CHAPTER III

M E T H O D O L O G Y

3.12.0. PILOT STUDY

3.13.0. THE SAMPLE

3.14.0. COLLECTION OF DATA

3.15.0. THE VARIABLES

3.16.0. THE SCORING PROCEDURE

3.17.0. THE SCHEME OF ANALYSIS AND INTERPRETATION OF THE DATA

3.18.0. CONCLUSION

CHAPTER III

METHODOLOGY

3.1.0. INTRODUCTION

Evolving a suitable methodology for a research project based on scientific procedure with a view to arriving at a successful solution to the problem chosen is indeed an uphill task. Hence much thought has to be bestowed on the plan and procedure to be followed in conducting a research in Social Sciences.

In a sense, it is relatively futile even to concentrate on the identification of research methods

according to a rigid categorization. Our efforts might be more profitably directed towards seeing that the method used is in harmony with scientific principles and that is adequate for the job. Conversely, any method, or any combination of methods, that leads to dependable generalization is automatically a good method (George Mouly 1964).

This investigation on Teacher Innovativeness has been conducted following a systematic procedure prescribed for educational research. It is a detailed study of a descriptive nature regarding the involvement of teaching community in innovation in the educative process.

3.2.0. A DESCRIPTIVE STUDY:

A descriptive study describes and interprets what is. It is concerned with conditions and relationships that exist, opinions that are held, processes that are going on, effects that are evident, or trends that are developing. It is primarily concerned with the present events and influences as they relate to current conditions. (John Best 1977).

No category of educational research is more widely used than the type known as status and descriptive research. This is a broad classification comprising a variety of specific techniques and

procedures all similar from the standpoint of purposes that is, to establish the status of the phenomenon under investigation (George Mouly 1964).

Such a study is an assessment that describes the status of a phenomenon at a particular time. It merely describes a situation that prevails, without value judgement, attempts no explanation of underlying reasons, and makes no recommendation for action. It merely deals with the prevailing practices and conditions, says Best.

Descriptive research, sometimes known as non-experimental research, deals with relationships between variables, the testing of hypotheses and the development of generalizations. In carrying on a descriptive research project, the researcher does not manipulate the variables or arrange for events to happen. In fact, the events that are observed and described would have happened eventhough there had been no observation or analysis (John Best 1977).

3.3.0. RESEARCH DESIGN

Research is carried out by identifying a problem, examining selected relevant variables, creating a research design to investigate the problem, collecting and analysing appropriate data, and then drawing

conclusions about the relationships of the variables (Bruce Tuckmen 1972).

This investigation has been planned as a descriptive study since it was felt that such a design would be quite appropriate for a research project of this type. The plan and procedure have been so designed as to make a detailed descriptive study of the innovativeness of teachers working in high schools, higher secondary schools and also of those at the collegiate level including teacher educators in Tamil Nadu.

The objectives of the study planned, the hypotheses formulated, selected, the data collected, the sample chosen, the statistical measures applied, the variables decided upon, the analysis and interpretation of the data attempted, and the findings and conclusions that would emerge have been conceptualized in such a way as to be of perfect accord with the requirements of a descriptive research design.

3.4.0. STATEMENT OF THE PROBLEM

'Teacher innovativeness in Tamil Nadu' is the problem chosen for this study. This is an investigation of Innovativeness of various categories of teachers working in different institutions at the

School Education, Collegiate Education and Teacher Education levels in the State of Tamil Nadu.

This is a descriptive research for making an analytical study of teacher behaviour with regard to innovativeness.

This study is based on the perceptions of the teachers regarding their own behaviour patterns in the academic setting in responding to innovative ideas and practices, planned and proposed to be introduced in the curriculum at different stages of education.

The focus of the investigation is on innovativeness as a desirable teacher behaviour possessed by the teaching community of Tamil Nadu.

3.5.0. SIGNIFICANCE OF THE STUDY

This study of Teacher innovativeness in Tamil Nadu is significant and quite relevant to the present context. This may generate thoughts on the need for evolving and adopting means and measures for providing favourable academic situation to innovative teachers. Further, this may lead to the evolution of a progressive curriculum both at school and higher education levels.

Besides, a study of this type may provide an inducement to teachers to be responsive to innovative practice facilitating, in the long run, the on-going effort towards teacher behaviour modification for teacher effectiveness.

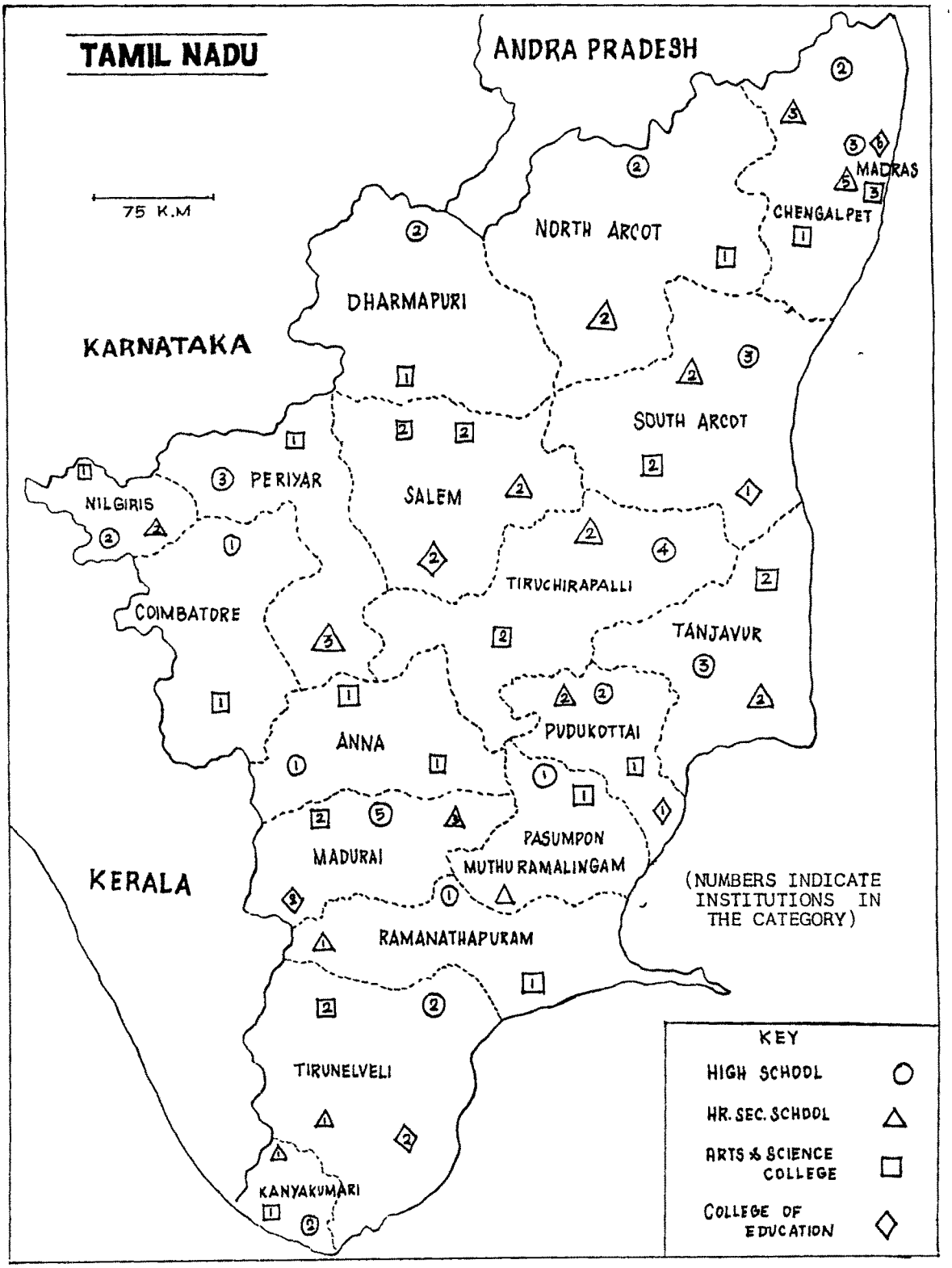
Further, an investigation into the innovativeness of teachers may prove to be an impetus to the efforts for reforms in education since it is quite relevant in a context in which the teaching community has to be in the vanguard in the country's march towards the next century deriving the maximum benefit from science and technology for progress and prosperity. This may in its own humble way help teacher effectiveness at various levels.

3.6.0. DEFINITION OF TERMS

The following definitions are given as an explicit expression of clarity in conceptualization of the terms used in the title of the problem chosen for the investigation.

3.6.1. TEACHER INNOVATIVENESS:

This denotes behaviour characteristics of School and College teachers in academic settings, as revealed by their own perceptions with regard to expressed statements on 'Debatable Changes in Education,'


TAMIL NADU
ANDRA PRADESH
75 K.M
MADRAS
CHENGALPET
NORTH ARCOT
DHARMAPURI
KARNATAKA
SOUTH ARCOT
PERIYAR
NILGIRIS
SALEM
TIRUCHIRAPALLI
COIMBATORE
TANJAVUR
PUDUKOTTAI
ANNA
MADURAI
PASUMPON MUTHU RAMALINGAM
KERALA
RAMANATHAPURAM
TIRUNELVELI
KANYAKUMARI
(NUMBERS INDICATE INSTITUTIONS IN THE CATEGORY)
KEY
HIGH SCHOOL
HR. SEC. SCHOOL
ARTS & SCIENCE COLLEGE
COLLEGE OF EDUCATION

'Process of Change in Education,' and 'Values and Opinions in Education.'

3.6.2. TAMIL NADU

Tamil Nadu is the southern most State in India. It has a land area of 1,30,058 Sq.K.M. and a population of 4,84,08,077 (1981). There are ten Universities, 188 Colleges for general education, 83 Colleges for professional education (out of which 24 are Colleges of Education), 19 Colleges for Special Education, 37,989 Schools for general education (of these about 1,500 are Higher Secondary Schools and another 1,500 High Schools), 87 Schools for professional education, and 85 Schools for Special Education. The literacy rate is 46.7% and All India being 36.3% (1981)

3.7.0. AIMS AND OBJECTIVES OF THE STUDY

The present study has been undertaken with the following aims and objectives:

TO INVESTIGATE

1. the extent to which the teachers in Tamil Nadu possess innovativeness,
2. the innovativeness of teachers in respect of a major variable - 'Sex' i.e. men vs. women,

3. 'age' difference of teachers and innovativeness,
4. teacher innovativeness and the 'experience' of the teachers,
5. 'professional qualifications' of teachers and innovativeness,
6. 'educational qualifications' of teachers and innovativeness,
7. 'mobility' of teachers and innovativeness,
8. 'experience' as teacher educators and innovativeness,
9. 'inservice training' and teacher innovativeness
10. 'reading of research studies' of teachers and innovativeness,
11. 'satisfaction in teaching' and innovativeness,
12. the three dimensions of teacher innovativeness such as

I) DEBATABLE CHANGES IN EDUCATION

1. Individualization
2. Curriculum Organization
3. Teaching Learning Process
4. Teaching Resources
5. Internal School Organization
6. Staff development
7. School Community Relationship

II) PROCESS OF CHANGE IN EDUCATION.

1. Administrative Support
2. Staff norms
3. System norms
4. Complexity
5. Compatability
6. Riskness
7. Localiteness
8. Cosmopoliteness

III) VALUES AND OPINIONS IN EDUCATION

1. Traditionalism
2. Progressivism
3. Dogmatism
4. Venturesomeness
5. Conservatism
6. Change Proneness

with regard to the teachers serving in

(a) High Schools (b) Higher Secondary Schools

(c) Arts and Science Colleges, and

(d) Colleges of Education.

13. the innovativeness of men teachers and that of women teachers in respect of all the twenty one components as classified above and to find out the dominant component or components of teacher innovativeness.

14. the correlation between 'teacher innovativeness' and 'teacher morale'.

3.8.0. HYPOTHESES FORMULATED

> After a problem has been identified, certain answers and solutions in the form of hypotheses may be formulated. These hunches, educated guesses, or speculations may be based upon past experience, informal observation, or information gained from others
>
> Hypotheses provide direction to research. They sensitize the investigation to certain aspects of the situation which are relevant from the standpoint of the problem on hand. They act as a framework for the conclusions
>
> A hypothesis serves as a powerful beacon that lights the way for the research worker

Having the above mentioned factors in view, the following hypotheses have been formulated.

1. By and large, teachers of Tamil Nadu possess high innovativeness.

2. There is a significant difference between the Men and Women teachers in their innovativeness, and men teachers are significantly higher than women teachers in innovativeness.

3. Elderly teachers (those aged 35 and above) are significantly higher than younger teachers (those aged below 35 years) with regard to innovativeness.

4. The more experienced teachers (those with experience of 5 years and more) are significantly higher than less experienced teachers (those with experience of less than 5 years) in innovativeness.

5. Teachers with professional training are significantly higher than teachers with no such professional training in innovativeness.

6. Teachers with higher educational qualifications (those possessing Post Graduate degrees and Research Degrees) are significantly higher in innovativeness than teachers with lesser educational qualifications (with graduation only).

7. Teachers who have served in different places and institutions (those with mobility) are significantly higher than those who continue to serve in the same place and institutions

(those without mobility) in their innovativeness.

8. Teachers having experience as teacher educators are significantly higher than those having no such experience, in their innovativeness.

9. Teachers who have undergone inservice training are significantly higher in innovativeness than those teachers who have not undergone such inservice training.

10. Teachers who have read research studies are significantly higher in innovativeness than those teachers who have not read such research studies.

11. Teachers who consider teaching as satisfying are significantly higher in innovativeness than those teachers who do not consider teaching as satisfying.

12. Teachers serving in Arts and Science Colleges are significantly higher in innovativeness than the teachers serving in High Schools, Higher Secondary Schools, and Colleges of Education, in respect of all the three dimensions of 'Teacher Innovativeness' namely (a) 'Debatable Changes in Education', (b) 'Process of Change in Education', and (c)'Values and Opinions in Education'.

13. Men teachers are significantly higher than women teachers in all the 21 components of 'Teacher Innovativeness.'

14. There is positive high correlation between 'Teacher Innovativeness' and 'Teacher Morale.'

3.9.0. THE TOOL

For the purpose of the present investigation two tools have been carefully selected and those were evolved and standardised by research scholars at CASE, M.S. University of Baroda. The first tool on 'Teacher Innovativeness' was developed and standardised by Panchal and the second tool on 'Teacher Morale' was constructed and standardised by Dekthawala.

The tool on 'Teacher Innovativeness' comprises 150 items and the tool on 'Teacher Morale' consists of 100 items.

There are three major dimensions in the first tool, Dimension I - 'Debatable Changes in Education,' Dimension II - 'Process of Change in Education,' and Dimension III - 'Values and Opinions in Education' having thirty, sixty, and sixty items respectively.

Each of these dimensions - contains varying numbers of components. There are seven components in Dimension I 'Debatable Changes in Education'. They are--(1) Individualization (2) Curriculum Organization (3) Teaching-Learning Process (4) Teaching Resources (5) Internal School Organization (6) Staff Development and (7) School Community Relationship.

In Dimension II, - 'Process of change in Education' there are eight components. They are: (1) Administrative Support (2) Staff Norms (3) System Norms (4) Complexity (5) Compatibility (6) Riskness (7) Localiteness and (8) Cosmopoliteness.

Dimension III - 'Values and Opinions in Education' contains six components, namely -- (1) Traditionalism (2) Progressivism (3) Dogmatism (4) Venturesomeness (5) Conservatism and (6) Change Proneness.

The second tool on "Teacher Morale" comprises five components. They are - (1) Individual Characteristics (2) Behavioural Characteristics (3) Group Spirit (4) Attitude towards Job, and (5) Community Involvement.

In the first tool a six point scale while in the second tool a five point scale were used, presenting 150 and 100 items respectively, ranging from a strongly agreed position to a strongly disagreed position.

The 21 components of 'Teacher Innovativeness' and the 5 components of 'Teacher Morale' classified as the four dimensionsof the tools are presented in the annexure.

3.10.0. DESCRIPTION OF THE COMPONENTS OF THE TOOL ON "TEACHER INNOVATIVENESS"

3.10.1. DEBATABLE CHANGES IN EDUCATION

(1) Individualization: This denotes a tendency to follow the inclination and interests of the self as well as to be different from others (Carter V. Good 1973). Again it involves the organisation of instructional materials in a manner that will permit each student to progress in accordance with his own abilities and interests.

(2) Curriculum Organization: This is the systematic precedure of developing a suitable curriculum for a particular school or school system, involving the organization of working groups under expert direction, the choice of general and specific aims of instruction, the selection of appropriate curricular materials, methods of instruction and means of evaluation, the preparation of official courses of study, and improvement of the existing educational programme (Carter V. Good).

(3) Teaching Learning Process: This refers to the management of the teaching-learning situations including (a) direct interaction between the teacher and the learner (b) the pre-active decision making process of planning, designing and preparing the materials for the teaching-learning conditions and (c) post-active redirection (evaluation, re-design and dissemination).

(4) Teaching-Resources: This is a broadly inclusive term signifying any material or any means used by a teacher to promote, stimulate or motivate learning; for example, text books, visual aids, models, projects, drills, reviews, outlines, discussions etc.

(5) Internal School Organization: This means the structure, frame work or arrangement of the school system within which the teachers, pupils, heads of institutions, supervisers and others operate to carry on instructional activities with a view to introduce more flexibility and less of rigidity for improving the quality of instruction.

(6) Staff Development: This involves plan and procedure of instructional strategies based on specific aims and purposes for enhancing teacher potential. This has to be implemented by staff members chosen for their ability to perform the operations that contribute

towards the realization of the purposes.

(7) School Community Relationship: This refers to the means and methods adopted for enlisting the active co-operation of the community by organising parent teacher associations; arousing community involvement and developing liason between teacher and parent. The objective is to utilise the community for improving the educational programme.

3.10.2. DIMENSION II - PROCESS OF CHANGE IN EDUCATION:

(1) Administrative Support: Innovativeness is facilitated by situational characteristics. The process of change depends upon the nature of the structure and other characteristics of the school and also the administrative machinery. Teachers are innovative if they receive enough support from the administrative system. It is this support that helps to develop the teachers' ability to accept new challenges and experiences. Such forces as the nature of teacher-principal relationship, norms and standards for professional behaviour and the organisational climate of the school system appear to be quite relevant (Miller 1977).

(2) Staff Norms: These are the teachers' perceptions of the change related systems of behaviour and the value systems of their colleagues. These are

the facilitating factors for specific standards of performances based on the co-operation and approval of colleagues constitute staff norms. Teacher innovativeness is the outcome of teacher's competence arising from intersection with other individuals in the professional group.

(3) System Norms: Education does not develop in isolation; it is part and parcel of our social system, it is a sub-system. If the system changes, the sub-system also has to change. The persons working in the system become innovative when they are influenced by personal as well as social system variables. System norms and values exert a significant influence on Innovativeness in Teachers.

(4) Complexity: Complexity is the degree in which an innovation is perceived by individuals as difficult to understand and use. Some innovations are readily understood by most members of a social system, other innovations are not and will be adopted more slowly (Rogers and Shoemaker 1971).

(5) Compatibility: Compatibility is the degree to which an innovation is perceived as consistent with the existing values, past experiences and needs of the receivers. An innovation may be compatible (i) with socio-cultural values and beliefs (ii) with previously

introduced ideas and (iii) with client needs of innovations (Rogers and Shoemaker 1971).

(6) Riskness: This refers to the risk that the adopter has to undergo while adopting innovative practice. Adopter may be ready to adopt the innovation inspite of the risk involved or may not be ready to do so depending on his temperament or the personality traits. Everybody will look for his security and safety.

(7) Localiteness: Localiteness is the extent to which the adopter of innovation sticks to his local system rather than looking beyond it. It generalised that cosmopolite channels are relatively more important than localite channels for earlier adopter than for later adopters (Rogers and Shoemaker 1971).

(8) Cosmopoliteness: Cosmopoliteness is considered to be the degree to which an individual's orientation is external to a particular social system. Pedagogically innovative teacher turns out to have worked in several different school system (Miles 1964); (Rogers Shoemaker 1971). It has been found repeatedly that greater personal innovativeness is associated with cosmopoliteness, which is the result of experience in more than one social system (Miles 1962). Cosmopolite people more than localites are the champions of change.

3.10.3. DIMENSION III - VALUES AND OPINIONS IN EDUCATION:

(1) Traditionalism: Traditionalism of the system refers to the extent of having traditional norms. A School social system with the modern norms is more change-oriented, technologically-developed, scientific, rational, cosmopolite and emphatic. A traditional system embodies the opposite characteristics (Rogers and Shoemaker 1971).

(2) Progressivism: Progressivism is the characteristic of a person who always looks for his progress. The progressive school always looks for new ideas leading to further progress, to go ahead rather than retard or retreat. The progressive teachers always look for the personal professional progress and the progress of the school. For this desire to be fulfilled, they always try to adopt innovations. Progressivism is a value for them.

(3) Dogmatism: Dogmatism is a variable representing a relatively closed belief system, a set of beliefs that are strongly held. The highly dogmatic persons would not welcome new ideas; they prefer to bow to the past in a closed manner (Rogers and Shoemaker 1971). This is a negative trait of innovativeness.

(4) Venturesomeness: Venturesomeness is the characteristic of the person that leads him towards taking initiative in doing new things, always ready to carve new path. Persons with high venturesomeness are highly innovative. In other words, venturesomeness and innovativeness go hand in hand.

(5) Conservatism: Conservative people are not prone to change; they stick to already established norms; Conservatives are found to be pessimists, while radicals are found to be optimists. High degree of conservatism creates obstacles for innovativeness. Conservativeness and innovativeness seem to be inversely related.

(6) Change Proneness: Change Proneness refers to the attitude of the person towards change. It is generally found that the persons who are prone to change are prone to innovation also. Innovativeness and change-proneness are closely-related behaviour systems.

3.11.0. DESCRIPTION OF THE COMPONENTS OF THE TOOL ON "TEACHER MORALE"

(1) Individual Characteristics: These refer to the teacher's personal involvement and interest in teaching, his commitment to the profession, his self contentment, confidence, zeal and enthusiasm, sense of

fulfilment, sincerety, professional status and satisfaction.

(2) Behavioural Characteristics: Teacher behaviour comprises different characteristics. The teachers' dealings with his students, work and duty, his discipline and conduct, his adjustment with colleagues and his superiors, his willingness and readiness to offer all kinds of assistance to the students, his involvement in society and social service activities, his interest in in-service education for professional growth, his co-operation with colleagues, his observance of rules and regulations, his initiative in co-curricular activities, and his contribution to the improvement of the organisational set up and functions of institution - all constitute these behavioural characteristics.

(3) Group Spirit: This involves the teacher's social awareness, active participation in group life, favourable attitude towards parents and public comrederie, co-operative endeavour, keen interest in the welfare and well being of fellow teachers, consideration for others, sustained effort in attaining goals of institution, mutual assistance, ability in arriving at amicable settlement, making positive contribution towards the maintenance of wholesome atmosphere for academic and administrative progress, and the quality

of leadership as well as fellowship.

(4) Attitude towards Job: This implies teacher's favourableness towards the teaching profession, gratification, willingness to serve the institution and help the students, steadfastness, perseverance, sustained interest in instruction unmindful of the impediments, job satisfaction, contentment with salary, acceptance of the work load, becoming one with the profession, keen interest in curriculum construction and reforms, making full use of educational technology, making continuous preparations for the profession, readiness to shoulder responsibility etc. These are the qualities that constitute teacher's attitude towards the job.

(5) Community Involvement: Teacher morale consists of community involvement also. Teacher establishing rapport with community, enlisting the co-operation of parents and public in implementing better programmes of education, earning the esteem of everybody, organising parent-teacher association activities, fulfilling the expectations of parents in the education of their wards etc., are the traits of the teacher as far as Community Involvement is concerned.

3.12.0. PILOT STUDY

The two tools used in this study are standardised tools. However, to find out their suitability to the sample to which they have been put to use in the present study, it was decided to establish the reliability of these tools.

According to Garrette, a tool is reliable when we have reasons for believing the score to be stable and trustworthy. Of the four popular methods used for determining reliability, namely, (i) Test-Retest Method, (ii) Parallel Form Method, (iii) Split Half Method, and (iv) the method of 'Rational Equivalence,' the Split Half Method was applied to compute the reliability co-efficient of the pilot study data.

Hence, a pilot study was conducted with 90 teachers, belonging to different categories of respondents and the reliability co-efficient as well as index of reliability worked out by means of a Product Moment Correlation as propounded by Karl Pearson. The reliability co-efficient was found to be 0.94 for the tool on Innovativeness and 0.96 for the tool on Morale from which it could be concluded that the tools possess high reliability.

3.13.0. THE SAMPLE

The first essential in sampling is the identification of the population to be represented in the study. However, since it is not possible to deal with the whole target population, one must identify that portion of the population to which one can have access. This is called the accessible population and it is from this that the researcher will take the sample for the study (Donald Ary and Lucy Jacobs 1972).

For this study, the sample chosen comprises 1,000 teachers - men and women. These teachers were drawn from High Schools, Higher Secondary Schools, Arts and Science Colleges as well as Colleges of Education in the State of Tamil Nadu.

To make the sample a fully representative one of the population of the teaching community, stratified randomized sampling technique was applied.

The teachers belonging to four strata, namely High Schools, Higher Secondary Schools, Arts and Science Colleges, and Colleges of Education were chosen at random giving due representation to all the districts

of the State.

Care was taken to include in the sample, teachers of different categories - men as well as women, the elder teachers as well as the younger teachers, those with more teaching experience and those with less experience serving in High Schools, Higher Secondary Schools, and Arts and Science Colleges as well as Colleges of Education.

The following table presents the details regarding the institutions and the number of teachers who constitute the sample for the study:

TABLE 3.1

TABLE SHOWING THE INSTITUTION-WISE DISTRIBUTION OF THE SAMPLE

S. No.	Description	Number of institutions	Number of teachers	Percentage
1.	Teachers of High Schools	43	291	29.2
2.	Teachers of Higher Secondary Schools	32	284	28.4
3.	Teachers of Arts and Science Colleges	24	281	28.0
4.	Teachers of Colleges of Education	14	144	14.4
		113	1000	100.0

3.14.0. COLLECTION OF DATA

A competent investigator determines in advance precisely what data are relevant to his study and in what forms he should collect his data to facilitate processing and analysing them. An investigator should select the simplest, cheapest and speediest system of data collection that is readily available and meets his needs. (Van Dalen 1973)

The data for this research had to be collected by arousing or eliciting proper responses of the teachers so as to make them express the innovativeness possessed by them. The printed copies of the tools were administered to the various categories of teachers chosen as the sample for the study.

As far as possible, the investigator made it a point to personally contact the teachers, serving in various types of institutions in Tamil Nadu and administered the tool on them.

In the case of some, the mailing system had to be adopted. It is heartening to note that many teachers working at the school level as well as at the collegiate level were prompt in sending back the filled-in copies of the tools.

The teachers were requested to respond to all the 250 items of the tools and many a teacher responded to all the items of the tools and helped a lot in the systematic collection of data for the study.

The table that follows presents the details regarding the collection of data.

TABLE 3.2.

TABLE SHOWING THE STRATA-WISE DISTRIBUTION AND COLLECTION OF THE TOOLS ADMINISTERED

S. No.	Description	Total Distributed	Collected
1.	High Schools	350	291
2.	Higher Secondary Schools	300	284
3.	Arts and Science Colleges	300	281
4.	Colleges of Education	150	144
	Total	1100	1000

3.15.0 THE VARIABLES:

The identification of the major groups of variables is relatively simple for the researcher who is familiar with the significant element of the educational process. The list of possible specific variables is all but endless, and it is in the process of winnowing those down to those which will be seriously treated that experience and knowledge in the problem area become of paramount importance. (David J Fox 1969).

The following variables were decided upon for the purposes of analysis of the data leading to relevant interpretations that would facilitate the emerging of significant findings.

The ten personal variables chosen for the analysis of data are: -- 1) Sex (Male teachers vs. Female teachers) (2) Age (higher age group teachers vs. lower age group teachers) (3) Teaching experience (more experienced teachers vs. less experienced teachers) (4) Professional qualification (teachers possessing B.Ed. or M.Ed. vs. those without such qualification) (5) Academic qualifications (teachers with higher academic qualifications vs. those with low academic qualification) (6) Mobility (those who have served

in different places vs. those serving in the same place) (7) Professional experience (those who have served in teacher education institutions vs. those who have not served in such institutions) (8) In-service training (those who have undergone in-service training vs. those who have had no in-service training) (9) Reading habit (those who read books, journals etc. on research and education vs. those who do not read them) (10) Satisfaction in teaching (those having very satisfying vs. those having not very satisfying).

TABLE 3.3

THE TABLE SHOWING THE PERSONAL VARIABLES SELECTED FOR THE STUDY OF THE RESPONDENTS IN THE SAMPLE

1.	Sex	Male teachers	Female teachers
2.	Age	Below 35 years	35 years and above
3.	Teaching experience	Those having less than five years	Those having five years and above
4.	Professional qualification	Trained Teachers (those having B.Ed./M.Ed.degree)	Untrained teachers (those not having B.Ed/M.Ed.)
5.	Academic qualification	Those with Research Degrees M.Phil., M.Ed., Ph.D.	Those without Research Degrees
6.	Mobility	Those who have served in different places	Those serving in the same place
7.	Professional experience	Those who have served in teacher education institutions	Those who have not served in any such institution
8.	Inservice Training	Those who had inservice training	Those who had no in-service training
9.	Reading habit	Those who read books, periodicals journals, etc. on Research and education	Those who do not read them
10.	Satisfaction in teaching	Teachers who are very satisfied	Teachers who are not very satisfied

3.16.0. THE SCORING PROCEDURE

As an essential procedure the quantification of the data obtained by means of responses to all the items of the tools had to be done following a specific scoring procedure. It is evident that the items would arouse responses ranging from the most agreeable to the most disagreeable positions depending upon the perceptions of the respondents.

All the items of Section I of the tool on "Teacher Innovativeness." With a six-point rating scale have scale values assigned to each of the responses. There are positive as well as negative statements. All positive statements are scored from the maximum - 'strongly agree' to 'strongly disagree' as 6, 5, 4, 3, 2 and 1. In the case of the negative statements, the process is reversed.

Similar procedure is followed with regard to Section II the tool on "teacher Morale" which has a five point scale, the positive as well as negative statements scored as stated above, the former as 5, 4, 3, 2, 1 and the latter in the reverse order.

The total score value for Section I would be 150 x 6 = 900 and that for Section II would be 100 x 5 = 500, making a grand total of 1,400.

For each dimension as well as the components of the tool, the total score value had to be computed considering the values of the items classified under each. For the entire variable-wise analysis of the data also, the same scoring procedure was applied.

3.17.0. THE SCHEME OF ANALYSIS AND INTERPRETATION OF THE DATA:

The following statistical techniques as given by Garrette (Statistics in Psychology and Education 1981) were employed to analyse the data collected;

(1) Mean and Standard Deviation were calculated for the entire data to determine the extent of Teacher Innovativeness in Tamil Nadu. For computing the statistical measures the entire data as such were used, but with regard to teacher innovativeness of the entire sample the scores were converted into percentages since it was required to find out the correlation between teacher innovativeness and teacher morale.

For the purpose of variablewise analysis the scores as such were utilised,

hence the difference in the mean values in Table No.4.1 and subsequent tables.

(2) The 't' value was computed to find out the significance of difference, for all the ten personal variables selected for the study in respect of all the twenty six components classified under four dimensions.

(3) The 't' ratio was applied in the case of the innovativeness of the four categories of teachers - high school teachers, higher secondary school teachers, Arts and Science College teachers, and teacher educators serving in Colleges of Education.

The data collected had been processed and subjected to statistical treatment at the Computer Centre of the Indian Institute of Technology, Madras.

The analysis as well as interpretation of the data applying the above mentioned statistical measures have been presented in the Chapter that follows.

3.18.0. CONCLUSION

The chapter on methodology of the study presents a descriptive account of the plan and procedure adopted for making a study of Teacher Innovativeness in Tamil Nadu. The type of research decided upon the tools selected, the data collected, the hypotheses formulated, the variables for analysis and interpretation of data, as well as the scheme planned have all helped much in conducting this investigation with as clear conceptualization as possible.

Tho' much is taken, much abides;

Made weak by time and fate, but strong in will

To strive, to serve, to find, and not to yield.

ULYSSES