CHAPTER 3

METHOD AND PROCEDURE

Previous chapter namely “Review of the Literature” was concerned with the review of the research studies conducted in the field of teacher education, with special reference to opinion and attitude of the teachers, students, principals towards different aspects (curriculum, practice-teaching, theory classes, physical resources, i.e. school-building, class-room, library, laboratory, play ground, furniture and teaching aids), appointment of teacher educators, their qualifications, minimum number of pupil-teachers, minimum hours of teaching, in short, a calendar for teacher education program.

All research studies available in area discussed in preceding chapter have been reviewed and in the present chapter named as Method and Procedure, a research design has been presented.

The chapter in hand Research Methodology presents a viewpoint of the research study on which the building of the present study stands. More precisely this chapter dealt with methodology of the research used in the study, population on which results of the present study could be generalized, sample size from where data has been obtained, sampling method by which sampling units were selected from the population, research tools used for collecting data of the study and description of the statistical techniques which have been used in analyzing the data of the present study.
Research methodology in conducting a research study is the most important thing. Method of research study depends on nature of problem under study. There are so many research methods used in the research namely:-

1. Historical Method of Research
2. Philosophical Method of Research
3. Experimental Method of Research
4. Causal Comparative Method of Research
5. Clinical Method of Research
6. Survey Method of Research

1. Historical method of research is used in a research problem of historical nature, meaning thereby, if the research study is related to history, historical method of research should be used for that study. The present study titled as “An Appraisal Of NCTE As A Regulatory Body For Teacher Education In India In Terms Of Its Objectives And Functions Based On Perception Of Teacher Educators And Principals”. The topic of the study is not concerned with history; rather it is a research reflecting the current scenario of the teacher education in India. Hence historical method of research has not been applied in hitting the present problem.

2. Philosophical method of research is used in research studies which deal with philosophical problems. Present study is not concerned with philosophy therefore philosophical method of research was rejected for the present study.
3. Experimental method of research is applied in research studies dealing with cause and effect. Manipulation is an important phenomenon of experimental research. In the present study, there was no need of manipulation of any variable to observe its influence on the other variable. Therefore experimental method of research was found unsuitable for the present study.

4. Causal Comparative Method of research is also applied in research studies dealing with cause and effect. This method of research differs with experimental method of research in the sense that in causal comparative method manipulation of the variable is not done by the researcher but it had already been done by the sources unknown whereas in experimental method of the research, the researcher manipulates variable to observe its effect on dependent variable. As already mentioned the objective of the study was not to observe the influence of the variable on others, therefore, causal comparative method of research was not used in the present study.

5. Clinical method is a development method. It is concerned with individual or any unit but the present study was not related to any single institution, therefore, this method too was found unsuitable for present study.

6. Survey method of research is very popular in behavioral research. It is used in behavioral and social sciences, reflects present status phenomenon.
The study, in hand, aimed to know attitudes and opinions of the teacher educators and the principals of teacher training institution towards norms and standards of NCTE laid down for teacher education institutions (B.Ed.). As stated in preceding lines, survey method of research throws light on present status of trends or phenomenon, therefore the investigator found this method namely, Survey Method of Research quite suitable for the investigation and she decided to apply this method of research in her study.

3.1 Population of the Study:

Population or universe means, the entire mass of observation, which is the parent group from which a sample is to be formed. The sample observations provide an estimate of population characteristics.

Principals and Teacher Educators working in teacher education institutions affiliated to C.C.S. University, Meerut, constituted the population of the present study.

3.2 Sample:

Sampling is the process of drawing a sample from a population. After determination of the characteristics of the sample researchers generalize from the sample to the population; that is, researchers make statements about the population based on their study of the sample. A sample is usually much smaller in size than a population; hence, sampling can save time and money.
250 teacher educators (approximately 200 teacher educators and 50 principals) have been sample of the present study from the teacher educator institutions affiliated to C.C.S. University.

3.3 Sampling Techniques:

1) Random Sampling Technique

2) Non-random Sampling Technique

3.3.1 Random Sampling Technique:

Random sampling is frequently used in survey method of research, which is a form of non-experimental research in which questionnaires or interviews are used to gather information, and the goal is, typically, to understand the characteristics of a population.

a) Simple Random Sampling: - Simple random sampling is the most basic form of random sampling. It is the cornerstone of sampling theory. A simple random sample is a sample drawn by a procedure in which each element of the population has an equal chance of being selected for the study. When each element has an equal chance of being selected, the sampling method is called an equal probability selection method (EPSEM).

b) Systematic Sampling: - Systematic sampling is an improvement over the simple random sampling. This method requires the complete information about the population. There
should be a list of information of all the individuals of the population in any systematic way. We decide the size of the sample

Let sample size = n
And population size = N

Now we select each N/n th individual from the list and thus we have the desired size of sample which is known as systematic sample. Thus for this techniques of sampling population should be arranged in any systematic way.

c) **Stratified Sampling:** - It is an improvement over the earlier method. When employing this technique, the researcher divides his population in strata on the basis of some characteristics and from each of these smaller homogeneous groups draws at random a predetermined number of units. Researcher should choose that characteristics or criterion which seems to be more relevant in her research work.

d) **Multi–Stage Sampling:** - This sample is more comprehensive and representative of the population. In this type of sampling primary sample units are inclusive groups and secondary units are sub groups with in these ultimate units to be selected which belong to one and only one group. Stages of a population are usually available with in a group or population, whenever stratification is done by the researcher. The individuals are selected from different stages for constituting the multi- stages sampling.
e) **Cluster Sampling:** - To select the intact group as a whole is known as a cluster sampling. In cluster sampling the sample units contain groups of element (cluster) instead of individual members or items in the population. Rather than listing all elementary school children in a given city a randomly selecting a certain percentage of students for the sample, a researcher lists all of the elementary schools in the city, selects at random a certain percentage of these cluster (schools), and uses all of the children in the selected schools are the sample.

### 3.3.2 Non-random Sampling Techniques:

a) **Convenience Sampling:** - Researchers use convenience sampling when they include in their sample people that are available or volunteer or can be easily recruited and are willing to participate in the research study. That is, the researcher selects individuals who can be “conveniently selected.”

b) **Quota Sampling:** - If the researcher decides to make the sample proportional to the population on certain characteristics (e.g., gender), then this method of quota sampling will have an apparent similarity to proportional stratified sampling. For example, if a school is composed of 60 percent females and 40 percent male, the researcher may decide to make sure that his or her sample is also 60 percent female and 40 percent male.

c) **Purposive Sampling:** - In purposive sampling (sometimes called judgmental sampling) the researcher specifies the characteristics of a population of interest and then tries to
locate individuals who have those characteristics (e.g., Johnson, 1995). For example, a researcher may be interested in adult females over the age of 65 who are enrolled in a continuing education program. Purposive sampling is a nonrandom sampling technique in which the researcher solicits persons with specific characteristics to participate in a research study.

**d) Snowball Sampling:** - In snowball sampling each research participant that volunteers to be in a research study is asked to identify one or more additional people who meet certain characteristics and may be willing to participate in the research study.

Cluster Random sampling technique was applied to select the sample of the present study. Teacher training institutions were selected randomly as sample from the population of the institutions.

Teacher Training Institution was unit of the sample, meaning thereby, all the teacher educators and principals of selected institutions constituted the sample of the study.

Thus Principals and Teacher Educators of the teacher training institutions who filled Attitude Scale were finally selected as sample of the study. The total number of sample units of the Principals was 50 and teacher educators were 200. Hence cluster random sampling technique was used.
3.4 Variables of the study:-

3.4.1 Independent Variable:-

3.4.1.1 Principals – Teacher Educator
3.4.1.2 Male – Female
3.4.1.3 Government Aided Institutions – Self Finance Institution

3.4.2 Dependent Variables:-

3.4.2.1 An appraisal of NCTE norms

3.5 Research Tool:

Research tools are the instruments that help the researcher to gather data. After a research design have been selected and it is decided who will be included in the study, it is necessary to use a suitable research tool to collect the desired information. There are various kinds of tools and tests, which are used in educational research. The most common tools of data collection that are used by educational researchers are described as follows:

1) Standardized tests
2) Questionnaires
3) Interviews
4) Focus groups
5) Observation
6) Secondary data

In order to collect the data of the present study one tool has been developed by researcher herself. The researcher has developed a questionnaire herself for data collection.
A questionnaire is a self-report data-collection instrument that each research participant fills out as part of a research study. Researchers use questionnaires so that they can obtain information about the thoughts, feelings, attitudes, beliefs, values, perceptions, personality, and behavioral intentions of research participants.

Questionnaires can be used to collect data with multiple research methods (experimental, qualitative, correlational, etc.). Furthermore, the content and organization of a questionnaire will correspond to the researcher’s research objectives. The questionnaire is a versatile tool available to you and other educational researchers.

Questionnaires typically include multiple questions and statements. For example a researcher might ask a question about the present, the past or the future. Questionnaires can also include statements that participants consider and respond to. Research participants must indicate their degree of agreement or disagreement with ten statements measuring their attitudes themselves.

3.6 Construction of Attitude Scale (Questionnaire):

To measure attitude of teacher educators and principals of teacher training institutions towards aims, functions and expectations of teacher education developed by NCTE, attitude scale was developed by the researcher.

The investigator decided to know the attitude of the teacher educators and principals towards above mentioned aims, functions and expectations.
She decided to write statement related to these aims, functions and expectation. She divided attitude scale into three points:-

1. Agree
2. Indifferent
3. Disagree

Teacher educators and principals were expected to tick the point which suited them well.

All the steps of test construction were followed. They have been mentioned below:-

(a) Preparation of Blue Print.
(b) Selection of Items.
(c) Try out.
(d) Final Drafting.
(e) Reliability and Validity

3.6.1 Preparation of Blue Print:

First step of a test construction is to develop blue print of the test, meaning thereby, at this stage, the investigator decides different areas (dimensions) of the teacher education to make the appraisal of NCTE. She divided her questionnaire into nine dimensions (A to I), they are –

A) Related to norms Established by NCTE.
B) Related to Research field.
C) Related to co-curricular activities.
D) Related to Economic problems of the Institutions.
E) Related to Library and Laboratories.
F) Related to increase the quality of Teacher Education.

G) Related to Functions, Objectives and Expectations.

H) Related to self-finance institutions.

I) Related to the field of Infrastructure of Teacher Education Institution.

The Researcher has sub-divided the above written dimensions, which are mentioned in the attached questionnaire.

3.6.2 Selection of Items:-

As discussed in blueprint, the research scholar formed ninety two by hundred attitude items related to different nine dimensions. In this step each statement is reproduced on a separate slip of papers and several persons are appointed as judges. Each Judge is given the entire collection of the statements.

3.6.3 Try out:-

Item analysis is one of the most important parts of test construction and test standardization. The question asked in a test is called items of the test. By item analysis meant numerical analysis of these items and deciding their suitability in the test. In such a process some items are retained in the test, some items are cancelled and even some items are improved. This all is done on the basis of two characteristics of an item viz; difficulty value and discriminative power. The purpose of item analysis is to find out which item is good and which is bad. So that bad items which are ineffective may be
eliminated from the test and, finally a test of good items may be constructed. After item analysis of the attitude scale researcher has chosen 72 items for the final drafting.

3.6.4 Final Drafting:-

The Researcher gave this attitude scale to different Educators and Principals for testing. Hardly any change was made in the form of attitude scale. Thus, attitude scale was ready to measure the attitude of teacher Educators and Principals of different teacher training institution.

3.6.5 Reliability and Validity:-

3.6.5.1 Reliability of the Scale:-

As per Freeman, the term reliability has been defined as under:

“The term Reliability refers to the extent to which a test is internally consistent and the extent to which it gives consistent results on testing and re-testing,”

A test is useful only when it is reliable and measures the trait or characteristics for which it has been constructed originally. Reliability refers to the consistency of the measurement or stability of the scores. Consistency refers to the extent to which the scores obtained on two halves of the test are found to be similar. If the two sets of the scores differ widely, the internal consistency of the test is said to be very
poor. On the other hand stability refers to the extent to which the scores obtained at two different times with a reasonable gap are found similar. If they differ too much the test is said to have poor stability of scores.

The reliability of a test can be estimated in different ways depending upon the methods of computing reliability coefficient of a test scores. Though there are many methods to estimate the reliability, the researcher has applied the following two methods:

1. **Test-Retest Method**: The single form of a test is administered twice on the same sample with a reasonable gap. In this way two sets of scores are obtained by administering a test twice. The correlation coefficient is calculated between the two sets of scores as the reliability index.

   A high test-retest reliability or coefficient of stability shows that there is a low variable error in the sets of obtained scores and the scores of the test can be relied upon. On the other hand a low coefficient of stability shows that there is a high variable error in the obtained scores and the scores of the test can not be relied upon to draw conclusion.

   The researcher gave the attitude scale i.e. questionnaire to 40 principals and teacher educators twice with a time gap of 60 days to check the reliability of the scale. The scores of the two test were obtained and coefficient of stability was
calculated which derived 0.68. This result indicates that there is a low variable error in the sets of obtained scores and the scores of the test can be relied upon.

2. **The Split-Half Method**: In this method the scoring is done once after splitting the test items into two equal parts. Thus each individual score is obtained into two parts. There are several ways of splitting test-items into two equal parts. However odd-even method is considered most appropriate for splitting test items.

The scoring of each part is done separately and the correlation coefficient is calculated between these two halves of the tests which are treated as the reliability of the half test. And in order to calculate the reliability of the whole test Spearman-Brown Prophecy formula is generally used.

The researcher split the attitude scale i.e. questionnaire by even and odd method and gave these two sets to each of 40 principals and teacher educators. The scoring of each part is done separately and the correlation coefficient is calculated between these two halves of the tests which come out 0.44. To obtain the correlation coefficient of the whole test the Spearman-Brown Prophecy formula is used and coefficient of the correlation came to be 0.61. This indicates that the scores of the test can be relied upon.
3.6.5.2 Validity of the Scale:

Reliability and validity both go side by side. Both are related with each other. Reliability is treated as internal correlation while validity is treated as external correlation. In one word, reliability means consistency of scores while validity means purposiveness of a test. Validity means the extent to which a test measures what it purports to measure i.e. a test should measure exactly only that for what it has been constructed keeping in view its sole objective or purpose. If a test fulfills the purpose for which it has been constructed, it is called valid and the degree of validity will depend upon the degree of fulfilling the purposes. However, the validity coefficient of a test may vary from place to place, person to person, from situation to situation and from time to time.

There are so many types of validity. But keeping in view the objective of the research, the researcher has checked the content and criterion validity.

1. Content Validity: Content validity means to what extent the test measures a representative sample of content mater as well as instructional objectives under construction. The test items should be representative of the whole content that is to be taught. If not so, the content validity can not be high or even satisfactory. Thus, the content validity of a test tells us whether the
items of a test cover sufficiently well the appropriate content or not.

Content validity is not determined statistically. Hence it has no statistical index. It is determined by inspection of the items, judgment of subject’s experts, test specialists and careful analysis of actual subject-matter studies and instructional objectives against the table of specifications or Blue-Print of the test. This analysis is rational as well as judgmental and therefore, the content validity is sometimes also named as rational or logical validity.

2. **Criterion Validity**: Criterion validity is a set of relationship between the test and the external criterion. The criteria may be some future performance or phenomenon, or some current phenomenon.

To establish the criterion validity of the test the researcher seeks the opinion of 40 persons of different classes regarding the working of the NCTE on nine dimentions (A to I). The people were asked to give points on a scale from zero to ten for each dimention. The results so obtained were analyzed and a correlation coefficient was calculated between these results and the results of our test. The coefficient of the correlation was found 0.44, which indicates that the scores of the test can be relied upon.
3.7 **Statistical Techniques Used:**

The main purposes of the study is to find out the attitude of Teachers and Principals while appraising the role Of NCTE As A Regulatory Body For Teacher Education In India In Terms Of Its Objectives And Functions Based On Perception Of Teacher Educators And Principals.

The following statistical calculations were got done with the help of computer:-

i) Mean and Standard Deviations.

ii) ‘t’ – value to find out the significant differences between principals and Teachers, Female and Male Teacher Educators, Teacher educators of Government aided institutions and Self finance institutions.

**‘t’ Test**

‘t’ is a statistical test that compares two means to determine probability that the difference between the means is the real difference, rather than chance difference. It involves the computation of the ratio between observed variance (observed difference between means) and error variance (than sampling error factor)‘t’ ratio were computed by the following formula:
\[ t = \frac{M_1 - M_2}{\sqrt{\frac{(\sigma_1)^2}{N_1} + \frac{(\sigma_2)^2}{N_2}}} \]

Where

- \( M_1 \) = Mean of one category.
- \( M_2 \) = Mean of another category.
- \( \sigma_1 \) = S.D. of one category.
- \( \sigma_2 \) = S.D. of another category.
- \( N_1 \) = Sample size of first category.
- \( N_2 \) = Sample size of another category.

The significance of ‘t’ ratio was tested in this study to know whether the mean scores of the two categories are significant to each other or the apparent difference was due to chance error.