Chapter 3

METHOD
Research is the process of collecting and analyzing of information in a systematic way to find something (Saunders, Lewis, & Thornhill, 2007). Designing a method for a research work is an important step in the research process. The method adopted by a researcher determines the outcome of a research process. Therefore, before selecting a method, a researcher must thoroughly know all the details of research process. Saunders et al. (2009), explained the ‘research process’ through the concept of a ‘research onion’. The layers of the research onion related with the stages that a researcher must go through to get a research outcome. It consists of six layers or stages; and it includes-research philosophy, research approach, research strategy, research choices, time horizons and the data collection process (techniques and procedures).

Based on the research onion forwarded by Saunders et al. (2009), the research philosophy is the first stage of a research process. It is related with the development of knowledge and the nature of that knowledge which is ultimately depend on the research question the researcher is looking to answer. Development of knowledge will assist the researcher in adopting a better to approach their study. Usually, a researcher adopts either inductive or deductive approach in a research. Based on the approach that is selected, the researcher, further select a strategy for data collection such as, experiment, survey, case study, etc. Selection of one method (mono method) or different method in either qualitative or quantitative category (multi method) or integration of qualitative or quantitative method (mixed method) for data collection is a choice of the researcher. Before entering into the data collection, the researcher has to aware of time limitations and chooses either cross
sectional study or longitudinal study. The layers of research onion outline that; a researcher must go through all the five stages to get into the data collection process.

In the present study, the investigator has gone through all the above stages to get into the data collection process. The first chapter as well as the second chapter of the research manuscript briefly explains the literatures that is helped the investigator to develop ‘research philosophy’. Based on the existing literature, the investigator selected a deductive approach to study the organizational culture, work engagement, work stress and performance of industrial employees in Kerala. To get the information related with the variables under study, the investigator executed survey method/questionnaire method (mono-method) as the strategy for data collection. The present chapter discusses the details about the data collection process in this research by classifying it into four sections.

Section A- Participants

Section B- Instruments

Section C- Procedure

Section D- statistical techniques used.

The first section discusses about the characteristics of the participants involved in the study. The next section gives the details about the instruments used in the study for data gathering. The third section briefly explains the procedure followed by the investigator to collect data from the participants. The final section describes the statistical techniques used by the investigator to analysis the collected data. The details of each section are given below.
Section A: Participants

The research topic was to study organizational culture, work engagement, work stress and performance of the industrial employees in Kerala. Therefore, the participants of this study consist of 302 employees working in different industries located different part of Kerala state, India. The structure and products of selected industries are different, but the nature of work situation and functioning of the industries are similar. All the selected industries belong to public sector.

The investigator has given a special attention to get a population which represents the industrial employees of Kerala. Even though, all the industries are not from all the districts of Kerala, the employees working in the industries were coming from both native districts and neighboring districts. Hence, the investigator assumed that the participants selected for the study represent the industrial workers of Kerala to an extent. More details about the participants in the study were collected through background information schedule such as location of industries, religious affiliation of the participants, level of education etc., of the participants and are presented in separate tables. The details are discussed.

Location of the industries (zones)

Required number of participants was selected from different industries located at various parts of Kerala and they were categorized as northern Kerala, central Kerala and southern Kerala. Details of the participants based on the location of industries are presented in table 1.
Table 1

*Details of the participants based on location of the industries*

<table>
<thead>
<tr>
<th>Zones</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Kerala</td>
<td>164</td>
<td>54.3</td>
<td>54.3</td>
</tr>
<tr>
<td>Central Kerala</td>
<td>93</td>
<td>30.8</td>
<td>85.1</td>
</tr>
<tr>
<td>South Kerala</td>
<td>45</td>
<td>14.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>302</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

From table 1, it can be seen that among 302 participants, 164 (54.3%) were from Northern Kerala, 93 (30.8%) belongs to Central Kerala and 45 (14.9%) from southern Kerala. The number or percentage does not ensure that, these employees are actually from the locality of that industry, but may be from neighboring locality who came to work in that industry.

**Sex**

Sex of the participants was collected from the responses that were given in the background information schedule. The choice was to put a tick mark on the three choices- male, female and third gender. The details of the participants on the basis of collected information are presented in the table 2.

Table 2

*Details of the participants based on sex*

<table>
<thead>
<tr>
<th>Sex</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>266</td>
<td>88.1</td>
<td>88.1</td>
</tr>
<tr>
<td>Female</td>
<td>36</td>
<td>11.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>302</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

From table 2, it can be observed that among 302 participants, there were 266 (88.1%) male participants, and 36 (11.9%) female participants. Even though, the modern era witnessed a massive entry of women in work force, still men occupy a
major part in the working of industries. From table 2, it was also observed that, there were no one coming from third gender category, and was dominated by male and female employees.

**Religion**

Religious affiliation of the participants was also collected using background information schedule. Based on the religious affiliation, the participants were categorized into three groups and presented in the table 3.

<table>
<thead>
<tr>
<th>Religion</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hindu</td>
<td>122</td>
<td>40.4</td>
<td>40.4</td>
</tr>
<tr>
<td>Islam</td>
<td>169</td>
<td>56.0</td>
<td>96.4</td>
</tr>
<tr>
<td>Christian</td>
<td>11</td>
<td>3.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>302</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

From table 3, it can be seen that there were 122 (40.4%) participants belong to Hindu community, 169 (56.0%) were belong to Islam and 11 (3.6%) belong to Christian community. Kerala is a state, where Hindus and Muslims are majority and Christians are very less in number. This fact may be the reason behind the abnormal distribution of population in the study.

**Level of education**

Based on the level of education achieved by the participants, the total participants were categorized into three groups and presented in the table 4
Table 4

Details of the participants according to level of education

<table>
<thead>
<tr>
<th>Level of education</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSLC</td>
<td>212</td>
<td>70.2</td>
<td>70.2</td>
</tr>
<tr>
<td>Plus 2</td>
<td>52</td>
<td>17.2</td>
<td>87.4</td>
</tr>
<tr>
<td>Degree</td>
<td>38</td>
<td>12.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>302</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 4 shows that 212 (70.2%) were studied up to SSLC, 52 (17.2%) were gone to attend the higher education, specifically up to plus two and 38 (12.6%) were studied some professional courses or earned degree. It suggests that majority of the participants had some kind of basic education but they were not continued their education after SSLC.

Marital status

Based on the marital status of the participants, the sample was categorized into two groups, married and unmarried. The details of the categorization is presented in the table 5.

Table 5

Details of the participants based on marital status

<table>
<thead>
<tr>
<th>Marital status</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>263</td>
<td>87.1</td>
<td>87.1</td>
</tr>
<tr>
<td>Unmarried</td>
<td>39</td>
<td>12.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>302</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

From the table 5, it is observed that, there were 263 (87%) were married and 39 (12.9%) were unmarried. The number and percentage of the participants based on their marital status states that, most of the participants were married.
Union affiliation

The membership in trade union of the participants in the organization was also collected through the background information schedule. Based on the membership in a union, the participants were categorized into two groups and are presented in the table 6.

Table 6

<table>
<thead>
<tr>
<th>Membership in Union</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>296</td>
<td>98.0</td>
<td>98.0</td>
</tr>
<tr>
<td>No</td>
<td>6</td>
<td>2.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>302</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

The table 6 shows that, among 302 participants, 296 (98%) were affiliated to one of the union in the organization and only 6 (2%) participants were not affiliated to any of the union. The table states that most of the participants were engaged in some type of union activities in the organization and only a few employees were not involved in any type of union activities.

Section B: Instruments

This section describes the instruments that are used to gather information’s from the participants. The present study aimed to measure organizational culture, work engagement, work stress and performance of the employees working in different industries of Kerala. To get information about the selected variables, following four instruments were used.

1. Organizational Culture Inventory.
2. Utrecht Work Engagement Scale.
3. Work Stress Scale.

4. Performance Rating Scale.

5. Background information schedule.

Information regarding organizational culture, work engagement, work stress, performance of the employees and personal data were collected with the standardized instruments which are in regional language (Malayalam). The instructions related to marking of responses of each instruments was written in the regional language on the top of each instruments.

A brief description of the instruments used was given under each subheading of this section. In addition to this, reliability and validity of each instrument which ensures the quality of measurement used also mentioned in this section. In research, the term reliability refers to the "consistency" or "repeatability" of the tests or measurement instrument. The validity refers to the degree in which test or measurement instrument is truly measuring what we intended to measure.

**Organizational Culture Inventory**

Organizational Culture Inventory (OCI) is a 39-item instrument developed by George and Jayan (2010) which is designed to understand an organization’s culture. The OCI consist of six vital dimensions like organizational glue (6 items), organizational leadership (5 items), organizational mission (7 items), organizational group (11 items), organizational adaptability (6 items) and organizational autonomy (4 items) which make the organizational culture. The authors claim that, these dimensions of organizational culture are related with values and beliefs of the organization that help or hinder the performance of the organization.
Among the dimensions of organizational culture, organizational glue is related with loyalty, mutual trust, innovation, confidentiality, commitment, etc., which work as glue that bond the organization together. So, items in this dimension explored the extent of bond in the organization (Eg- ‘The focus of our institution is on human development and high trust’). The second dimension- organizational leadership explored the nature of leaders in the organization. The items in this section was related with the qualities of leaders such as coordination ability, facilitating capacity, nurturing personality etc. (Eg- ‘The leadership in our organization means to be creative and do serve as a role model’). The items of organizational mission dimension dealt opportunities for human development in the organization like vision, openness, motivation etc. which give meaning and direction to the work of an employee. (Eg- ‘Our institution has a clear vision that gives meaning and direction to its work’). The dimension- organizational group emphasize on the patterns of relationship at work place. Therefore, items in this factor related with the characteristics of an effective group such as involvement, reward, celebration of personal accomplishment etc. (Eg- ‘For me, the work group in which I participate is the best’). The items in the dimension- organizational adaptability related with the items such as innovation, thinking, career advancement etc., which make the employee adaptable to the work environment. (Eg- ‘All the sections of the institutions try out innovative ways of solving problems’). The sixth dimension- organizational autonomy was dealt with innovation, freedom, self-expression and self-sufficiency which are related with autonomy of the employee in the organization (Eg- ‘People at all levels of institution have the freedom to express their views’).
Scoring

The response category correspond to the items of the instrument used to assess the nature of organizational culture was ranged from strongly agree to strongly disagree. Scores for the responses are 5, 4, 3, 2 and 1 respectively for strongly agree, agree, undecided, disagree and strongly disagree. All the items in the instrument are positively worded.

As the scale have six dimensions, the scores for each dimension to be scored. The dimensions organizational glue (1-6 items), organizational leadership (7-11 items), organizational mission (12-18 items), organizational group (19-29 items), organizational adaptability (30-35 items) and organizational autonomy (36-39) to be scored separately. The sum of the scores for all the items in the scale or sum of the scores of each dimension of scale constitutes the total score on the organizational culture inventory. The maximum score for the inventory is 195 and the minimum score is 39.

The reliability and validity

The reliability coefficient of the organizational culture inventory is 0.802 and the content validity score of organizational culture inventory is 0.945. The reliability and validity of the scale ensures the measurement quality of the tool.

A copy of the Organizational Culture Inventory is appended as Appendix- I.

Utrecht Work Engagement Scale

Utrecht work engagement scale (UWES) developed by Schaufeli and his colleagues (2002) was used to measure work engagement of employees. This scale consists of 17 items with three dimensions- vigor (6 items), dedication (5 items) and absorption (6 items). The authors claim that, the work engagement (work-related
state of mind) of an individual employee can be assessed by measuring the vigor, dedication, and absorption of that employee towards work.

The work engagement dimension - vigor is related with energy level of employee in his or her work. Therefore, items in this dimension explored the mental resilience, the readiness of the employee etc which contribute to the vigor of the employees (Eg- “At my work, I feel bursting with energy”). The second dimension of work engagement is dedication which is characterized by a strong involvement of the individual in their work. So, the items in this section explored the feelings of enthusiasm, a sense of pride and inspiration etc, which is symbol of dedication (Eg “I am proud on the work that I do”). The third dimension - absorption which is related with the fascination of an employee towards his or her work. The items of this dimension try to measure how the employee is absorbed to their work (Eg- “I am immersed in my work”).

**Scoring**

Work engagement of the employee is rated on a seven- point frequency ranged from ‘never’ to ‘always’. Scores were given as 0, 1, 2, 3, 4, 5 and 6 respectively for the responses- never, almost never (a few times a year or less), rarely (once a month or less), sometimes (a few times a month), often (once a week), very often (a few times a week) and always (every day). All items in the scale are positively worded.

Score for each dimension of work engagement can be obtained by adding the scores of each statement in the vigor (items- 1, 4, 8, 12, 15 and 17), dedication (items- 2, 5, 7, 10 and 13) and absorption (items- 3, 6, 9, 11, 14 and 16) dimensions. The total score obtained by adding each statement or by adding the total of three
dimensions constituted the total work engagement score. The range for total score is from zero to 102 and the higher scores indicating higher engagement or lower scores indicating lower engagement.

**Reliability and validity**

The reliability of the scale established through the method of Cronbach Alpha and was found to be 0.92. The authors claim that, the scale has reasonable construct validity.

A copy of the Utrecht Work Engagement Scale is appended as Appendix – II.

**Work Stress Scale**

Work stress scale (G) is a five point Likert scale developed by Sarath and Manikandan (2018). This is a one-dimensional scale specifically developed to estimate an individual employee’s general stress in the work place with a limited number of items. The items included both positive items and negative items to measure the stress of individual employees at work place. The negatively worded items are 16 and 21, and the remaining items are positively worded.

**Scoring**

Work stress of the employee measured on a five-point frequency ranged from ‘never’ to ‘always’. As the scale consists of both positive and negative items, the scoring pattern is different for positive and negative items. A negative item is scored as follows: For a ‘never’ response score 1 is assigned and rarely =2, sometimes =3, often =4 and always = 5. The positive items are reverse scored. Sum total of the scores of all items is an index of the individual employee’s General work
stress in which the high score indicate high stress and low score indicate low stress to the employee u=in the work place.

**Reliability and validity**

Reliability of work stress scale was established by calculating the internal consistency Cronbach Alpha which is found to be .91. The authors claim reasonable face validity to the scale.

A copy of the Work Stress Scale is appended as Appendix – III.

**Performance Rating Scale**

Performance Rating Scale developed by Jayan and Dharmangadhan (1995) to measure the performance of employees. It consist of two rating scales - (Performance rating scale I and Performance rating scale II). Performance rating scale I included self-rating (absolute and relative rating) and coworker rating (absolute and relative rating). Performance rating scale II included supervisor rating. As a whole, the performance rating scale consist of five scales with one statement each to rate the performance of employees viz.,

i. Self-rating (absolute rating)

ii. Self-rating (relative rating)

iii. Rating by coworker (absolute rating)

iv. Rating by coworker (relative rating)

v. Supervisor rating

‘Self-rating’ is the rating of the participant about his/her performance in the organization. ‘Rating by co-worker’ is the rating about the performance of the participant done by the participant’s colleague. Both the self-rating and co-worker rating includes two dimensions- absolute and relative rating. Here, the ‘absolute
rating’ indicates the rating based on first perception about the performance of the participant. ‘Relative rating’ indicates the rating made by the participant and co-worker by comparing the participant’s performance with others in the organization.

**Scoring**

Each scale is scored separately for subjects/self-rating, co-workers rating and his/her supervisors rating. Each scale constituted seven point scale ranging from 1 (least efficiency) to 7 (high efficiency). The performance of an individual is the average of the scores obtained in the above ratings.

A copy of the Performance rating scale (Self-rating, Co-worker rating and Supervisor rating) is appended as Appendix – IV.

**Background information Schedule**

Along with the research instruments, background information schedule is also administered to the participants to gather personal information about the participants. Through the background information schedule sex, experience, level of education, religious affiliation etc., of the participants was collected.

A copy of the Background Information Schedule is appended as Appendix – V.

**Section C: Procedure**

The investigator contacted the authority of selected organizations and requested for an appointment. After getting an appointment, the investigator met the authority formally and explained the importance, purpose and application of the research work. Then the investigator fixed a convenient date to collect data from the organization and informed the authority. The investigator reached the organizations on the fixed date, and met the supervisor in charge of work schedule. With the
assistants of supervisor in charge, investigator contacted the employees in the organization personally and met them separately.

Investigator established a good rapport with the employees and explained the importance of research work undergoing. After getting consent from the employees, all the standardized instruments along with background information schedule were given to the employees individually and requested them to respond to the instruments. They were assured that, the given information will only use for research purpose and will protect their privacy. All the doubts related with the instruments were cleared.

After responding to the instruments, the instruments were collected back and checked for omissions and errors. The scoring of each scale was done as per the instructions in the manual. Then the scored data was entered into a spread sheet for further statistical analysis.

Section D: Statistical analysis

To verify the hypothesis, appropriate statistical techniques were used. Statistical Package for the Social Sciences (SPSS) was used to execute the statistical techniques like descriptive statistics, Pearson product moment correlation, Regression analysis and Analysis of Variance (ANOVA).

Descriptive statistics

In any type of research, nature of the data determines the quality of a research work done. Understanding about the nature of distribution of the variable, a preliminary analysis like fundamental descriptive statistics is important. Descriptive statistics summarize the nature of sample selected for the study.
All descriptive statistics are either measures of central tendency or measures of variability (spread). Measures of central tendency describe the center position of a distribution for a data which include the mean, median, and mode. Measures of variability help in analyzing how data is spread-out which include the standard deviation, kurtosis and skewness.

**Correlation**

The measurement of the degree of relationship between variables is called correlation. When two variables move together, it is said that, they are correlated. Pearson product moment correlation (r) is used to know the extent of relation between two variables. In Pearson correlation, a correlation coefficient is a single number that states the relationship between two variables.

Generally correlational coefficient or ‘r’ value ‘ranges from -1 to +1. A negative value indicates a negative relation between the selected variables, i.e., when X decreases Y increases. A positive value indicates a positive relation between the variables, i.e., when X increases as Y also increases. The absolute value of the correlation coefficient measures the strength of the relationship between two variables.

**Regression Analysis**

Like Correlation, Regression is also used to analyze the relation between two variables. In addition to this, regression also helps the researcher to predict the influence of independent variables on dependent variables. More precisely, regression analysis helps to understand how the dependent variable change based on the changes in any one of the independent variable, while the other independent variables are held fixed.
In its simplest (bivariate) form, regression shows the relationship between one independent variable and a dependent variable. When researcher want to predict the value of a dependent variable based on the value of independent variable, the linear regression is used. If the regression analysis consists of two or more independent variables, rather than just one, multiple regression analysis is used in the analysis. Multiple regression also helps a researcher to predict relative contribution of each of the independent variables on dependent variable.

In a regression analysis, a dependent variable-the variable we want to predict, also known as the outcome, target or criterion variable. The independent variables which are used to predict are known as the predictor, explanatory or regressor variables. Beta (standard regression coefficient), B (partial regression coefficient), R and R square were the certain terms that is used in regression analysis to explain the result. Beta value explains how strongly the predictor variable influences the dependent variable. B is the contribution of predictor variable in determining the dependent variable. R value indicates the correlation between the observed value and predicted value. R square denotes states the proportion of variance in the dependent variable.

**Analysis of Variance (ANOVA)**

ANOVA is a collection of statistical models used for research purpose which was introduced by Ronald Fischer. Usually, the ‘t’ test compare the means of two groups; more than two groups may lead to errors. But, ANOVA reduces those errors of ‘t’ tests, when the variable consists of more than two independent groups. One-way ANOVA is the most common used model to determine whether there are any
statistically significant differences between among the means of three or more independent groups of one dependent variable/factor.

Models like two-way ANOVA, three-way ANOVA, etc., is an extension of one way ANOVA. The difference is in the number of independent variables in the analysis. In addition to the main effect of each independent variable on a single dependent variable, these models also help the researcher to find out the interaction between them. The additional information on group differences also obtained by using post hoc tests (follow up analysis) like Least Significant Difference (LSD), Scheffe’s test, Duncan’s Multiple Range test, Tukey’s HSD test etc.