CHAPTER IV

METHODOLOGY

4.1 RESEARCH DESIGN

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4.4 DATA COLLECTION

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4.6 STATISTICAL TECHNIQUES
Methodology is the description of procedures or techniques adopted in a research study or investigation. This chapter deals with the methodology followed in ‘A Comparative Study of the Service and Working Conditions of Teachers in Government and Private Unaided Schools in South Kerala’.

4.1 Research Design

This research design is both survey and descriptive. Multi stage stratified random sampling was employed. This study combined quantitative and qualitative methods (Tashakkori & Teddlie, 2003) for collecting, analyzing and “mixing” both quantitative and qualitative data at all the stages of the research process to understand the research problem more completely. Mixed methods through combination of quantitative and qualitative methods complement each other and enable better analysis of the research problem.

This study will use one of the most popular mixed methods\(^4\) designs in educational research: sequential explanatory mixed methods design, consisting of two distinct phases (Creswell, 2002, 2003; Creswell et al., 2003). In the first phase (quantitative), through a broad survey the numeric data is collected using a questionnaire and the data will be subjected to a statistical analysis to generalize the results. In the second phase (qualitative), focus is placed on open ended interviews and case study

\(^4\) Mixed methods research process model (Onwuegbuzie, 2004) comprises eight distinct steps: (1) determine the research question; (2) determine whether a mixed design is appropriate; (3) select the mixed-method or mixed-model research design; (4) collect the data; (5) analyze the data; (6) interpret the data; (7) legitimate the data; and (8) draw conclusions (if warranted) and write the final report. These steps are displayed in Figure 3. Although mixed re-search starts with a purpose and one or more research questions, the rest of the steps can vary in order (i.e., they are not necessarily linear or unidirectional), and even the question and/or purpose can be revised when needed.
approach to collect views from participants, documents etc. which are not available in the (quantitative) first stage. Mixed method employs both open and closed ended questions for data collection as well as statistical and text analysis for data analysis.

The rationale for this approach is that while the quantitative data and results provide a general picture of the research problem, the qualitative data and its analysis will refine and explain those statistical results by exploring participants’ views in depth.

The quantitative and qualitative methods are integrated while selecting the participants for case study analysis and developing the interview questions for the qualitative phase based on the results of the statistical tests in the quantitative phase. The results of the two phases will be also integrated during the discussion of the outcomes of the whole study.

4.2 Population and Sampling

Population

Schools in south Kerala. However, for practical feasibility six districts of the state namely Trivandrum, Kollam, Pathanamthitta, Alapuzha, Kottayam and Idukki were focussed. The basic unit of the study was schools.

Sampling

The sampling design used for selecting the sample are simple random sampling and convenient sampling techniques. Accordingly the sampling procedure done is as follows: As furnished in the tables there are eighteen District Educational Offices (DEO) in the selected six southern districts of South Kerala. Considering the homogenous nature of the government
schools, one school each was selected from each DEO limit for convenience sake. Then from each of the government schools, one teacher each was selected from primary, secondary and higher secondary levels. Thus a total of 54 teachers were included in the Government Higher secondary school category.

Kerala, following the national trend, CBSE schools outnumber the ICSE schools. As of 2008-09, Kerala has 587 CBSE and 100 ICSE schools. So the investigator has selected CBSE schools to represent the unaided private schools category. Taking into account the heterogeneous nature of the service and working conditions of the CBSE schools, three schools were selected from each DEO. So 54 CBSE schools were selected and three teachers each were selected from each school – belonging to primary, secondary and higher secondary levels. Thus 162 teachers were selected from the primary CBSE schools. 74 schools, which is 25% of the schools were selected as sample for the study. As per the Selected Educational Statistics 2008-09, in the year 2008-09, the number of government higher secondary schools in Trivandrum district is 74, Kollam 55, Alapuzha 41, Pathanthitta is 26, Kottayam 37 and Idukki 25.

Sample size

Number of districts in South Kerala from Thiruvananthapuram to Idukki – six
District Educational Office’s (DEO) in the six districts -18
Number of government schools - 18
Number of government school teachers - 54
Number of private unaided schools - 54
Number of private unaided school teachers – 162
### Table 4.2.1
**Schools in the districts under study (2008-09)**

<table>
<thead>
<tr>
<th>District</th>
<th>Number of Government Higher Secondary Schools</th>
<th>Number of CBSE Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thiruvananthapuram</td>
<td>74</td>
<td>51</td>
</tr>
<tr>
<td>Kollam</td>
<td>55</td>
<td>30</td>
</tr>
<tr>
<td>Pathanamthitta</td>
<td>26</td>
<td>26</td>
</tr>
<tr>
<td>Alapuzha</td>
<td>41</td>
<td>42</td>
</tr>
<tr>
<td>Kottayam</td>
<td>37</td>
<td>48</td>
</tr>
<tr>
<td>Idukki</td>
<td>25</td>
<td>17</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>258</strong></td>
<td><strong>214</strong></td>
</tr>
</tbody>
</table>

*(Selected Educational Statistics 2008-09, 2010)*

### Table 4.2.2
**District Education Office and the districts under study (2008-09)**

<table>
<thead>
<tr>
<th>Number</th>
<th>District Educational Office</th>
<th>District</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Neyyattinkara</td>
<td>Thiruvananthapuram</td>
</tr>
<tr>
<td>2</td>
<td>Thiruvananthapuram</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Attinkal</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Kollam</td>
<td>Kollam</td>
</tr>
<tr>
<td>5</td>
<td>Kottarakara</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Punaloor</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Pathanamthitta</td>
<td>Pathanamthitta</td>
</tr>
<tr>
<td>8</td>
<td>Thiruvalla</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Mavelikara</td>
<td>Alapuzha</td>
</tr>
<tr>
<td>10</td>
<td>Alapuzha</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Cherthala</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Kuttanad</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Kottayam</td>
<td>Kottayam</td>
</tr>
<tr>
<td>14</td>
<td>Pala</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Kaduthuruthi</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Kanjirapalli</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Thodupuzha</td>
<td>Idukki</td>
</tr>
<tr>
<td>18</td>
<td>Kattapana</td>
<td></td>
</tr>
</tbody>
</table>

*(Selected Educational Statistics 2008-09, 2010)*
4.3 Tools used for data collection relevant to the study are:

1) Primary data: Interview schedule and questionnaire: administered to educationists, policy makers, political, religious and social leader.

2) Secondary data: Archival materials, deeds, charters, government orders, books, magazines, newspaper reports, journals etc.

The data obtained from the sample are scrutinised and only those found complete and correct was accepted. Scaling technique was employed to maximise the attitude of teacher towards working conditions and overall satisfaction.

4.4 Data Collection

Phase I Quantitative

For collecting quantitative data a structured questionnaire and semi-structured interview schedule were designed and administered to teachers in government and private unaided schools. The researcher got the consent from the participants, ensured confidentiality and the survey questionnaires were filled up in the presence of the researcher so that clarifications could be offered wherever necessary.

Some questions in the survey are open-ended with option - “Other (specify)” - to provide for additional information. A choice of “Not applicable” (NA) is included, when necessary.

The first, quantitative phase of the study focused on identifying the working and service conditions of teachers in government and private schools of South Kerala.

The primary technique used for collecting the quantitative data was a questionnaire, containing questions of different formats: multiple choice,
asking either for one option or all that apply, dichotomous answers like “Yes” and “No”, self-assessment items, measured on the 5-point Likert type,( strongly agree, agree, No opinion, disagree, strongly disagree) and open-ended questions.

Help from experts was used to ascertain the content validity of the survey tools. The questionnaire consists of twenty-four questions, which are organized into six sections or scales. The first section of the survey deals with demographic questions. They provide information regarding participants’ age, gender, employment, questions related to personal and familial details, name of respondent, age, name of school, nature of management, district and taluk in which school is situated, marital status, approximate monthly income of family, educational qualification, experience and nature of appointment.

**Phase II Qualitative**

In the second phase qualitative data required for the study was gathered through case studies\(^5\) method or design. In this phase origin of unionism in government schools and unaided CBSE schools of Kerala was studied and compared to gain sharper insight into the issue.

The primary technique used included conducting in-depth semi-structured interviews with teachers (primary, secondary and higher secondary), principals, school managers. Triangulation was used to ascertain the similarity of different data sources. Participants were asked to provide

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\(^5\) A case study (Stake, 1995) is a type of ethnographic design and is an exploration of a case over time, through detailed, in-depth data collection involving multiple sources of information and rich in context.
materials or physical artifacts that might have a relationship to their service and working conditions.

The participants were then briefed to obtain information on the interview questions and their relevance to the study aim. They were given the interview questions prior to the scheduled calling time, and were informed that the interview would be transcribed.

4.5 Pilot study

To ascertain the nitty-gritty of the research problem a pilot study was conducted. For this a sample size of fifteen respondents were conveniently chosen from the districts of Kottayam and Thiruvananthapuram. The questionnaire and interview schedule were administered to them to ascertain the feasibility of the interview schedule and questionnaire. Based on the pilot study, redundancy in the questionnaire and interview schedule was avoided and deficiencies were rectified. The mode of meeting teachers and getting data was also chalked out for efficient time management.

Pilot study\(^6\) was used for ‘pre-testing’ the questionnaire. Thereby its feasibility was tested. It also helped in assessing the feasibility of a full-scale study establishing whether the sampling frame and technique are effective, identifying logistical problems, collecting preliminary data resources needed for a planned study, assessing the proposed data analysis techniques to uncover potential problems, developing a research question and research plan etc.

Care was taken by the researcher to avoid data contamination that may arise when data from the pilot study are included in the main results.

\(^6\) The term ‘pilot studies’ (Teijlingen & Hundley, 2001) refers to mini versions of a full-scale study (also called ‘feasibility’ studies), as well as the specific pre-testing of a particular research instrument such as a questionnaire or interview schedule.
Reliability and Validity

Reliability and Validity in quantitative research are very important for minimising errors that might arise from measurement problems in the research study. Reliability refers to the accuracy and precision of a measurement procedure.

Accordingly, the wording of the survey items was examined by experts in the field of administration and education. This has helped in assessing whether the survey questions were relevant, measured what it aimed to measure, and whether it was reasonably well-designed to gain the needed information.

Criterion-related validity, also referred to as instrumental or predictive validity, is used to demonstrate the accuracy of a measure or procedure by comparing it with another measure or procedure, which has been demonstrated to be valid. Hence, the self-designed survey questionnaire for this study was compared on the consistency of the results with existing instruments, measuring the same construct, service and working conditions of teachers in government and private unaided schools.

4.6 Statistical Techniques

Hypothesis test for the difference between two means

The test procedure, called the two-sample t-test or student t test, appropriate in this hypothesis test was used to locate the difference between two means.
Tenability of hypotheses

The two sample \( t \) test was used to compare the Private and Government School Teachers categorized on the basis of different variables under the study.

Test statistic. The test statistic is a t-score (t) defined by the following equation.

\[
t = \left[ \frac{(x_1 - x_2) - d}{SE} \right]
\]

where \( x_1 \) is the mean of sample 1, \( x_2 \) is the mean of sample 2, \( d \) is the hypothesized difference between population means, and \( SE \) is the standard error.

\[
SE = \frac{d}{\sqrt{N}}
\]

Where \( d \) = Standard Deviation

\( N = (\sum f) \) sum of frequencies

The Mean and Standard Deviation were estimated using the following formulae

\[
Mean = \bar{X} = \frac{\sum fx}{\sum f}
\]

Where

\( \bar{X} \) = the mean

\( f \) = number of occurrences

\( \Sigma fx \) = sum of products of \( fX \)

\( \Sigma f = \) the total number of occurrences

Standard Deviation (\( \sigma \)) = \[ \sqrt{\frac{\sum(X - \bar{X})^2}{n}} \]

Where \( x \) = each value in a population

\( \Sigma = \) sum of
\( X \) = each value in the data set

\( \overline{X} \) = mean of all values in the data set

\( n \) = number of values of the population

Analysis of data was done using Statistical package for social scientists (SPSS). Apart from this, descriptive statistics like percentage, mean and t-test analysis were also used in the analysis of data.