale	Rural	160	(250)
	Urban	90	
Subject Stream	Arts	160	(250)
	Science	80	

Table 3.1b: Total No. of Prospective Teachers: State Universities

Variables	State Universities (LU & MGKV)	Sample Size	Total Sample (250)
Gender	Male	80	(250)
	Female	160	
Locale	Rural	150	(250)
	Urban	100	
Subject Stream	Arts	180	(250)
	Science	60	

3.6. PROCEDURE OF DATA COLLECTION

Researcher took permission from Heads and Teachers of the Universities through personal visit during the office hours where the researcher explained the purpose of the study and the ethical concerns were also shared. On their advice, date and time was decided for the distribution of questionnaire, thus on the decided date with the help of Head of the Departments, data was distributed and it took more than two weeks to collect from the Universities. Before implementing the questionnaires,

general education were given to all the prospective teachers both verbally and on written form and ensured the privacy of the information provided to be solely used for the research purpose. They were advised to read the Statements carefully and fill all the necessary information. The researcher faced the difficulties in availing permission from the Head of the institutions, and the inability to collect filled questionnaire. Also the prospective teachers tend to tick the options blindly without properly going through the Statements.

3.7. TOOLS USED

- **Research Tools and Procedure**

- **Tools**

The Researcher had used following tools for the study:

1. Study of Values Test developed by Dr R K Ojha and Dr Mahesh Bhargava
2. Vocational interest Record developed by V.P. Bansal and Prof. D.N. Srivastava.
3. General Teaching Competency Scale developed by Prof. B.K. Passi and Prof. M. S. Lalitha.
4. Level of Aspiration Measure created by Dr. Mahesh Bhargava and Late Dr. M.A. Shah.

(A) Study of Values Test by Dr. R.K. Ojha and Dr. Mahesh Bhargava “The Manual for study of values, in the form of Consumable Booklet consists of number of questions and designed for the use of college students, studying in Graduate and Post Graduate classes”. *“The test has two parts-first part consisted of 30 questions with two alternative answers and second part consisted of 15 questions with four alternative answers. In all there are 45 questions with 120 alternative answers. The subject records those preferences numerically by the side of the alternative answers. The reason for adopting this format was to ensure that all the values could be tested under similar conditions”.*

Administration of the tools

“After selection of the proper tools it needed to administer them in proper way that the investigator may find out the appropriate result. First of all, the investigator went to college. She meets to the Principal and asked for the permission for the data collection with the students studying in the institutes. After getting the permission investigator went to class and met the students and introduced them.

According to previous programme the investigator met the students. First of all the investigator told the students about his work, why the data is needed and what is the purpose of the work. Before giving them the Booklet, investigator gave the appropriate instruction about the Booklet”.

General Instructions

This Booklet has questions related to your daily life and based upon familiar situation. Your answers will be kept secret, so give the answer without any hesitation and doubts.

Special Instructions

This Booklet has two parts- first part consist 30 questions with two alternative answers and second part consist of 15 questions with four alternative answers. Students must fill in the responses after reading the directions giving in the booklet. There has no time limit for your response but please answer the questions as quickly as you can.

Power Test

In this test there was no time limit and the subjects attempt progressively.

Instruction for Administering

(1) The study of values is self-administering. The study of values may be administered in a group or individually. Detailed directions for filling in the answers to the booklet have been provided in the consumable booklet of study of values. It has been found that students can fill in the responses themselves after reading the directions.

- (2) There is no time limit, generally subject required 40 minutes to answer the statement in the booklet. “The testes are not to be stopped before they finish but they should be encouraged to work as quickly as they can”.
- (3) “Asking too many questions should be discouraged. It is sufficient to tell them about the purpose of the test that it intends to find out what students do and would like to do in various situations. More explanation can be fared after the test has been taken”.
- (4) Subject should be encouraged to develop keen interest in answering the test.

Make sure that the respondents answer all the statements in the test.

Instruction for Scoring

The study of the values is self-scoring the test is so constructed that it can be scored by the subject himself or by the examiner.

Six scoring keys have been provided for the inventory. One for each of the values.

Step 1: Part 1.’2’ or ‘1’ and ‘3’ and ‘0’ scores for column (a) and (b) for each alternative. The sum of the scores for (a) and (b) must always be equal to 3.

Part 2.’4’, ‘3’, ‘2’, ‘1’. Scores for column (a) (b) (c) (d) for each alternative. The sum of the scores for the four alternative must be equal to 10.

Step 2: “Add the vertical columns of scores of each page in the space of the table which is labeled with same letter”.

Step 3: “Transcribe the totals from each page in the space of the table which is labeled with same letter”.

Step 4: The total score for all the six columns must be equal to 240 (for part-I 90 and part-II 150).

Reliability

“The Internal Consistency of the scale is determined by split half method. The items for each value were divided into two sub-scales. The product-moment correlations” are as given in table 3.2.

Table 3.2: Split-half Reliability Coefficient

S.No.	Values	Coefficient of Correlation
1	Theoretical	.78
2	Economic	.81
3	Aesthetic	.76
4	Social	.82
5	Political	.83
6	Religious	.84

Validity

“The validity of the study of values shows correlations (r’s) obtained from a sample of 500 male and 500 female graduate and post graduate students. There is a positive association between social – economic values, and between economic – political values and between economic – religious values in males. But in female samples, there is a positive association between economic – religious values and aesthetic – religious values and social – religious values in both the groups, the degree of correlations law”.

(B) Vocational Interest Scale: developed by **V.P. Bansal and Prof. D.N. Srivastava.**

“The Vocational Interest Record has been developed for use with school and college students. The preliminary form of the Vocational inventory had 166 items related with different vocal and vocational activities distributed to eight vocational areas. The items of different vocational and activities related with vocational were selected with the help of the careful study of the relevant literature and form some popular tests in this field. The preliminary forms of vocational interest record were submitted to a group of 20 judges. The vocational and some activities related with vocations, which were not approved by the judges were discarded. In the final Vocational Interest Record there are 128 Vocational subjects and activities of different faculties and are

distributed in eight Vocational fields. Table-1 shows the Vocational fields and symbols and number of items”.

“The vocational Interest Record is a self-administering. It gives better results with individual testing rather than with group testing. There is no time limit for this interest record. Ordinarily an individual takes about 10 to 15 minutes time to complete it. The Vocational Interest Record has been prepared both in Hindi and English”.

Table No.3.3

Sl. No.	Vocational. Interest (Areas)	Symbols Used	No. of Items
1	Agriculture	AG	16
2	Artistic	AR	16
3	Commercial	CO	16
4	Executive	EX	16
5	House Hold	HH	16
6	Literary	LI	16
7	Scientific	SC	16
8	Social	SO	16

Instruction

“Following steps may be useful in the administering the vocational Interest Record. See that all the students are comfortably seated. The examiner should emphasize that everyone should have certain vocational interests in life, and how it can be benefitted if they know them. The researcher will explain the value of Vocational Interest Record. One should also explain the value of the vocational Interest Record. Question from examinees concerning the purpose and use of the inventory should be answered friendly. Directions are printed in the last page of the Record. The examiner should read the direction given on the last page of the inventory, before the starting the test. The examinees should also read Education s silently along with the examiner. There is

no time limit for the inventory. Ordinarily an individual takes about 10 to 15 minutes time. The examiner should make efforts to secure the confidence and co-operation of the examinees. The examiner may ensure the examinees that the results would be kept confidential. If there is any confusion in undertaking the Educations, examiner should explain them before starting. The examiner should also emphasize that there is nothing right or wrong, collects the Interest Records from the examinees as they complete their work”.

Scoring

“Assign one mark to very right (\surd) marked responses and count the total number of scores under each of interest area vertically and horizontally as under. In order to know the interest in Agriculture (AG) area, count the right marked (\surd) responses for AG₁ and fill in the gap AG₁ = , at the bottom of the interest record (count vertically the vocations shown by number 1). Similarly count the right marked (\surd) responses AG₂ and fill in the gap AG₂ = , at the right side of the interest record (count horizontally the vocations shown by number 2). Similarly count right marked responses under each interest are vertically and horizontally as above. Then find the area wise combined total and complete the 'combined total' column in the interest record. The maximum possible score under any one interest areas is 16 and the minimum is 0.

High interest in any one factor means to the extent a low in the other factors.

Transcribe the area wise scores on the interest profile and interpret it”.

Reliability

“The reliability coefficient has been found by the two methods:

1) Split half Method and 2) Test retest Method. For the Test-retest reliability the inventory was administered on a sample of 160 students and after nine days the inventory was re-administered. The correlation between two scores was calculated by Spearman Brown formula Table-2 Shows the reliability coefficient by above two methods”.

Table No. 3.4

S.No.	Vocational Areas	Split Half Method	Test-Retest Method
1	Agriculture	.80	.86
2	Artistic	.68	.82
3	Commercial	.65	.85
4	Executive	.83	.64
5	House Hold	.63	.68
6	Literary	.68	.65
7	Scientific	.66	.66
8	Social	.81	.83

Validity

“The items on the different vocations and activities related with vocations were selected with the help of the careful study of the relevant literature and the preliminary form was submitted to a group of 20 judges for scrutiny. However the validation criterion used for this test was to correlate the scores of this present vocational interest record with the teacher's ratings. The coefficients of correlation are as under: AG-.56, AR-.62, CO-.58, EX-.68, HH-.60, LI-.68, SC-.60, SO-.59”

Norms and Profile

“The norms for students reading in High School, Intermediate and Undergraduate classes are given in table-3 to 8. The norms are separately given for girls (in table 3, 4 & 5) and boys (in table -6, 6 & 8). The norms are in Stained Grades, Stained (Standard Nine) are standardized nine-point scale. The users of this vocational interest record are suggested that they should develop their own local norms because an individual's performance on any interest record is also a reflection on the environment of which he is associated. The vocational interested can be presented in hierarchical order on the vocational interest profile. One can study easily the different vocational interest areas of a particular individual. In the profile, the vertical line shows the

stained grades in each of the eight vocational interest areas. First of all find out stained grades for each interest factor with the help of raw scores and then plot these on the graph. Joint these points from one side to the other (from AG interest area to SO interest area). Line joining the points from AG interest factor to SO interest factor is the interest profile of the subject. If the profile line (i.e. from starting from 4 to 6) shows the average vocational interest, the profile line below the average line (i.e. starting from 3 and below) will show the below average vocational interest”.

(C) General Teaching Competency” developed by – **Prof. B.K. Passi and Prof. M.S. Lalitha** “Test mentioned above is standardized test adopted on Indian sample. The detail of the test is being discussed below: **General Teaching Competency SCALE (GTCS)**. Description of the GTCS there are 21 substances related to 21 teaching skills which include the entire teaching-learning process in the classroom. They are connected to five main portion of classroom teaching, namely, Planning, Presentation, Closing, Evaluation and Managerial. The substances are such that they are centered on teacher classroom performance in relation to student behavior. It is a 6-point rating scale measuring the use of the skill by the teacher in the classroom equivalent to each item ranging from ‘1’ for Not at all’ to ‘6’ for very much”.

Scoring

“The sum of the ratings adjacent to all the 21 items comprises the score on General Teaching Competency (GTC Score) of the teacher organism observed. The maximum score possible is 146 and the minimum is 21”.

Reliability

“Since this is an observation tool, the more appropriate type of reliability is the inter observer reliability. This scale has been used for doctoral research (Joshi, 1966; Passi, 1966) and the reported inter-observer reliability coefficients range from 0.85 to 0.91”.

Validity

“The correlation was found to be from **0.68 to 0.82**, which was of fairly high degree. Hence the scale can be set to have high criterion validity”.

(D) Test for Measurement of Level of Aspiration

“This test on Level of Aspiration is developed by Dr. Mahesh Bhargava and Late Dr. M.A. Shah and is based on the Underwood method. The test performance sheet has 50 circles (each of 1cm in diameter) which are arranged in five rows, ten in each row. Above and below of these rows, there are two boxes on the right side-the upper box is for the number of expected score (except in practice trail) whereas lower box is for putting the number of actual score or complete performance on the sheet. Ten trails are needed for each subject except practice trail. Each circle is of one cm. in diameter and respondent has to draw four lines in these circles, so that they may appear like a human face.



Stopwatch is also required for the test. Respondent has to draw these four lines in a sequence e.g. left eye, right eye, nose and mouth. Only 30 seconds are given for each trail”.

Scoring and Interpretation

“The procedure of scoring provides three types of scores: (1) Goal discrepancy Score (GDS), (2) Attainment Discrepancy Score (ADS) and (3) The Number of Times the Goal Reach Score (NTRS)”.

(1) Goal Discrepancy Score (GDS)

“The extent and direction of the difference between actual score on the previous trial and goal set up of the next trial is known as goal discrepancy or G.D. Score, which is obtained by subtracting the actual score on a trial from the Aspiration score (Goal Set up score) for the next trial. Thus in other words, goal discrepancy is the gap between Aspiration for the next trial (expected score) and the immediate performance on previous trial According to Frank (1935) this goal discrepancy is a permanent characteristic of personality. A positive goal discrepancy suggests that one’s goal is higher, in relation to one’s previous performance and a negative goal discrepancy indicates that one’s goal is lower than one’s previous performance. It means if

expected score on the next trial is more than the actual score on the previous trial, the GDS is termed as positive whereas if it is less than the immediate past performance the GDS will be negative. The size of the discrepancy shows how high or low one sets the goal relative to one's performance. The general tendency by and large (Lewin et al, 1944) is to set the goal a little higher than the previous performance (i.e., positive goal discrepancy)".

(2) Attainment Discrepancy Score (ADS)

"Related to the concept of goal discrepancy is the attainment discrepancy (Lewin et al 1944). It is the difference between aspiration (expected score) and the achievement (actual score) on the same trial. Thus in order to obtain ADS expected performance is subtracted from the actual performance. Therefore, ADS is positive when actual performance is more than expected performance and negative when expected is higher than the actual performance (here actual performance is treated as criterion level). The size of the discrepancy shows the extent to which one surpasses or fails to reach his goal. In a variety of tasks, it also found to have some significance as indicator of the degree of adjustment. It shows wide range among individuals along a reality-unreality dimension (Irwin, 1944). It would appear that a person who consistently sets his goal higher or lower than his performance would objectively be imaginative or unrealistic with a different personality structure than those persons whose aspiration scores keep pace with his performance or reality. Thus it shows the degree of maladjustment or failure of the individual. Psychological feeling of success and failure depends upon the direction and the size of the attainment discrepancy and not the difference between expected and actual performance. The success for one person means failure for another and even for the same person the same achievement will lead sometimes to the feeling of failure and sometimes to the feeling of success. Lewin et.al. (1944) further reported that level of aspiration for certain tasks are fairly stable with time, are markedly influenced by stimulation leading to experience of success and failure and show a certain amount of generality from task to task".

(3) Number of Times of Goal Reach Score (NTRS)

"This may be obtained by the number of times where his actual score is equal or more than the expected score. Though subjective probability of success is measured indirectly from goal discrepancy and attainment discrepancy score, but it can also be

measured directly by NTR score which provides an index of subject's actual probability of reaching his stated goal. These may be a minimum and maximum score with reference to the number of trials, and it is expected of a subject with relatively high motivation to avoid failure, to approach these two limits minimum and maximum".

Reliability

"The reliability of this measure is calculated by the test-retest method and the split half method (correlating the first half with the second half trials), (As given in following Table). Here, the question of inter-judge reliability does not arise (Humphrey and Argyle, 1962)".

Validity

"It may be stated that no device or measure of level of aspiration has made any mention of validity coefficient. Perhaps the question of validity is not relevant to the study of level of aspiration. In this context, Muthyya (1959) writes, 'level of aspiration behavior remains constant regardless of the means used to measure it'. His argument is understandable because question of validity arises when a behavior is inferred from another behavior indirectly. In this situation, the respondent is involved in actual task proposed by him and situation is by and large realistic for him". "Since all the obtained *r*-values between the present measure of Level of aspiration and different external criteria are found significant at .01 level hence the test having the satisfactory validity".

3.8 PROCEDURE OF DATA COLLECTION – TEST ADMINISTRATION

"The Researcher visited the selected Universities personally for the administration of the tool to collect the required data. Prior permission of the Head of selected Universities department was taken for data collection from the sampled students. Before administering the test, the purpose of the study was explained and rapport was established with the sampled student-teachers to obtain real information. They were also told that the test would have nothing to do with their examination and their answers would be kept furtive and used only for the research purpose. Further, during

test administration, Theodore's viewpoint was kept in mind. According to him in the administration of a tool, it is important that children understand what they are expected to do. The examiner must read the test education clearly, confidently and in such a manner that students feel that that test is important, interesting and worth taking. Clear enunciation, accurate reading of Education s and slow deliberate presentation of sample exercises are all important. It is also important that the examiner allows time for suggestions before starting the test session. He answers pertinent questions by repeating the appropriate instruments'. Therefore, the Researcher tried his best to come to Theodore's expectations. The data for the present study was collected at one phase: The data collection was started beginning of B.Ed. session 2015- 16. Value Test, Vocational Interest, Teaching Competency and Level of Aspiration Test were given to the Prospective Teachers one by one by the researcher. Necessary education was given to the trainees to fill the response sheets. The general information regarding the name, teaching subjects, sex, University name, background of Residence etc. were filled by the trainees. All the documents - scales and response sheets were collected by the researcher on the same day".

3.9 STATISTICAL TECHNIQUE USED

The following statistical techniques were adopted for the analysis of data:

MEAN

The formula used for computing mean is:

$$I. \quad M = A + i \frac{\sum fd}{N} \times i$$

Whereas:

M = Mean

A = Assumed Mean

fd = Multiplication of Frequency and Deviation

N = $\sum f$ = total No. of frequencies i = Size of the class-interval

Standard Deviation

“The standard deviation is most commonly used indicator of the degree of variability. The standard deviation is a kind of average of all deviation from the mean. It may be defined as the square root of the mean of the squared deviation take from the arithmetical mean of the distribution”. The formula used for computing standard deviation is:

$$\text{II. } S.D. = \frac{i}{N} \sqrt{N \sum f d^2 - (\sum f d)^2}$$

Where

S.D. (σ) = Standard Deviation

i = Size of the class-interval

$N = \sum f$ = Total No. of frequencies

f = Frequency

d = deviation

“t” Test

‘t’ test is a “statistical test that allows the researcher to compare two means to determine the probability that the difference between two means in a real difference rather than a chance difference. It involves the computation of the ration between observed variance (observed difference between two means) and error variance (the sampling error factor)”. The value of ‘t’ is computed by the formula:

$$\text{III } t = \frac{M_1 - M_2}{\sigma_D} \quad \text{Whereas:}$$

M_1 = Mean of First Group

M_2 = Mean of Second Group

σ_D = Standard Error of the difference between means

Degree of Freedom

The degree of freedom for ‘t’ test is = $N_1 + N_2 - 2$

The significant level

The confidences with which an researcher rejects or accepts a Null Hypothesis or Zero Hypothesis or Zero Hypothesis depends upon the significant level used in the present study are 0.01.

Decision Rule

If calculated 't' value < table 't' value, we accepted Null Hypothesis or Zero Hypothesis or Zero Hypothesis i.e. There is no significance difference between two series.

If calculated 't' value > table 't' value, we reject Null Hypothesis or Zero Hypothesis or Zero Hypothesis i.e. there is considerable distinction between two series.

Computations

The mean, S.D. of large sample can be easily calculated by the assistance of computer software SPSS under the guidance of an expert social scientist. After making all the necessary computations, the result will be summarized and interpreted. There have been set forth in the tables appearing in the next chapter.